BBC IDEAS – TRANSCRIPTS

This document includes transcripts for all films published by BBC Ideas up to 11 January 2020 and is to be read in conjunction with News-watch's survey of the strand[1]. The transcripts follow the same order as the A-Z List available on the BBC Ideas website[2] (as opposed to strict alphabetical order), and are numbered sequentially to facilitate cross-referencing between this document and the main survey.

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[1] https://news-watch.co.uk/monitoring-projects-and-reports/
[2] https://www.bbc.co.uk/ideas/videos

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1. A brief (and ghoulish) history of Vampires

Where did we get the idea of vampires from? How did it spread? Leading vampirologist Prof Nick Groom shares the bloody tale.

Made by Somethin' Else, 30 October 2018

PROFESSOR NICK GROOM: The A to Z of isms… vampirism. What is vampirism? The dictionary definition is that it refers to the habits and characteristics of vampires. You might think that that means rising from the dead to prowl through the night while wrapped in a voluminous black cloak, possessing long, sharp canine teeth with which to bite the next victims and suck their blood. But modern vampires are less likely to be found in graveyards than in books and films such as the *Twilight* series or in *Buffy the Vampire Slayer*. When the term first emerged, though, things were rather different. Vampires were first discovered in the early 18th century at the borders of Austria-Hungary. Reports of witches, ghosts and various demons sucking human blood go back to earliest times. But it was not until 1725 that vampires first appeared in a report written by an Army medical officer on the activities of Serbian soldiers. Over the course of eight days in that year, in the village of Kisilova, nine people had been strangled and then had their blood sucked. The man believed responsible, had been dead and buried for 10 weeks, but he had apparently risen from the grave to do so. The soldiers dug up his corpse and found it to be quite fresh with blood in its mouth. They drove a stake through his heart and cremated the body. It was the first reported case of vampirism. A newspaper in Vienna carried the report and the phenomenon spread. Within in a few years, vampirism seemed to be rife in Eastern Europe. The emperor sent teams of military surgeons to investigate and perform autopsies. They found that the cases were remarkably consistent. Dozens of articles and books were published on the subject by medical researchers and vampires became a hot topic of debate in the Enlightenments. Vampirism was a recognised condition, attested by large numbers of witnesses and had characteristic signs of symptoms such as corpses having fresh blood running through their veins. Some researchers put the appearances down to mass trauma and delusion, some to diet or accidental drug use, causing hallucinations, some to unusual chemicals in the earth affecting decomposition, some to highly contagious diseases. Others, however, argued that the phenomenon really was rampant and needed to be dealt with by the authorities. Theologians joined the fray, arguing that vampires were physical beings that proved the existence of an afterlife. Philosophers, meanwhile, were concerned as the widespread evidence supporting the existence of vampires cast the whole value of testimony and eyewitness verification into doubt. Having begun amongst Serbian villagers, vampirism now spread through European society as a way to describe politicians, landlords, businessmen and even theatre critics. It was as if vampires were moving up the social scale. It was not until a century had passed that the aspiring writer, Dr John Polidori wrote the first vampire tale in English. He made the vampire an aristocrat and paved the way for Bram Stoker's classic novel *Dracula*, published 78 years later. It is to Polidori and Stoker – and dozens of Victorian vampire tales – that we owe the fanged and stylish creature familiar to us today. But

remember that vampirism was first investigated by doctors, government officials and philosophers. It therefore has much to teach us about what it is and is not to be human. About how far we are simply flesh and bone and blood. About exploitation and bleeding others dry, and how we should treat those who, despite appearances, maybe not like us at all.

2. A brief (but delayed) history of commuting

Sick of your daily commute? Rail commuting used to be magical and marvellous.

Animated by Peter Caires, 12 April 2019

Made in association with The Science and Industry Museum

NARRATOR: If you're watching this on your daily commute, you'd be forgiven for feeling less than enthusiastic about trains. But as hard as it is to imagine, before the advent of commuter rail people faced a lot more peril than indefinite delays, expensive fares and getting to know the intimate notes of strangers' body odours. The world's first purpose-built passenger railway opened in 1830 and ran between Liverpool and Manchester. Prior to that, if you wanted to travel between the two you would either have to spend 12 hours meandering along the canals, which wasn't so bad if you were willing to shut your eyes and pretend you were in Venice, or you could risk a three hour bone-jolting stagecoach ride down narrow, winding roads and keeping everything crossed that you wouldn't crash! The new trains reached speeds of up to 35mph. While some thrill seeking passengers treated the experience like a day at Alton Towers, others were terrified by the speed. An early passenger, Charles Young, said: "In less than five minutes off, we went like a shot from a gun. No sooner did we come to a field than it was a mile behind us" Nobody tell Charles about the Shanghai maglev, which with speeds of up to 267.8mph, is the fastest train in the world. It's hard to imagine how impressive this new invention was to early adopters. Actress Fanny Kemble described the romanticism of it: "You can't imagine how strange it seemed to be journeying on thus. Without any visible cause of progress other than the magical machine with its flying white breath and rhythmical, unvarying pace." You might find it comforting that one thing that hasn't changed is that the railway company underestimated the demand for their magical machine. Having budgeted for a daily quota of 250 passengers, the railway regularly found itself carrying more than four times that many. One thing us modern commuters should perhaps be grateful for, although first class passengers on the early trains had covered carriages, everyone else was exposed to the elements. At least now we all get a roof! We can also count ourselves lucky to have official stops and platforms. At first, stops were by request but that quickly became inconvenient. You can probably guess why. And with no raised platforms, passengers boarded the train at track level. Definitely not a risk you'd take today. While the rail network wasn't and still isn't perfect, it's easy to forget just how revolutionary it actually was. The easy journey between Manchester and Liverpool meant people could more effectively meet and do business, had new opportunities for leisure and maybe even to find love. Knowledge and ideas could also be communicated more quickly than ever before,

with the transportation of newspapers and mail. As the rail network grew, more accurate time-keeping was needed to keep travellers on track. Clocks around the country were synchronised and standardised, and railway time ruled. This ensured that six o'clock in Oxford was the same as in Crewe and Barrow. So whether you love or hate rail travel, there's no denying that life in the UK today would be unimaginable without it. And the next time you've got your nose in someone's armpit, think back to a time when commuter rail was an exciting, magical and even terrifying new technology. You might just see it in a whole new light.

3. A brief history of bombs

As artist Ai Weiwei's latest work - on the human impact of bombs - opens at Imperial War Museum London, we explore the story of the bomb.

Published on 5 August 2020

Made in association with the Imperial War Museum

(Air raid siren sound – footage of people going into an air shelter, followed by drops falling from an aeroplane and then footage of them hitting the ground)

TEXT ON SCREEN: A brief history of bombs. Bombs are explosive weapons designed to inflict maximum damage. Although bombs have been around since the 11th Century, the first bombing raid didn't take place until 1911 in Libya. Some air raids occurred in World War One but aviation had not developed sufficiently for extensive aerial attacks. That changed in 1937 when the Spanish town of Guernica was bombed from the air by German and Italian planes, to devastating effect. The bombing caused international outrage – and was brought to life in a famous painting by Pablo Picasso. Bomb development accelerated hugely during World War Two. The German Luftwaffe deployed the SC250 extensively during the Blitz… While bombs known as blockbusters were favoured by the British.

SIR ARTHUR HARRIS- AKA "BOMBER HARRIS", BRITISH COMMANDER, WORLD WAR TWO: There are a lot of people who say that bombing can never win a war. Well, my answer to that is that it has never been tried yet.

TEXT ON SCREEN: Bombs were viewed as the most efficient way to inflict damage on the enemy. During the Blitz alone, around 29,000 tonnes of bombs were dropped. 43,500 people were killed. On the German side, it's estimated that around, 800,000 German civilians were killed by Allied bombs during the course of the war.

JOYCE FAYE, BLITZ SURVIVOR, INTERVIEWED IN 1989: It was very frightening, for years I had nightmares about it. I used to wake up dreaming I was being smothered by something dark and black and soft.

TEXT ON SCREEN: Bombs changed landscapes. The British city of Coventry was pulverised… and the German Dresden was absolute decimated – with almost 4,000 tonnes of bombs dropped on the city over three days. The Dresden attack remains controversial - 25,000 people were killed, many of them women and children.

MASHA DAVIES, DRESDEN SURVIVOR,1985: It was really quite like one expects hell in a way.

TEXT ON SCREEN: World War Two also saw the US, the Soviet Union and Germany race to create an atomic bomb. The scientific brilliance behind its creation… was tempered by the utter devastation it was capable of causing. When the US dropped nuclear bombs on the Japanese cities of Hiroshima and Nagasaki in 1945… …more than 120,000 people died immediately. And tens of thousands died later as a result of the radiation.

THEODORE VAN KIRK, CREW MEMBER: None of us could visualise beforehand, what it would be like.

THOMAS TAKASHI TANEMORI, HIROSHIMA SURVIVOR: When the flash crossed the sky it was pure white… In the early days after the bombing, people expected I would die.

TEXT ON SCREEN: Whether these horrific bombs sped up the end of World War Two is still disputed. But there's no doubt the spectre of nuclear warfare haunted the globe for decades. Movements like the Campaign For Nuclear Disarmament (CND) took off in the 1960s.

JOAN RUDDOCK, CND CHAIRPERSON, 1982: But the fact is with nuclear weapons in a heavily populated island like Britain, we are all at risk equally.

TEXT ON SCREEN: Although nuclear weapons haven't been used in war since 1945, their development continues. Some contemporary nuclear warheads are 300 times more powerful than the bomb dropped on Hiroshima. And it's not just nuclear bombs that have wreaked havoc on the world. The Southeast Asian country of Laos has the dubious accolade of being the most heavily bombed country on Earth relative to the size of its population. The US flew more than 580,000 bombing missions over Laos during the Vietnam war.

NEWS REPORT: "Two million tons of bombs were dropped, half a ton per head of population."

TEXT ON SCREEN: And crude bombs can deliver devastating results. The homemade nail bombs detonated in Soho and other parts of London in 1999 killed three people. And of course, there is the horror of suicide bombing. In modern warfare, drone strikes are less perilous for the attacker... But no less dangerous for those under bombardment.

CLIP FROM PANORAMA, THE SECRET DRONE WAR 2012:You can never tell with a drone, sometimes little children also get hit.

TEXT ON SCREEN: This year, the celebrated artist Ai Weiwei hosts an exhibition at the Imperial War Museum - The History of Bombs. It's part of the museum's Refugees season… and aims to put the human experience at the heart of the story of the bomb.

4. A brief history of celebrity

Have we always had celebrities? And how are our ideas of celebrity changing? A brief cultural history of celebrity.

Made by Jono Namara, 24 March 2020

MITZY AKAHA, *Actor*: It's much easier now to gain fame. But it's harder to last!

TYNE O'CONNELL, *Author and Historian*: You know, I want to be famous like the Kardashians, who are famous for just being famous.

TOM PAYNE, *Author 'Fame'*: from the Bronze Age to Britney: Fame, in its earliest forms, is some sense that human beings need something beyond themselves. So they almost invented gods as a way of explaining what happened next. And if there are gods, there's going to be contact with gods - some people are going to be closer to them than others.

TO: The word celebrity itself in the 1400s still meant the celebration of the sacred.

PROF CHRIS ROJEK, Sociologist, City, University of London: The period where the nature of fame changed from people attributing god-like qualities to it, was when Charles I was executed. Something big had changed. And part of that is this sense of self-making that becomes prominent at this period - the idea that you don't have to be rich, you do not have to be an aristocrat, to be a person of fame. We begin to enter into a situation where the people become celebrities.

JOHN COOPER, *Author*, *'Oscar Wilde on Dress'*: He represents the cult of personality that we now know today. Oscar really was a nascent celebrity. His philosophy of life was that the point of life is self-realisation, just as the point of art is self-expression. You have to bring out what is inside you.

CR: The famous people in the 1880s were politicians, scientists, doctors, writers. By 1920, it was singers, sportsmen, actors. And the reason for that is the invention of film, which gives you the illusion of being in touch with somebody and close to them and forming bonds with them, without ever meeting them.

CLAUDIA KALB, *Author 'Inside the Minds of History's Great Celebrities'*: Warhol was at the time, in the 60s, creating this real buzz around him and creating this iconic figure that people flocked to. And he certainly influenced the people and the scene around New York City. And you could think about that today with people who really influence the social scene today - whether it might be somebody like Kim Kardashian, and the followers that she has, who want to look like her physically. There's a draw to wanting to be that figure, and wanting to be that famous. Think about Warhol right now in this era that we live in with everybody taking selfies and these images of themselves, and thinking back to Warhol when he filmed himself eating a hamburger. I mean, he was one of the pioneers of turning the camera on oneself.

CAMILLE TANOH, *Fashion designer/influencer*: Think about if Andy Warhol has an iPhone. That would be the best Instagram account to follow, right.

CR: Why so many people are attracted to celebrities is that we live in an age of profound anxiety. Part of that is wanting acceptance and approval in life. You want to be accepted by people, and you want to be approved by people. Who are the people that have paid most to be accepted and approved? Celebrities.

CT: Some people document their life, which means that they don't lie - they just have a camera rolling. And some people create their life, so they actually stage a picture. They actually stage an outfit. I think that this will be the difference between a good influencer and a bad influencer.

MERY RACAUCHI, *Musician/influencer*: You have to be real, because people will feel that whatever you're telling them to do, if it's not real and if he doesn't come from your heart and whatever you believe in, they know.

MADDY MOON, *Podcast host/influencer*: I strongly believe that the more you go into the pieces of you that most people would hide, the better of an influencer you are going to be. The more you're sharing things that people are like, "What? I'm that way too." That's when people get excited. That's when they want to follow you.

TOM: And it could just be that this smaller kind of fame - this idea of finding your niche or your tribe - people may come more or more to value smaller, individual acts of kindness and of love, and become celebrated for them.

5. A brief history of media panics

Believe it or not, there was a time when people worried about the addictiveness of novels, comic books and radio. Brendan Miller reports.

Made by Brendan Miller, 22 May 2020

BRENDAN MILLER: Are you worried you're addicted to your smartphone? If so, here's a little historical quiz: Can you guess what this quotation is referring to?

"Parents have become aware of a puzzling change in the behaviour patterns of their children … They cannot lock out this intruder because it has gained an invincible hold of their children."

BM: This quote isn't talking about smartphones, or even TV or computer games. Answer? It's actually from 1936 and it's talking about the radio. And how about this?

"One of the most serious, unreported, disabling, anti-social diseases in America today".

BM: Okay, so this quote is talking about phone addiction, but the phones in question are landlines. Remember them? Well, there was a time when people worried how addictive they were.

KIRSTEN DROTNER: We see today concern over social media. Before that it was the internet, then we had video nasties, television, radio, cinema…

BM: Meet Kirsten Drotner, Professor of Media Studies at the University of Southern Denmark . . .

KD: How many did I get to?

BM: . . . who's been writing about this topic for over 25 years.

KD: The name I coined for it is a "media panic". It's whenever a new medium arrives on the social scene and is taken up in a big way, then we see these very, very stark emotional reactions.

BM: According to Kirsten, when you look through history, one can see the same pattern of concern repeating itself - often even using the same language and metaphors. So today there's lots of talk of social media addiction, comparing it to drugs. But it's easy to forget that Pac-Man, pinball and television were described in the same way. Or reports talk of the addictive "dark side" of social media, echoing the way that computer games were described. Or, another example, social media is compared to opiates - the same language that was used to describe television and Nintendo. And the drugs metaphor goes further back. What do you think was described as the "marijuana of the nursery" because they were so addictive? The answer? Comic books... which by the middle of the 20th century had got people so worried about their addictiveness that there were bestsellers about the harm they were doing to young people, official inquiries, even public burnings. Okay last quote...

"Nothing but narcotics …, as destructive of real life and real living as cocaine"

BM: As destructive as cocaine? That would be the novel.

ANKHI MUKHERJEE: Novels were silly, novels were enervating, novels were the worst form of mental food, novels were narcotic, novels were addictive.

BM: This is Ankhi Mukherjee from the University of Oxford, and she's talking about a time when lots of people were genuinely worried about people reading.

AA: You had reviewers of children's literature writing in journals saying this is terrible for children - it's terrible for children to be given books.

FRANK FUREDI: It was feared they would become addicted.

BM: And this is Frank Furedi, who has written extensively about this phenomenon.

FRANK FUREDI: And pretty much in the same way that we see the social media today being responsible for uncivil behaviour and for a variety of sins, so too in the 18th Century the novel was the target of that kind of criticism. Novels were described as evil, as a vice, and blamed for violence. And yet today, if anything, people are

worried that young people are not reading enough novels. Whether it's radio, landlines, comic books or novels, we see a similar pattern.

KD: There's a kind of historical amnesia - that media for example, that 20 years ago were really, really, you know, the object of concern, then all of a sudden we don't hear very much about it.

BM: I think something that's helpful for thinking about media panics is the Gartner Hype Cycle, developed by a US company, and used to describe the way technologies are adopted by society. According to this theory, a new technology often has a moment of enthusiasm and high expectations, when it seems like it might be the solution to everything.

NEWSREADER: It's being called "The Twitter Revolution"...

BM: This is then followed by a crash - a period of disappointment and scepticism, before both hype and fear level off, and everyone basically calms down. But with media panics, while the concerns about each particular media might fade, the overall state of anxiety continues - as something new fills the gap. So why do media panics keep occurring? One straightforward explanation for media panics is that adults have a natural parental concern for the young, not remembering - because they were children at the time - that the generation before had similar worries about them. Another possible explanation is something called the "third person effect" which describes a tendency to believe that other people will be more effected by a media message than you are. This is how we can have no problem reconciling our own, pretty benign experiences with a media technology, with a belief that it will cause much greater harm to others.

FF: There's a very negative impoverished view of what human beings are in a lot of the discussion on the media. They are really, really too stupid, they're uneducated, they cannot deal with the complexities of everyday life, and therefore they become pretty much the prisoners of the media.

BM: A final theory is to do with something social scientists call "cultural capital". The idea is that along with economic capital and social capital, one thing that establishes your position in society is your knowledge about culture. And this is especially true for those most often most concerned about new media.

KD: To middle class people who can't fall back on landed property, they invest a lot in themselves in order to get on in society. They invest a lot in education, and operating according to the right cultural norms.

BM: But when new types of media come along... it threatens their investment in these old forms of cultural capital. So no wonder they react nervously.

KD: It's also a precarious investment because they live in a dynamic society, and modern society - through the 18th Century and on - is based on change.

NEWSREADER: Meantime some big investors now are calling on Apple to help fight what it considers an addiction to the iPhone...

BM: Currently there's a debate going on about smartphones and social media - with some scientists arguing there's evidence for harm, while many others are unconvinced. But while it makes sense to be cautious, knowing the history of media panics should help us keep some perspective.

KD: I'm also a parent and I'm also a grandparent and I'm also concerned, and I think it's fine to be concerned, because it's a kind of indication that you take responsibility. But I think there's a difference between being concerned and panicking, because if you panic, you can't think.

BM: We don't know what effect social media and smartphones will have long-term on our society. But what we do know is that, as long as we keep inventing new forms of media, the cycle of panic is likely to continue.

6. A brief history of memes

Memes are all about the internet, right? Well yes. But they're also about wider culture. How do they spread - and why?

Made by Polyphonic Films, 26 April 2019

DR SUSAN BLACKMORE, Psychologist: I remember first hearing the phrase internet meme and then being kind of annoyed because people very clearly thought that an internet meme was the only kind of meme there is.

CAPTION: A BRIEF HISTORY OF MEMES

TOM SHARP, Creative Director, The Beautiful Meme: We think about culture being eras, epochs or times within art, and so to actually talk about the discrete units that exist that are surrounding us all the time and how they evolve - that was super, super interesting.

REILLY, *Art director and meme artist*: All the time I was thinking, "God these brands are just going to tear me apart because of what I'm doing." But they're still in on the joke. And you have to be, and that's the thing. You can't be seen as going, "No, I don't want to be a part of this." This is the world we live in, this is it. This is what's going on around us.

INTERVIEWER: Do you send a lot of memes?

VOX POP 1 : I do yeah, constantly. Rather than communicate, like yeah.

VOX POP 2 : That's how I communicate.

VOX POP 1 : And they can just say a lot more than one sentence as well, in some situations.

VOX POP 2 : True.

VOX POP 3: Yeah, a meme is a written... is a written joke, yeah, that's related to something that happens in real life.

DR ANASTASIA DENISOVA, *University of Westminster*: I think it also links with this ironic attitude to everything. Where you can just express your disdain, disappointment, a lack of trust in something. So that's why we call it a universal language. It brings you to this part of the internet collective, so you feel that a certain community gets you or maybe you're getting a certain community.

CAPTION: THE TERM 'MEME' WAS FIRST COINED BY BIOLOGIST RICHARD DAWKINS IN 1976, IN HIS BOOK THE SELFISH GENE.

TOM SHARP: I read The Selfish Gene, Richard Dawkins, back at university and I was really inspired by the idea that you could have these units of culture called a meme that spread from person to person. So Dawkins talked about religion being the ultimate meme - how you can have religion or the idea of God as such an infectious concept that you can't not think about it once you've heard it, but then as it passes from person to person, it evolves.

DR SUSAN BLACKMORE: To understand memes, you need to understand the concept of a replicator. That is information that is copied with variation and selection. So genes are a replicator, when animals mate or seeds grow and so on you have information that's copied with variations and huge selection pressure, so most of them die. This is what Darwin saw back in The Origin of Species in 1859. The same applies to memes. All the information that we put out all day long and all the books we read and the radio programs and TV things we watch and so on, they're competing for our attention. Most of them we forget, most of them nobody bothers to watch and the very few that succeed and get millions of people involved are the ones that we see all around us in the world. Same process is happening in biology with a different mechanism.

REILLY: First of all it got a bit of attention but it sort of sat there for a little bit and things and I was thinking, "Ah maybe they're not that funny". And then there was a fashion show in Paris, the Dior show. And at the time Celine Dion was superhype because she was over in Paris and everyone was just going crazy for her. And I saw this image of her with this Dior bag, so I put the Celine logo on top of it and faked it up to look like it was gold, posted it, went to bed, woke up in the morning to a complete tirade of messages on my phone. And Dior had reposted it and it just completely kicked off.

CAPTION: We need a name for the new replicator... I want a mono-syllable that sounds a bit like 'gene'-

RICHARD DAWKINS THE SELFISH GENE, 1976

TOM SHARP: When I think of memes I think of them as synonymous with the idea of creating bits of culture. And I think the best advertising and the best design and the best thinkers behind the best advertising, and best design, have always gone out to create bits of culture. And that's memetic. The fact that you've given people the

structure for them to find themselves in, they might not have called it memetic or called it memes.

DR SUSAN BLACKMORE: It's really important to understand what it means to say genes are selfish. Or replicators are selfish or memes are selfish. What it means is that they will get copied however and whenever they can, given the opportunity.

CAPTION: So who's in charge? Here's a big thought to wrap your head around...

DR SUSAN BLACKMORE: So when we think about the world of memes - internet memes or every other kind of memes - we think we're developing them, designing them, creating them for our own purposes, when a different way of looking at it is they are using us to get themselves ahead in the competition. And that way of looking at it shows you how very close to biology it is and how our role is not to be in charge and doing it for our own sake, it's all really happening for the sake of the memes themselves.

7. A brief history of psychedelic research

We take a look at psychedelics - from the accidental discovery of LSD in the 1930s, to research into whether they can help fight depression.

Published on 13 August 2018

This video was made by BBC Archive

CHRISTOPHER MAYHEW: I'll take the drug now.

CAPTION: Psychedelics have long been used for both recreational and spiritual reasons. From ayahuasca in South America, to hippies in San Francisco. In 1955, Christopher Mayhew, then an MP, took mescaline under the supervision of Dr Humphry Osmond. Dr Osmond was the man who first coined the term 'psychedelic'.

CM: I'm not so conscious, Humphry, of moving myself in space, but I'm extremely conscious . . . of moving in time. Of things having no succession and of there being no absolute time, no absolute space. It is simply what we impose on the outside world.

CAPTION: The BBC deemed the experiment 'invalid' and refused to screen it – but Mayhew himself had no regrets.

LORD MAYHEW *Speaking in 1986*: It was a real experience which happened outside time, and that is my view.

CAPTION: Psychedelics were accidentally created by Swiss scientist Albert Hofmann in 1938. He was trying to create a stimulant when he made synthesised lysergic acid diethylamide instead. The effects of LSD, or acid as it became known, vary, but include altered awareness and seeing things that aren't there. It can also cause anxiety, paranoia and delusions. In the 1950s and 1960s, the CIA secretly

administered LSD to hundreds of people including to soldiers, without their consent – having heard it was used on US POWs held in China and Korea. The army believed it had brainwashing capabilities. In 1960, psychologist Timothy Leary was fired by Harvard University for including students in his experiments with psychedelics. He coined the phrase 'Turn on, tune in, drop out' which became a counterculture mantra. In the same decade psychedelics were made illegal in the UK and the US. Fears had grown over their psychological and social impact. It effectively ended scientific study in this area. Psychedelics nonetheless reached the mainstream, with artists like Paul McCartney admitting recreational use.

INTERVIEWER: Paul, how often have you taken LSD?

PAUL McCARTNEY: Four times.

CAPTION: Some mushrooms contain the psychedelic ingredient psilocybin. In 2017 a small trial at Imperial College London tested psilocybin on 19 people with treatment-resistant depression. In the patients that responded to treatment, psychedelics appear to alleviate unhelpful psychological habits, enabling them to perceive things in a different way.

DR ROBIN CARHART-HARRIS *Imperial College London*: People were talking about feeling, you know, alive again and reconnected.

CAPTION: There were side effects – some patients experienced anxiety and struggled with repressed trauma. Researchers have stressed that it would be dangerous for people with depression to self-medicate with psilocybin. There is interest in testing psilocybin's potential to treat other conditions, such as alcoholism and opiate addiction. But getting funding for these areas of research is not easy.

RCH: People do harbour these suspicions about this treatment model, they hear about magic mushrooms, they hear about LSD and they think you know, scary, dangerous, what a crazy idea, you know? And in reality, I think, you know, history will show that actually it's crazy the way society is treating . . . has treated these . . . these compounds because they have such potential for good.

CAPTION: Still could, psychedelics become a mainstream treatment of the future? It's an interesting thought – one that will take further studies to determine.

8. A brief history of the nipple

From ancient Greece to the Free the Nipple protests - how the female breast has been portrayed through history.

Made by What Larks! and Sentio Space, 5 February 2018

NARRATOR: The breast is history. Ancient times, breasts were celebrated as an object of fertility, from Stone Age Germany to classical Greece and beyond. Sacred and worshipped. So how did we get from here to *here*? Music and aftershave. Perfume and weight loss supplements. Today, women's boobs are used to sell

everything. We are being bombarded by boobs and yet showing a nipple is still risqué. How did the most fetishised image in existence become one of the most policed? Back to those ancient Greeks. Antiquity. Naked men depicted as symbols of virility and power. The female body, meanwhile, often censored by a seductive drape. Horror stories were told about Amazonian women. They lived without husbands and shamelessly removed one breast to fire their bow and arrow in battle.

MALE VOICE: Scandalous.

N: Over time, female breasts became a moral issue. Men wrestled with their feelings towards the bosom. Boobs divide into two eternal stereotypes. The maternal Madonna or seductive temptress. From the Madonna del artes of the high renaissance, to Titian's lascivious *Venus of Urbino*. The idyllic mothers of the Dutch Republic to Rubens's full figured erotic nudes. And from Delacroix's iconic portrait of Liberty, the mother of France, to the frank gaze of Manet's *Olympia*, which scandalise 19th century Paris.

MALE VOICE: Ooh la, la.

N: But with mass consumerism, the image of the breastfeeding Madonna died out. Breasts were instead more sexualised than ever before, and the nipple became taboo. From the 60s onwards, some women fought back, determined to take ownership of their bodies and their boobs. In Yoko Ono's *Cut Piece*, art gallery visitors removed her clothes down to her bra with a pair of scissors, examining the passive role women's bodies have traditionally played in art. Carly Schneemann reinterpreted Olympia for the 60s. Cindy Sherman posed as a Madonna del arte with a fake plastic breast, responding to Renaissance images of the Virgin nursing. While Judy Chicago defies the commercial culture of youthful breasts with her work *Deflowered*.

MALE VOICE: Shocking.

N: Femen, No More Page Three and Free the Nipple campaigns have gone even further, calling to arms women around the world to take to the streets and rail against the objectification of a basic body part. So what does a world in which the breast is free look like? Is it a world where we can take our tops off when it's hot and not be shouted at, breastfeed in public without feeling weird? And once the breast is free, what happens to the women who already make money from their assets? Is it even possible for us to separate sex and the breast? For centuries, the female breast has been taboo. Just how free it becomes is up to you.

9. A child's guide to the curious world of adults

Adults are a funny bunch. Well-meaning, yes. But strange and embarrassing too, according to these primary school children.

Published on 26 October 2018

JOE: Adults and children sometimes have different ways of behaving and communicating.

ANNIYAH: And this is a guide to help you understand adults' complex . . .

J: but sometimes puzzling

A: behaviour . . .

TOGETHER: From a child's perspective.

VOICEOVER: A Child's guide to Adults Scene 191. Take one.

J: (*spying on adults from a bush, at school gates*) Right now, we are observing the adult species, dropping off their offspring at school.

A: Look, adults are being drawn to other adults and verbally socialising, oblivious to their offspring.

J: The other less common behaviour is where they distribute affection towards the child. Ooh, that can be embarrassing.

A: I feel bad for that child.

J: My advice towards adults to make them less embarrassing is probably don't do anything weird or funny in front of your friends, because that's like a major embarrassment thing for your child.

A: Don't act cool when you're really not cool.

J: (*to focus group of children*) What clues do you look for to judge an adult's mood?

UNNAMED GIRL: Well, when they're angry and they turn a bit, like, redder than when they're happy.

UNNAMED GIRL 2: I think sometimes you can tell, by the way they're sort of walking, because sometimes if they're happy, they'll sort of be walking, sometimes when they're angry mum just stomps around the house.

UNNAMED GIRL 3: Maybe when they're sad they'll be looking down, walking like a slug.

UNNAMED GIRL 4: I'm doing an impression of an irritated adult. 'Get out from under my feet, naughty.'

UNNAMED GIRL 5: I'm being a shocked adult. (*face of surprise*)

UNNAMED BOY: I'm doing an angry adult. 'Get to the room, go to the naughty step.'

A: What do you find embarrassing about adults?

UNNAMED GIRL 5: I find embarrassing about adults when they lick their finger, when you've got something on your face and they go . . . that's a good one.

UNNAMED BOY 2: I think it's embarrassing when they go, 'Oh, you've forgot . . . you've forgot your bag, honey.'

UNNAMED BOY 3: I find it embarrassing when they call you names like 'my sweetheart.'

J: So, like, what's the most embarrassing thing that an adult has done to me? Erm . . . probably . . . weird dance moves in front of my friends.

(*adults dancing in school hall*)

J: Now, we've discovered a strange species in our natural habitat. These so-called adults are making strange movements, which they call dancing.

A: As children, we know the majority of adults are kind and well-meaning and can sometimes be fun. We know we can learn from them, too.

J: Although maybe not their dancing.

10. A cultural history of teeth

A cultural history of teeth - from brushing with twigs and leaves, to teeth whitening and the search for the perfect smile.

Made by Flock London, 18 October 2019

NARRATOR: An average adult human mouth contains 32 teeth. The agreed definition of a tooth is a highly mineralised unit within the mouth. Thirty-two highly mineralised units, eight incisors, four canines, eight premolars and eight molars. Plus four wisdom teeth, which don't tend to make themselves known until about five years after the rest of the adult set are in place, because of course these 32 teeth are your second set. An average baby is born with both milk and adult teeth already in their head. A seven-year-old Indian boy was recently found to have 526 teeth inside his mouth. But let's stick to the more common number. 20 milk teeth, 32 adult, a total of 52. Fifty-two teeth, rarely visible when born but they're all there, in the skull. Waiting... waiting... to erupt! Thank goodness we can't remember teething. Consider if you will the brutality of these shards of enamel ripping through innocent gums. No wonder babies cry. Reward for this discomforting experience comes when that first set of baby teeth start to fall out, ready for the tooth fairy. The first recording of such a transaction with a fee being paid for a child's lost tooth is in 13th Century Norse culture. Vikings going into battle would wear necklaces made up of children's teeth. Not because it presumably looked utterly terrifying, but because they were considered lucky. In the UK, the most common price paid for a tooth is £1, although 11% of children apparently sleep soundly with a crisp fiver under their pillow - far less lumpy than a coin. Children in the Middle Ages were sometimes instructed to burn their baby teeth, or risk spending the afterlife searching for them... With such

historical scaremongering surrounding teeth, it is perhaps easier to understand why so many people now have a fear of dentists. Eighty-four per cent of all adults in the UK have at least one filling and the average Brit has seven. Of course fillings are just one dental procedure, your teeth may also be cleaned, flossed, capped or crowned, bonded, braced, sealed, whitened or extracted. But just remember, that going to the dentist today is far less precarious than it used to be. Before dentistry found acceptance as a medical profession, extraction was the domain of barbers and blacksmiths. Essentially, anyone with access to sharp tools or heavy pliers. As 19th Century dentists like Horace Wells and William Morton struggled to be considered professionals rather than tradesman, public demonstrations of painless tooth extractions became more and more commonplace. Some using nitrous oxide ended in a volunteer screaming in agony, but by 1846, dentistry had finally cracked anaesthesia. People attempt to please their dentists by brushing their teeth, a practice that has evolved from twigs and leaves, into a global toothpaste industry worth billions. Human teeth are now primarily used for biting off strips of sticky tape. But these highly mineralised rocks are also responsible for crushing, slicing and making manageable almost every meal or snack you'll ever enjoy. But we also use them to reflect our mood to others, be that a welcoming smile or an aggressive snarl. Contemporary teeth can be adorned with jewelled grilles or filtered to perfection on Instagram, but to think of the all-white uniform smile as perfect is a relatively recent obsession. Having a varied set of teeth is what allowed humans to survive and flourish across the globe. Our teeth have evolved to incorporate varying diets and environments, frankly, we're lucky to have them. Alligator teeth are considered particularly lucky. But if you're seeking dental inspiration, look no further than... sharks. Unlike us, sharks can afford to lose a few teeth as they're able to regenerate and replace them almost continuously. One great white shark can produce tens of thousands of teeth in their lifetime, which makes our 52 seem relatively... toothless.

11. A cultural history of the beard

Why do men have beards? It's a puzzle of evolution. Here's a celebration of beards - in all their shapes and sizes.

Made by Resource Productions, 2 July 2018

UNNAMED MAN: My moustache grew through when I was about 14 and then the rest of my beard eventually followed about five years later.

DR LYNDA BOOTHROYD *Psychology, University of Durham*: One of the puzzles of human evolution is why men in some populations have kept their facial hair, when we've lost the hair on the rest of our bodies. Now, normally, when we're trying to explain a trait that doesn't have any clear survival benefit., we ask whether it can help attract a mate. But actually, beards don't seem to be important to women in general.

CAPTION: Research is inconclusive, but suggests that having a beard does not make a man more attractive to women.

LB: What we do find is that beards can help men look more dominant. And that suggests it ties into male-male competition.

UNNAMED MAN 2: My beard makes me feel more masculine and it makes me want to take on the world and people respond to me in a very, very positive manner when I have a beard.

UM: I'm not sure it makes me feel more of a man. It makes me feel more like me.

UNNAMED MAN 3: It helped me feel, I'll say older or more closer to my age because I look quite young. And I think it helped me to look more of a mature adult.

LB: A light beard can exaggerate and emphasise the jaw line, which is a key feature of male facial masculinity. So a baby-faced man can make himself look older and more dominant by growing a beard. But there's evidence that a man with a highly masculinised, dominant looking bone structure can actually soften that and look more caring by growing a fuller beard.

CAPTION: Think beards are trendy now? Their real heyday was in the Victorian era, just as women were fighting for more power in society.

LB: The recent resurgence in Victorian ascetics is particularly interesting because it's been argued the Victorians were reacting to earlier fashions and the industrial revolution by asserting a very strong, natural form of masculinity, including full beards, as a sign of figure and strength.

UM2: I like my beard because it's smart. It's fashionable and trendy.

LB: Of course, beards can be subject to fashion, just like any fashion, there's scope for individual self-expression. So keeping your beard well-groomed and glossy, it may be styled in a particular way, just like polishing shoes or choosing particular clothes, can say something about who you are and what you want others to see.

UM3: Not so much, like, I wanted to grow my beard, it was mainly me being lazy. I just wake up, kind of wash it with a flannel and that's about it.

UM2: I've been wanting to grow a beard for a very long time and it complements my face.

LB: Facial and head hair can be used to mark out groups within a particular population. Now, different traditions had different specific rules, but what they all did was use hair as a way to mark themselves out as distinct and different. Now, today, people can still use their hair as a way of demonstrating their piety. Each tradition will have their own narrative about why keeping or shaving their hair is important. But what they all have in common is the use of hair to make a visible statement about group identity, about who they are and who they aren't.

UNNAMED MAN 4: I went to Hajj and I came back and for spiritual reasons, well, I decided to keep the beard. As the beard gets whiter, you get more wiser, it's a saying, you get more wisdom. I like the length and the colour and the way it waves in the wind. People love to complement my beard as well, so I'm really happy with it.

LB: Costly Signalling Theory is the principle that anything in nature which requires the investment of time or energy can be used to indicate an underlying strength. Now we can see this play out on the social level as well. Growing a long beard takes a considerable amount of time. Maintaining a beard requires time and effort, and that time spent can be used as a visible symbol of commitment to the group or to the ideology.

UNNAMED MAN 5: I don't do a great deal of maintenance on my beard. I often mean to, but because sometimes I garden, I forget and come home with a bird stuck in it. It almost changes my character. I feel like I am someone different. I feel more of a man. I feel older. It ages me. But I can at least pretend I'm wiser.

12. A few life lessons from Buddhism

A Buddhist guide to the cycle of birth, death and rebirth – and how to escape it.

Published on 1 December 2017

NARRATOR: 'What's wrong with me?' It might be your first reaction when something happens with friends or family or work. Chances are it's not you. It's the world you were born into, a world whose terms and conditions you never signed up to. Now that you're here, it helps to have a guide to the terrain and how to escape it. And that's exactly what this Tibetan Buddhist mandala, showing the wheel of life, is designed to give you. To look at this image is to look in the mirror, to see yourself and how and why you suffer the way you do. It's the same for everyone. We understand less than we'd like to admit, we're pig ignorant if we're being uncharitable. Our anger and our fear build so fast they can take us by surprise. Whipping and snapping like a snake. And we get proud like a rooster of people things in the world, we become hopelessly attached to them. Each of these habits feed off the others, like three animals, biting one another's tails. Bad news all round, it seems. But actually, it's not this mandala shows us that we live in the best of all possible worlds. In higher realms, the gods are distracted with pleasure. Those in the lower realms are overcome with pain. Our lives contain just the right balance of both, to help us see the bigger picture. But all of this, pleasure and pain, the cycle of birth, death and rebirth is forever changing and that escape is possible. The Buddha has done it. He is free of the cycle through his teachings. He shows us how we can do the same. It's a truth and a destination that can never be captured in words. Instead, the mandala pictures it as a far off moon and the Buddha points the way.

13. A hairy history of sideburns

The man who gave his name to the creeping facial whiskers which became a fashion phenomenon.

Made by Dayglow Media & Pencil & Pepper, 14 June 2019

NARRATOR: The story of the man who gave his name to sideburns.

CAPTION: EPONYMS something that is named after someone. Sideburns.

NARRATOR: “Sideburns” as we now call them, go back a long way. A mosaic from Pompeii depicts Alexander the Great with a pair. They were a sign of authority with the Hindu military class known as Kshatriya. And the Meiji warriors of 19th Century Japan. In Victorian England, they were called side whiskers and were worn by important gentleman like Prince Albert and Charles Darwin. Men with lavish facial hair were known as whiskerandos. The style had several nicknames, including Piccadilly weepers named after Piccadilly in London, where men sporting this kind of facial hair would hang out. And Dundrearies after Lord Dundreary, an exaggeratedly bewhiskered character in Our American Cousin, a popular play of 1858. It was this play that another man with distinctive whiskers was watching when he was assassinated... Abraham Lincoln. But the term we now use - sideburn - dates back to a rather unfortunate soldier of the American Civil War, General Ambrose Burnside. Whilst still a young man, he was left standing at the altar by his fiancée who ran out of the church crying...

CAPTION: No siree, I will not!

NARRATOR: Later, as a commander in the Union Army, Burnside’s military career was less than brilliant. He was considered ineffective at The Battle of Antietam and held responsible for the Union’s crushing defeat at Fredericksburg. And when he discovered that his former fiancée had become a Confederate spy, Burnside had her seized and kept under house arrest for months. Despite these setbacks, before his death in 1881, Burnside had become a household name. Not for his military service or misfortunes in love, but for his luxuriant facial hair. It was so striking that the name Burnside whiskers was used to refer to the combination of a moustache and side whiskers. In the British Army, side whiskers were always joined together by a moustache because until 1916, soldiers were banned from shaving their top lips. Eventually the syllables were reversed to give us sideburn. Very bushy sideburns that cover the cheeks are known as mutton chops because they look like a cut of meat. Sideburns were worn by rebellious Teddy Boys in the 1950s and favoured by movie stars and heavy rockers in the ‘60s and ‘70s. They were less popular during the clean shaven ‘80s, but have roared back into fashion with today’s hipsters. The Sides of March campaign recently encouraged men to grow sideburns to raise funds and awareness about male suicide. In 2015, a new catwalk trend emerged for women’s sideburns - the next phase in the never-ending pursuit of the hirsute.

14. A homeless person's guide to homelessness

Why do some homeless people have dogs? Two people with experience of homelessness answer some of the most searched questions online.

Made by ITN Productions, 16 December 2019

O: IVIA: Is it scary on the streets?

DAVE What is a question you wish people asked you?

[INTRO GRAPHIC: ASK US ANYTHING]

D: My name is Dave.

O: Hello, my name is Olivia.

D: A few years ago, I was homeless for a few months.

O: There are all sorts of questions floating around the internet…

D: So let's clear the air.

[INTRO GRAPHIC: "We put some of the most asked questions on the internet to our guests… // … the questions you'd love to know the answer to, but might be too embarrassed to ask…"]

[QUESTION GRAPHIC: HOW DO HOMELESS PEOPLE BECOME HOMELESS?]

D: It's through family issues, and you hear about people losing their accommodation.

[TEXT GRAPHIC: Dave was homeless for around three months. He now lives in a flat.]

O: I was made redundant from my carer's job, and my pay was frozen. So when you have a mortgage, council tax, all the utilities, travel and food on your own, it just piled on.

[INFO GRAPHIC: One in 200 people in the UK is either sleeping rough or in temporary accommodation. Source: Shelter]

D: Where do homeless people sleep? I used to sleep outside a church.

O: During the day, I've got a quiet bar that can be quite lenient. You do get some safe havens.

D: They sleep in doorways. Anywhere what's under cover.

O: On the bus. Park bench. In McDonald's. In a library, if you want safety.

[QUESTION GRAPHIC: IS IT SCARY ON THE STREETS?]

O: Yes.

D: Yes, I would say it's scary on the streets because especially when you don't know what's around the corner. I did have something thrown over me. I was hoping it was water at the time. I've heard of homeless people getting spat on or kicked. That's why I say to any homeless person, "Do not sleep outside a pub," because obviously people are coming out of there drunk.

O: Sadly, I personally found a person that had deceased at a bus stop. It was due to the heatwave that we had in July.

[INFO GRAPHIC: The average life expectancy for a homeless person is 44. Source: Crisis]

[QUESTION GRAPHIC: CAN HOMELESS PEOPLE GET JOBS?]

D: Obviously you need a bank account when you get a job for your money to be paid. No ID, no job. I've heard about one or two companies - they do give a chance to a homeless person. But it's very rare.

[QUESTION GRAPHIC: WHY DO HOMELESS PEOPLE HAVE DOGS?]

O: Companionship. The loyalty that the dog will bring. They will not turn on them or betray them, or run off with their last £5 note.

[QUESTION GRAPHIC: WHAT IS THE QUESTION YOU WISH PEOPLE ASKED YOU?]

O: I hope you feel OK. Just asking about, for me, your wellbeing. Or "What can I do to help you?" D: "How can we help?" Basically.

15. A love letter to Ceefax

Who doesn't like a bit of nostalgia? We remember Ceefax, the teletext service that gave us news and a whole lot more at our fingertips.

Published on 8 August 2018

This video was made by BBC Archive

ANNOUNCER: Ceefax part of the world of teletext, the latest in television technology.

CAPTION: Before people were fixated with their phones they were transfixed by TV.

FEMALE ANNOUNCER: But what exactly is Ceefax?

CAPTION: Launched in 1974 by the BBC, Ceefax was an information retrieval system which responded to the requests of the TV viewer through their remote control. It was basic, clunky and often excruciatingly slow. But many of the features of Ceefax are now part of the everyday functionality of the mobile phones that we rely on today. We now think of news as a 24/7 phenomenon with updates from

around the globe available constantly at our fingertips. But before the internet, how did people keep up to date with the news as it was happening?

UNNAMED MALE: I'll see what the Ceefax headlines are.

CAPTION: In 1974, a small BBC newsroom started experimenting with a new idea where stories could now be updated in real-time and were no longer bound to the TV schedule.

JOURNALIST: It's like having a separate edition of the newspaper every half hour.

CAPTION: Instead of notifications there were 'news flashes'. One of these erroneously announced the death of the Queen Mother. For the first time, viewers could actively choose which news they were served – even if it took the screen 30 seconds to load. The best way to keep up with football scores was to watch them unfold in real-time on Ceefax. QPR manager Bruch Rioch even found out he'd been sacked by reading it on Ceefax. Instead of the weather app, you could check the temperature via your TV. Years before dating apps, Ceefax was playing cupid with prospective partners.

BBC NEWS AT SIX *1979*: In a wine bar somewhere in romantic Ealing, a couple experienced the latest in electronic love poetry. The message broadcast on the Ceefax system is not for the shy. The Ceefax people were pleased with the response this year, with hundreds wanting to put their poems on screen.

CAPTION: Alongside the Filofax and the trusty pager, Ceefax was a personal organiser of sorts.

PRESENTER: And Michael Hayes's wife this particular evening was using Ceefax for supper. And we heard of others who use the alarm clock for telling them when to change channels and when to make important phone calls. But here, it means dinner's ready.

CAPTION: Ceefax and its Teletext rival were way ahead of their time. Features like booking holidays, online banking and even games became incorporated into other technology. As they themselves became extinct. Ceefax attracted an average of 20 million users to its pages every day at its peak and the Plain English Campaign once gave it a lifetime achievement award for clarity and use of everyday words. It was switched off for good in 2012.

WEATHERMAN: Remember these? Oh, it's the last day of Ceefax, I just thought I'd show you a summary of today's weather in all its glory as Ceefax is ending today.

16. A love letter to trees

Trees... they're amazing! It can be hard to put your finger on quite why, but here's a few reflections on the wonder of trees.

Made by Polyphonic Films, 17 April 2019

JELLY GREEN *Artist:* They kind of have their own story. Some of them have been there so much longer than we have been there and will be there, you know, outlive all of us. You lose that sense of time and you're suddenly surrounded by all these new smells and these sounds of the birds and the sounds of, you know, those branches when they the creak. It just, it's like a whole amazing thing for the senses. That's kind of what I'm trying . . . I'm trying to get that feeling of . . . sometimes that, you know, the mystery of it.

ZAFFAR KUNIAL *Poet:* Whenever I walk into a kind of woods, I always feel that I'm entering into a different pattern of time or something. It's like the that light is chopped up by the leaves, it feels like the moment itself is kind of chopped up a little bit. Lots of different moments are almost held within the envelope of that little forest in quite a magical way.

MAX ADAMS *Archaeologist*: It's actually quite hard to envisage an environment without trees and . . . and their habitats and what they mean and how they . . . how they behave. It's a rich, creative world. And I can't think that anybody's life is worse off for having trees in it.

UNNAMED MALE: Part of improving it for wildlife is an increased number of trees. Trees do quite useful things, don't they? Has anyone got any ideas what trees do?

RIANA ABBAS *Bolton Council of Mosques:* Well, we as Muslims believe we are custodians, caretakers of the earth. So we're hoping that by planting a tree, we will benefit the Earth and it will preserve it for future generations. If a Muslim plants a tree and a bird, an animal or a child benefits from it, then it will be classed as a charitable act. And it's an act that doesn't stop. It can carry on even till the hereafter.

ZK: I suppose I connect trees with memory, really. And with . . . with time and maybe even learning, learning about time, you know, A is for Apple. A is for Acorn, maybe there's some dim connection in my head between trees and alphabets and books and learning.

MA: I'm particularly interested in the relationship between people and trees. I mean, I know probably a few hundred of the trees in this plantation, personally. I revisit the same tree and think, 'How are you today? I want to know how you're . . . you know, are you springtime yet? Are you . . . I want to know when the tree first produces its . . . its first flowers. I mean it's like a farmer having lambs. It's that same thrill of seeing new life, isn't it?

JG: I have to try and get this right, because it's a really good quote about nature. Still, nature is the fountain's head, the source from whence all must originally spring. And should an artist continue his practice without referring to nature, he must soon form a 'manner'. And that's what I was finding was happening with my work. I was like, 'Actually my work is becoming incredibly mannered.' And so I went into the middle of the rainforest and did a residency in the jungle and kind of didn't intend on it becoming the, you know, the whole rest of my practice. Well, not forever, but up until now, and just fell in love with these landscapes. And I came home and after

being in this place where my eyes were completely opened to like, you know, the twists of the branches and the curls and the leaves. And when I was looking at my own landscape and all these woodlands around me, it was like I was looking at them for the first time. And so it kind of continued this inspiration that, you know, I had to . . . had to paint them.

ZK: It was Monday Bank Holiday. Near the end of May, rough middle of the day, year, and of the country. If the country is England. Oak apple or oak and nettle day axis of my year, thinly plotted as my tree. The far end of our thinning garden in a border shaped to waver like a child's drawing of sea. Its clock-handed Y, where the trunk parted ways, a first rung that even just turned seven I step onto, into, the above. This wobbly earth above earth. Wordlessly, I knew then I'd later be gone, like possibly my treehouse from that border, and my attention divided thinly as the light. Or is that time, through the green grey space I was sitting in? As I reached up for a branch, or is it balance? Or vantage on this tentative level? A story.

UNNAMED MALE: How did it feel to plant a tree?

UNNAMED CHILD: Something to be proud.

UM: Cool.

17. A nostalgic spin around the history of the funfair

From candy floss to dodgems - buckle up for a rollercoaster ride through the history of the fair.

Published on 23 March 2020

JOHN NOAKES *Blue Peter, 1970*: Tomorrow, as if by magic, the lorries will go off, the lights will come on, the people will pour in, and it'll be all the noise, the excitement of the fun of the fair.

CAPTION: Funfairs have been a source of escapism for centuries. The synthesis of spectacle, experience, illusion and reality has delighted millions over the years. The origins affairs can be traced back to mediaeval times.

STUART MILES *Blue Peter, 1996*: Fares were more like markets, with entertainment such as mime artists and musicians. One of the most famous annual fairs was Bartholomew Fair in London.

CAPTION: By the early 1900s, fares were squarely focused on entertainment. They were at the forefront of technological advances too. Many people's first experience of film and even motor cars would have been a travelling fair. And then there were delighted results. Helter-skelter is in first's gave way to increasingly complex mechanical wonders. Dodgems and rollercoaster is offered an exhilarating escape from everyday mundane at a unusual - like a hall of mirrors and even the scarier also found their place at the fair. Fares were also the place try new treats from toffee apples the candyfloss.

CHRISTOPHER TRACE *Blue Peter, 1966*: The candy floss stall to get to balls of lovely, edible cotton wool.

CAPTION: The novelty of the fair had less impact when people were able to travel abroad with ease. Package holidays enable easy access to the exotic and unusually new settings.

THE PACKAGE DEAL *1969:* Very few resist the temptation of being photographed on a camel, no matter how embarrassing the boarding procedure may be

CAPTION: The opening of theme parks such as Thorpe Park and Disneyland provided even more competition to the travelling fair.

THE RISK BUSINESS, *1978*: Following the boom years of the 70s, the market is now approaching saturation.

CAPTION: And of course video gaming has exploded in recent years providing action-packed thrills from the comfort of your home. With the popularity of fairs endures in the UK. In normal times, there can be up to 200 week in peak season some attracting up to half a million visitors. Fares will no doubt be disrupted by the COVID-19 crisis. Once that is over, like the rides themselves fares should be around (and around and around) for some time to come.

18. A potted history of instant noodles

How instant noodles went global - with the help of students, workers and prisoners.

Animation by Justin Quinlan 26 September 2018

NARRATOR: Instant noodles. More than one hundred billion servings were slurped up around the world last year. That's more than 13 servings for every person on the planet. So you've almost certainly eaten them. But have you ever thought about why they seem to be everywhere? Instant noodles are one of the world's most successful industrial foods. They're cheap to make and cheap to buy. Making them a global phenomenon. They've been eaten at the top of Everest. Astronauts have carried them into space and they've even become the most traded legal item in US prisons. More about that later. So how did this simple but revolutionary food come about? Let's go back to Japan. Just after the Second World War. Large parts had been destroyed by bombing. Much of the population was going hungry. A feisty entrepreneur, Momofuku Ando, was penniless after a failed business venture. He wanted to reinvent himself. And he had an idea when he spotted long lines of Japanese people shivering in the cold, waiting for a hot bowl of traditional ramen noodles. Ando knew the Japanese government was looking for ways to encourage its people to eat the food aid given to Japan by the US government – oil and wheat flour. So he disappeared into a wooden hut in his back garden for a year. And when he emerged, he'd created instant noodles. They were instantly popular and they fuelled Japan's modern economic rise, feeding students and also hungry workers. They soon caught on elsewhere. Maybe because they're the ultimate hot blank slate.

They can be adapted to fit anyone's tastebuds. In Thailand, green curry flavours are a hit in Mexico, they're eaten with limes and salsa. In Japan, you could try chicken nugget and fries flavoured noodles, or in Pakistan, pizza flavour. Environmentalists aren't so happy about the noodles' seemingly endless spread. They're made with palm oil, which contributes to deforestation in countries like Indonesia and most noodles come with lots of plastic packaging. But quick foods like instant noodles are lifesavers in emergency situations like earthquakes, or for anyone who needs the comfort of a hot meal without access to the kitchen. Shrinking prison food budgets in the US mean the prisoners are turning to instant noodles - the cheapest item on sale in prison stores to fill their stomachs. They're also getting creative, grinding down noodles and water into a paste that can be shaped into makeshift pizza bases. Using crushed ramen, prisoners make their own versions of burritos, sandwiches, even a dish called Coke Ramen made with instant noodles and you guessed it, Coca-Cola. And of course, cup noodles are responsible for powering millions and millions of late night study sessions. From a hut in Japan to grocery stores around the world. They may only take two minutes to spring into action, but next time you're cooking them, think about the eternal life of the instant noodle.

19. A radical solution to expensive childcare

Experimental nurseries are starting to pop up across the UK, allowing parents to work shifts and save money on childcare costs.

Published on 22 March 2017

This video was made by BBC World Hacks

CAPTION: A radical solution to expensive childcare: Nurseries run by parents.

CHILD: I'm digging for worms. Because we like worms.

CAPTION: Childcare is expensive. In Britain, many parents are spending more on childcare than their mortgage. Childcare makes up ¼ of an average family's income in the UK. This is Marley, mum to Etta, age: 2.

MARLEY: I probably wouldn't have childcare until they went to a free school nursery because I wouldn't be able to afford, like, a normal private nursery.

CAPTION: But she's now part of an experimental kind of childcare 'Parent-run' nurseries. Parents volunteer shifts at nurseries. Alongside qualified staff. So, the nurseries save on one of their biggest costs: labour. In return, parents pay a lot less.

JIM: Do you like it when I work here? Do you like it when I cut the food? Do you? Who makes the yummiest food?

DAUGHTER: You.

CAPTION: This is Jim, dad to Sylvie, age: 4. He's been a parent helper for 2.5 years.

J: Any member of staff that is willing to be overseen by parents 24 seven has got to be something special.

CAPTION: There are still very few 'parent run nurseries' in the UK. But they exist elsewhere. Canada 9% New Zealand 12% Sweden 20,000 kids. Scalliwags has adopted this model – a non-profit nursery in inner London.

M: It's significantly cheaper. It's only, like, £260 a month, otherwise it would be at least a thousand pounds for month for like a part time place.

CAPTION: The number of shifts depends on how often the child comes in.

M: If your child comes here every day, then you have to work here one day a week.

CAPTION: Marley works one day a week but parents of part-time kids come less.

M: It's really nice to see, you see everyone's triumphs and challenges and you just realise that your child is normal.

[*Parents interacting with children*]

M: And you see everyone at their best, and everyone at their worst, and that is actually really comforting as a parent, that you don't normally get to see behind the scenes of anyone else's parenting.

[*Parents interacting with children*]

CAPTION: Parents receive training and childcare tips which is what attracts some of them here.

J: You train on the job, but you have a lot to read. And then you are carefully shadowing people. You learn a massive amount about childcare. You immediately learn it on the spot, with regards to the work you do with other children and your own child.

CAPTION: Parents must have an official criminal records check. Parent helpers are expected to . . .

DEBBIE BOSS: You do an activity shift with the children, where you expect to be with the children interacting.

CAPTION: Other responsibilities include: Cooking, Cleaning, Maintenance. How about parents who don't enjoy working with other people's children?

DB: We can't have them just sitting around on their shifts not being interested in the children. If they're not interested, then we take a challenge with them and find ways of getting them involved. Not every person role is exactly the same.

CAPTION: The management says no parent has ever been asked to leave. Will nurseries like this expand in an era of working parents? In fact, more than a third of parents have a flexible working arrangement

20. A radical vision of a new Africa

Author and academic Kehinde Andrews outlines his provocative vision for a future newtopia - a world where Africa is the "promised land".

Made by Somethin' Else, 5 April 2018

KEHINDE ANDREWS: The African promised land. From the window of the high speed train that connects Cape Town to Tunis, you can see the wonders of the richest continent on Earth, which is powering the global economy. You immediately pass the best universities in the world where the global elite compete to send their children. Passing through Zimbabwe, the vast acres of fertile farmland that are the breadbasket of the southern hemisphere, are breathtaking. As you travel through the Congo, the machinery of the nationalised mining industry marks the horizon. Lagos greets you with the warmest of welcomes. A bustling metropolis that knows no poverty. As you cross the Sahara Desert, you cannot take your eyes off the vast expanse of solar panels that blanket the terrain. In Tunis, you arrive at one of the busiest border control checkpoints in the world as thousands of people each day tried to migrate *into* Africa, for work and opportunity. The contrast of your journey could not be starker. You have just covered thousands of miles without a passport. Colonial borders were long ago abandoned and the continent is unified into a shared economic and political vision. All of this is only possible because Africa is able to control her resources free from the interference of the West, whose role was to impoverish and underdeveloped the continent first through slavery, then colonialism and, finally, unfair trade practises. Corrupt puppet African leaders who siphoned off the wealth in offshore banks and spent lavishly in European department stores, were deposed and government made accountable to the people. Rejecting Western development aid meant being free from the despotic economic control of the World Bank and International Monetary Fund. No more debt repayments, forced austerity or flooding of African markets with Western products. Africa never needed Western pity or foreign charities being paid to build wells, send blankets or provide malaria relief. Donating a tiny fraction of the money exploited from the continent may have eased collective Western guilt. But it did nothing to change the fact that the West was the problem in Africa. It was only by removing the claws that dug so deep and extracted so much for centuries that Africa could prosper. Memories of a time where millions of children died each year because of poor access to food, feel like a distant nightmare. Monuments to those who lost their lives crossing the Sahara Desert or drowning on makeshift boats in the Mediterranean are the only reminder of the devastating poverty that plagued the continent and caused so many to flee. Instead, Africa offers an escape to those in the diaspora, trapped in the West, facing racism, poverty and criminal injustice. They are invited to complete the historical circle and return to the African promised land.

21. A refugee's guide to being a refugee

What are refugee camps like? Why did you leave your country? We put some of the most searched questions online to two refugees from Syria.

Made by ITN Productions, 16 December 2019

MOHAMMED RAHIMA: Why do refugees leave their country?

MAYA GHAZAL: There's no question! Oh no, there is.

[INTRO GRAPHIC: ASK US ANYTHING]

MR: Hello guys. My name is Mohammed Rahima. I'm a refugee from Syria. MG: My name is Maya Ghazal. I'm 20 years old and I'm an aviation engineering student. I'm also a refugee from Syria. So there are all sorts of questions floating all around the internet…

MR: Let's clear the air.

[TEXT GRAPHIC: "We put some of the most asked questions on the internet to our guests… // … the questions you'd love to know the answer to, but might be too embarrassed to ask…"]

MR: Let's start with the first question. So here we go.

[QUESTION GRAPHIC: WHY DO REFUGEES LEAVE THEIR COUNTRY?]

MG: Refugees leave their countries because of danger of prosecution, because of danger of conflict, danger of their lives, because of climate danger as well. But the main point is that when a person leaves their country feeling that it's not safe for them to go back to their country, that's what makes refugees, refugees.

[QUESTION GRAPHIC: WHAT ARE REFUGEE CAMPS LIKE?]

MR: It's a very difficult place to live - tent shelters, cold weather, wet weather. But good as well. We made friends. We met people - they trust you, they know who you are. Between - we have a difficult time, and happy time, at the same time.

[QUESTION GRAPHIC: HOW DO REFUGEES LEARN ENGLISH?]

MG: I had to learn it myself, which was quite successful. I can speak now English and understand well and write.

MR: When I first time arrived to the camp, I never speak any English. I was in a detention centre for a month and a half, so I have to get dictionary from the library there, and because I get a letter from the Home Office, I have to understand what this means. Because you have to help yourself in a detention centre.

MG: How are refugees treated? Well that actually depends on you.

MR: I'm treated very well. I meet very lovely people all my life here in the UK, but it depends.

MG: I only had difficulties being a refugee when I first came and wanted to enrol to a school. It was very difficult actually for me because I was rejected from three schools and a college. I still can't understand why would they turn an eager student to study down?

MR: Hopefully it's an easy question.

[CAN REFUGEES WORK IN THE UK?]

MR: Yes of course they can work in the UK, but they have to wait to get their refugee status.

MG: So when my Dad came to the UK, it took him about 15 months for his application to be processed, and to move from asylum seeker process to a refugee. And during that time, he was not permitted to work, which made him really, really upset.

[QUESTION GRAPHIC: WAS THE UK HOW YOU IMAGINED?]

MG: No, I was very disappointed. I expected our neighbours to knock on our door and give us a basket of chocolate, like welcome goodies. I expected what I saw in movies. I mean marry Prince Charming, or Prince Harry. But he's married now, and he's got a baby. That's what I expected!

[QUESTION GRAPHIC: WHAT DO YOU MISS ABOUT YOUR HOME COUNTRY?]

MG: I miss my teddy bears. I miss my room. The house that I grew up in. The neighbourhood.

MR: So we used to walk in the mountains, and it was the fresh air and lovely. It's just the smell - I still have it to this moment. But I miss my family. They're still there.
MG: I miss myself in my home country, because I changed massively since moving to the UK. I had to.

MR: Hopefully one day, I'm back. [QUESTION GRAPHIC: WHAT IS THE QUESTION YOU WISH PEOPLE ASKED YOU?]

MG: I wish they asked me if I was OK.

MR: What is my dream? But I'm not going to say it in the camera right here and now.

MG: So I wish people focused more on who I am, rather than my background. And on my ambitions and dreams, rather than my past.

MR: See you later guys.

22. A short (and deadly) history of assassinations

Red hot pokers and poison toothpaste - a short history of assassinations made with Luca Trenta of Swansea University.

Published on 13 November 2019

Made in association with Being Human Festival

CAPTION: What do poison-tipped umbrellas, colonial tea and the samurai sword having common? They're all methods that have been used for assassination or political murder, one of the oldest tricks in the book to get rid of someone who is too powerful, too inconvenient or too dangerous. State-sponsored assassination refers to the killing of a political figure by either officials of a state's agency, or by proxies supported by a state. While political murder is the killing of a political figure by a private individual. Probably the most infamous assassination of the 20th century was the shooting of John F. Kennedy. He was not the first US president to be assassinated while in office, in fact he was the fourth (*graphic showing Abraham Lincoln, James A. Garfield, and William McKinley*) And many more have survived attempts on their lives. Royalty has also been targeted. 1914, Archduke Franz Ferdinand was shot, triggering a series of events that led to World War I.

PATHE NEWSREEL: Barely five minutes after landing on French soil, Alexander of Yugoslavia was dead.

CAPTION: One of the first political murders to actually be caught on film was King Alexander I of Yugoslavia, shot during a state visit to France in 1934. In 1960, in Japan, there was a violent political murder. Socialist Party leader Asanuma Inajiro was killed with a sword on a public stage by a 17 year old ultranationalist. One of the most bizarre assassinations concerns King Edward II of England who, at the behest of his estranged wife, Queen Isabella, was condemned to die by having red-hot pokers inserted into him. But whether the story is actually true remains a matter of conjecture. State-sponsored assassination is more likely to happen covertly and it can often sound like something straight out of a spy novel. Russian revolutionary Leon Trotsky was murdered in 1940 with an ice pick. His killer was later declared a hero of the Soviet Union. In 1978, Bulgarian dissident Georgi Markov was killed by a poisoned umbrella tip in broad daylight in the centre of London. Russian defector Alexander Litvinenko died of radiation poisoning in 2006 after drinking a cup of tea at a London sushi restaurant. Lastly assassinations were allegedly sanctioned by the Russian state. The CIA has also used novel methods to target enemies of the USA. In 1960, they sent their top scientist, Sydney Gottlieb to then Republic of Congo to deliver poison that could have been used in toothpaste or food to assassinate Prime Minister Patrice Lumumba. The plan was later abandoned. Congressional investigations in the 1970s revealed that the CIA had developed a poisoned dart gun. The individual head would feel something like a mosquito bite while the frozen doubt would quickly melt and the victim would die with symptoms similar to a heart attack. For every assassination there's been many more failed attempts. Abraham Lincoln survived being sent to yellow fever and smallpox infected clothing in the post before eventually being gunned down in 1865. And the course of World War II could

have changed had Hitler not survived an attempt on his life by disgruntled officers in 1944. But no one survived more assassination attempts than Fidel Castro. There were an estimated 638 plots to kill the Cuban leader ranging from exploding cigars, and seashells, Mafia hit jobs and a poison-lined scuba diving suit. This century, the terminology around assassination has shifted. “Targeted killing” is now more commonly used, with anything from laser-guided bombs to chemical and biological weapons being used against targets. As drones become smaller and more precise they too are being used in targeted killing. And who knows maybe digital assassination will become a thing?

23. A short history of nothing

Did you know the word "naughty" comes from nought? And zero was once seen as the antithesis of God? Here’s how nothing became something.

Made by 7digital, 12 April 2019

THE HISTORY OF NOTHING (ZERO) VICKY NEALE, LECTURER AT THE UNIVERSITY OF OXFORD: Through history it’s been unimaginable, unthinkable, ungodly even illegal. It emerged and travelled and disappeared and was banned and re-emerged repeatedly through centuries.

ROBERT KAPLAN, AUTHOR: THE NOTHING THAT IS: A NATURAL HISTORY OF ZERO: Zero was controversial to the church because it was thought of as "devil’s work". When we say today, "Oh you’re naughty," naughty is descended from nought. It’s bad to be nothing, it’s the antithesis of God and creation.

VICKY NEALE: Before the zero we know, it was just a placeholder, showing us how 701 is different from 71. But it was from this small dot that zero eventually took on life as a number in its own right. A something that signifies nothing. This is Brahmagupta [7th Century Indian mathematician and astronomer]. And this is where we see zero change from placeholder to number. For the first time, someone set out the role of zero as a number and the rules of how to use it. His depth of mathematical insight was extraordinary, but even Brahmagupta struggled to make sense of division by zero. As would many generations who followed. This concept of zero travelled from India through what is now Iraq. From Iraq it slowly made its way across Asia and spread towards Europe and the Far East. One of the European pioneers of zero was Fibonacci [13th Century Italian mathematician]. He promoted the use of zero and the Indo-Arabic numerals we still use today to merchants and mathematicians who were more accustomed to the abacus and the Roman numeral system.

ROBERT KAPLAN: Zero becomes spread by merchants, and if the women in markets and the merchants there were using zero in this way, over the course of several hundred years zero becomes a naturalised citizen. And the role of zero in the West then changes radically. Thanks to Leibniz in Germany [17th Century German

polymath and philosopher] and Newton [18th Century English mathematician and physicist] in England.

VICKY NEALE: Leibniz and Newton developed calculus, which is all about rates of change. To understand behaviour over shorter and shorter time intervals, we want to divide by smaller and smaller numbers. But we mustn't divide by zero. Calculus allows us to make sense of this and is fundamental to understanding the world around us. Without it we wouldn't have made breakthroughs in physics, biology and economics, let alone in mathematics itself. In 1948, Claude Shannon [20th Century American mathematician and electrical engineer] did his bit for the modern world by developing a mathematical theory of communication that relied on, well, the bit. A binary digit that's zero or one. My voice and these images are being sent as a string of zeroes and ones that your device is decoding. Without that binary code and zero, this video you're watching wouldn't exist, and nor would the world as we know it today.

24. A simple way to get children fit

A new project gets kids to run a mile every day - and it's working a treat.

Published on 1 May 2018

This video was made by BBC World Hacks

NARRATOR: There's a surprisingly simple idea that's spreading through schools to help fight childhood obesity and improve concentration levels.

VOX POP CHILD: It's really good to keep you fit.

VOX POP CHILD 2: And it's fun.

N: It's called The Daily Mile. It all began with this woman . . .

CAPTION: Elaine Wyllie founder, the Daily Mile.

N: . . . when she was head teacher of a primary school in Scotland.

ELAINE WYLLIE: The problem before we started the Daily Mail was like schools across the UK, most of the children were actually unfit and there were also levels of obesity which were concerning.

N: So Elaine decided to try an experiment with her students.

EW: And we decided that every day for 15 minutes, for a whole month, they would run round the field and see if they could build up their fitness. And in that time their fitness changed completely. And it turned out that in the 15 minutes they were averaging a mile, so it became the Daily Mile.

N: It's not a sports lesson and can be done at any time during the school day. The children do the run in their school uniform, either as a class or as a whole school group.

EW: The Daily Mile is a 15 minute turnaround. Pencils down outside, run for 15 minutes and back into the classroom. The children run at their own pace, so that they enjoy it. It's not competitive, but some of them compete and that's fine.

N: Independent research has shown the Daily Mile strengthens children's physical and mental health and improves concentration in the classroom.

VOX POP CHILD 3: I feel much better working in class, it really gets my brain pumped.

VOX POP CHILD 4: I like the Daily Mile because I can run with my friends.

N: Over half of Scotland's primary schools are now taking part and local businesses are encouraging staff to get involved too. The Daily Mile has now spread to 32 countries.

EW: What has surprised me the most is that something which we didn't plan, which arrived by serendipity and almost by accident, has turned out to be such a silver bullet for children's health and so easy to scale up and so easy to implement across schools.

25. A solution for refugee suffering: Give them cash

Is cash a better way to help refugees than food aid? With the help of UN agencies and charities, a scheme in Lebanon set out to find out.

Published on 23 November 2016

This video was made by BBC World Hacks

CAPTION: Moussa is one of millions of Syrian refugees getting help in an unusual way. No more food boxes, no more blankets. Just cash cards. Bekaa valley, Lebanon. There are now 1.5m Syrian refugees in Lebanon. A million cash cards have been given out. Moussa has ten children and two wives. Along with hundreds of others in this makeshift camp, they fled from Raqqa, Syria, now the capital of the so-called Islamic State.

MOUSSA: Humans are nothing without dignity. If you are going to pick up a food box, or if you are busy with something and your wife has to go, it is noisy and people are bumping into her, this is not dignified.

CAPTION: Moussa says the new cash cards have given back some freedom and dignity.

M: Get two kilos of rice, sugar.

CAPTION: Each month, the World Food Programme gives Moussa $27 per family member – for food only.

SHAFIQ SALOON *Shopkeeper:* They can buy tea, the can buy sugar, rice, eggs, bread, milk, spaghetti, mushroom, tuna, sardines, beans.

M: My wife gives me a list, she decides everything, not me.

CAPTION: A second card from the UNHCR can be spent on whatever he wants.

CAPTION: $170 cash. $170 more in winter to keep warm.

DANA SLEIMAN *United Nations High Commission for Refugees:* Cash assistance means refugees would have an ATM card like all of us and be notified when the card is uploaded and simply go to retrieve the cash, withdraw the cash from an ATM machine near them.

M: With these cards things are better, for sure. Before, we couldn't choose what to eat or drink. It wasn't very good as there are things that you really want. Now you go to the shop and buy what you like.

JOSIE ALI AL HUSSEIN *Moussa's Sister:* This is a Saudi dish, but we eat it in Raqqa all the time. Of course, we went through a period when we literally couldn't buy these things. I feel happy that I'm cooking for my children and offering them something.

CAPTION: The idea of cash assistance isn't new. It was used during the 19th century Indian famines. 2204 Asian Tsunami: inland traders sold food in affected areas. It's been tested against other types of aid and found to be 18% cheaper for aid agencies and lead to more diverse diets. But it's not without problems. Some are worried that the money will get back to the so-called Islamic State. This happened in Sri Lanka when the Tamil Tigers took cash aid from civilians. Could Moussa's cash flow back to Syria?

M: I'm responsible for everything that happens in the camp, the authorities will hold me accountable. The Syrian people are being very closely monitored and of course this is difficult.

CAPTION: Some refugees say they are being left out. Ali and Ragda live in the same village as Moussa. They have three small children.

ALI: They're supposed to send us a message that we can get the card. But we've been waiting for this message for two years now and nothing.

CAPTION: UN agencies say they means test refugees – in a fair way. Some Lebanese resented Syrians getting cash. Solution: Poor Lebanese now get cash cards too.

HYDER HUSSEIN, *Shopkeeper:* There are Lebanese who can't even feed their children. Yes, we should get help.

M: We just want our country to return to how it was and better. We will leave them the cards, they can have them, the television, they can have the whole house.

26. A solution to Arab sexism: Teaching girls to fight back

Joumana Haddad, Lebanese author of Superman is an Arab, believes teaching girls how to defend themselves will help to tackle sexism.

Published on 28 November 2016

JOUMANA HADDAD: So young girls in Lebanon are far more likely to know about Cinderella and shoes and makeup than about self-defence techniques. We need to start teaching our girls that they're perfectly capable of saving themselves.

CAPTION: Think Again: Self Defence Classes for Girls. Joumana Haddad, writer and activist.

JH: So my idea would be to make self-defence classes a compulsory part of the school curriculum for girls starting at the age of five. Everywhere in the world, and particularly in Arab countries. All it takes is just a decree from the Ministry of Education. One hour of self-defence classes a week. It would be about teaching girls far more than just defending themselves. It would change the way they perceive themselves and how men look at them as well. It would make them confident in a whole different way that would change the dynamics between men and women.

TRAINER: Now defend yourself. I'm going to hit you when you don't know.

JH: How do you look at a woman who knows how to defend herself?

T: With total respect, yes.

JH: Are you going to teach your girls martial arts, your future daughter?

T: It will be my pleasure yes, my future wife maybe.

JH: Now, don't get me wrong, this is not about women beating men up. It's not about revenge and it's not about going to the other extreme. It's about changing the social dogma surrounding the female gender. It's as much about stopping little boys from bullying little girls and getting away with it as it is about deterring potential abusers from putting their evil thoughts into action. So you think you can grope me in the office? Cut me off while I'm driving or attack me while I'm coming back home on an empty street and I'd be too shy or scared or ashamed to kick you in the balls? You'd better think again.

27. A very (very) brief history of newsflashes

"We interrupt this broadcast..." From the end of WW2 to interrupting Mrs Brown's Boys - how newsflashes changed through the decades.

Published on 11 December 2018

STUART HIBBERD, *BBC Announcer, 1 May 1945:* This is London calling. Here is a news flash. The German radio has just announced that Hitler is dead.

CAPTION: For decades, newsflashes delivered stories that changed the world. The stories were deemed so important they interrupted scheduled programmes.

VOICEOVER: Over to the newsroom.

JOHN ROBERTS *BBC announcer, 22 Nov 1963:* The death of John F. Kennedy happened in Dallas at 12.25. In our time, 6.25 this evening.

CAPTION: Deciding which stories merited the interruption to schedules took time to perfect.

ERNEST EYTLE: Good evening. This is Ernest Eytle speaking to you from London Airport on the occasion of the departure of her royal highness, Princess Margaret for the West Indies.

PRESENTER: Well, you may wonder exactly what happened there, but maybe . . .

CAPTION: Newsflashes popped up more regularly – and broadcasters got better at handling them.

CHRISTOPHER SLADE, *BBC, 9 Dec 1980*: The former Beatle, John Lennon has been shot and killed in New York. News of his death reached us soon after half past four this morning.

PETER SNOW, *BBC, 30 Mar 1982*: There are reports that a British nuclear submarine is on the way to the South Atlantic and the Argentines are sending their only aircraft carrier.

MICHAEL BUERK *BBC 4 Nov 1995:* Within the last 30 seconds. We've heard that the Israeli prime minister, Yitzhak Rabin, has died in hospital.

CAPTION: By the mid-1990s, newsflashes had become a routine part of broadcasting. The announcement of the accident that killed Diana, Princess of Wales, was a seminal newsflash.

MARTYN LEWIS *BBC, 31 Aug 1997*: We interrupt this film to tell you we are getting reports that Diana, Princess of Wales, has been badly injured in a car crash in France.

CAPTION: The move towards rolling news saw broadcasters like the BBC establish dedicated news channels. Newsflashes on terrestrial television became more infrequent. Major news stories were increasingly broken on dedicated news channels.

LORD HALL, BBC Director-General, *10 Nov 2017*: I mean, you cannot imagine a universe now without being able to turn on and see the news as it happens from the people you trust.

CAPTION: When Nelson Mandela died in 2013, the BBC interrupted the comedy Mrs Brown's Boys to break the story.

ANNOUNCER: We interrupt Mrs Brown's Boys to join President Zuma for a statement.

PRESIDENT ZUMA: . . . was precisely what made him human.

CAPTION: The BBC received complaints from viewers that it was giving undue prominence to the story. (*graphic of a mobile phone*) Nowadays, newsflashes come in a different guise. It can be easy to feel overwhelmed by the seemingly endless supply of breaking news and be tempted to turn the notifications off. But some day there may be a news story that you just don't want to miss.

RICHARD DIMBLEBY *BBC, 29 Jan, 1962*: I've been reliably informed that the astrologers are saying that the end of the world is coming next Monday, February 5th. Should this happen before 8:00 that evening, it may give us the best Panorama yet. Good night.

28. A visual journey through heaven

What might heaven look or sound like? Here's a journey through some interpretations.

Made by Big Deal Films, 7 December 2018

Made in partnership with The Open University

CAPTION: Heaven . . . the idea has fascinated humanity for millennia. Clearly not everyone believes in heaven, but many faiths have it as a central theme. And there are often detailed descriptions of what it might look – and sound – like.

HELEDD WATKINS *Musician*: We're here to try and recreate the sounds of heaven.

TOBI OLUJINMI *Christian preacher*: This massively beautiful place of, you know, that . . . it talks about, you know, the streets being, you know, paved with gold. These massive dimensions.

SULAIMAN GANI *Iman*: The rivers of milk, the rivers of honey, every type of fruit. And a person will enjoy whatever his heart desires, he will receive.

TARCISIUS MUKUKA *St Mary's University*: And I heard the voice of many angels surrounding the throne and the living creatures and the elders, they numbered myriads and myriads and thousands of thousands singing with full voice. Already the Christians were involved in worship. So he simply transports what they do every day

and pushes it up, I don't know how many notches higher. If we have 200 gathered for seeing me there, when we go, it's myriads and thousands and thousands.

RABBI DR RAPHAEL ZARUM *London School of Jewish Studies:* In the Jewish tradition, heaven isn't a physical place it's spiritual one. So any images are metaphorical and not literal. So even though God comes down from a cloud at the moment of Revelation at Mount Sinai, it's basking in the presence of God, which have no physical expression.

TO: The Bible talks about this place called the New Jerusalem, this beautiful place that's made and layered with 12 precious stones.

CAPTION: These would have been the highest symbols of wealth at the time and many are still highly prized today.

KERRY GREGORY *Gemmologist:* This is jasper. It's the first foundation stone and it represents the truth of faith. The next stone is sapphire. This sapphire here would cost you around about £11,000 pounds if bought in Hatton Garden. Chalcedony is a really pretty blue variety of quartz. Emerald, sardonyx, sard - nowadays, we call it carnelian.

CAPTION: We asked architectural artist Rob Soley to draw us his interpretation of what heaven might look like.

ROB SOLEY *Architectural artist*: It's described in the Bible as having three gates on either side of this massive cube. So there are 12 gates made up of a single pearl, right. How could you make a gate out of one pearl? And what amazes me is the . . . the size. It's 1,500 miles cubed. The scale is hard, one description I think is layers of every known precious stone. I still have this image of the skyscraper, and I can't get it out of my head, more of a vertical city almost, but with this garden in the middle of it. The picture I do keep getting is from the film *A Matter of Life and Death*, which I think is the best vision I've ever seen of . . . of someone going to heaven with the staircase in this enormous amphitheatre?

CAPTION: What about the sound of heaven? We asked electronic band HMS Morris to try to recreate it.

HW: We normally play electronic music and I normally play the guitar and Sam plays the synth. So today's a bit of a change for us. This is one example we're going from, this is Psalm 150, 'Praise him with a trumpet sound, praise him with harp and lyre. Praise him with timbral and dancing, praise him with stringed instruments and pipe.' So we're trying to limit ourselves to those or something similar that we can find in the 21st century. And one of the most natural and original instruments, of course, the voice. 'You have come to thousands upon thousands of angels in joyful assembly to the church of the firstborn whose names are written in heaven.' We don't have a thousand angels. So we're trying to create the magnitude of the sound by using what we're used to, which is a looping system. So we're going be looping vocals, looping trumpets and looping pretty much anything. And we can turn Sam and myself into a choir of angels.

29. A visual journey through hell

What might hell look or sound like? Here's a journey through some interpretations.

Made by Big Deal Films, 7 December 2018

Made in partnership with The Open University

CAPTION: Hell . . . it's an idea that has fascinated – and terrified – humanity for millennia. Clearly not everyone believes in hell, but many faiths have it as a central theme. And there are detailed descriptions of what it might look – and sound – like.

HELEDD WATKINS *Musician*: We're going to layer up our sounds on top of this bed, that will include wailing, screaming, gnashing of teeth.

RABBI DR RAPHAEL ZARUM *London School of Jewish Studies:* In Deuteronomy, it's seen as a firey place where there is some kind of punishment.

TARCISIUS MUKUKA *St Mary's University*: Therefore suffering, therefore torment, angst, and everything that you could ever think of.

CAPTION: The Christian idea of hell came from the Jewish concept of gehenna.

RZ: The description of gehanna in the Talmud is very similar to the Roman persecution of the Jews in the first and second century, which, for the rabbis, was the worst thing they could imagine.

TOBI OLUJINMI *Christian preacher*: And everything that we actually know to be sad that comes from, you know, a place of evil exists in that hell.

CAPTION: Where their worm deith not, and the fire is not quenched. (Mark 9:46 New Testament) We have prepared for the wrongdoers a fire whose walls will surround them. Koran 18:29.

RZ: You will find very physical descriptions of a kind of hell: fires that don't go out, lower levels, and a lot of pain.

SULAIMAN GANI *Iman*: And it is so boiling, blazing hot. Can you imagine the sun above your head for only about a mile?

CAPTION: 'And the death and hell were cast into the lake of fire' Revelation 20:15, New Testament. There is just about nothing as scary as fire and modern science confirms it's a hell of a force.

DR CHRISTOPHER KILBURN *Volcanologist, UCL*: Well, we don't really see lakes of fire in terms as in flames, but we do get around the word lakes of molten rock at the tops of volcanoes. The molten rock is typically an orangey-yellow colour. It means it's around temperatures of about 1,100 degrees centigrade.

CAPTION: The Bible makes reference to brimstone. 'Their part will be in the lake that burns with fire and brimstone, which is the second death.' Revelation 21.8 New Testament. These days it goes by another name.

DR ANDREW THOMPSON *Volcanologist, UCL*: Brimstone is an alternative name for native sulpher. So here I have a piece of sulphur or brimstone and it's a yellow rock which is found often associated with hot springs around volcanoes. And although it's associated with fire and hell in the Bible, it's actually a fairly innocuous yellow rock that you find in various settings on Earth.

CAPTION: Though they dig into hell, thence shall mine hand take them. Amos 9:2 Old Testament.

AT: The very deepest point in the earth is the centre of the earth, which sits about six 6,400 kilometres beneath our feet. There is a liquid iron metal layer which sits above that in the earth. But the very deepest centre of the earth is solid iron. And that's at temperatures of about 6000 to 7000 degrees centigrade, approximately the same temperature as the surface of the sun.

DR ARIEL HESSAYON *Goldsmiths, University of London*: Most of our notions, our imagery of hell is actually later than the Bible. It comes from visionaries and mystics and prophets and seers and how they depicted it in writings or in oral traditions. One of the things we see is that poets, Dante being the most famous, of course, elaborate upon this and create a very complex kingdom, a layered place in which different aspects of hell are reserve for different types of sinners.

CAPTION: What about the sound of hell? We asked electronic band HMS Morris to try to recreate it.

HW: I'm Heledd from HMS Morris, and we're about to venture into the depths of hell. And we're going to try and recreate the sounds that we'd imagine in hell. There aren't any references to music or musical instruments in hell, unlike heaven. So we're very much just looking for sounds. We're going to take Matthew 13:49 as a reference. 'The angels shall come forth and sever the wicked from amongst the just and shall cast them into the furnace of fire, there shall be wailing and gnashing of teeth.' We're going to try and recreate that.

SAM ROBERTS: I've recorded the sound of a fire, which we're going to have as a constant bed in our sound of hell. It sounds a bit like this. This is the sound of the water we recorded earlier. Let's see what happens if we slow it down a bit.

HW: It sounds a bit like lava now.

SR: Yeah.

30. Absurdism: What if life has no meaning at all?

What if life has no meaning at all? Writer and critic David Quantick gives the lowdown on absurdism.

Made by Somethin' Else, 9 January 2018

DAVID QUANTICK: The A-Z of isms: absurdism. Most philosophical -isms are attempts to make sense of the world. Who are we? Why are we? What's the point? And so on. But one -ism wastes no time on this topic at all. It's called absurdism. In answer to the question, 'What is the meaning of life?' Absurdism says there isn't any no meaning, no point, no worries. Life is pointless. Existence is meaningless. And look how many peas I have in this pan. Absurdism was pioneered by the Danish philosopher Søren Kierkegaard who said that as the reality of god is beyond human comprehension, it is absurd for humans to have faith in God. In the 20th century, Absurdists removed the concept of God entirely from the equation, choosing to make meaning and meaninglessness an entirely human issue. Albert Camus believed that as life is meaningless, we can have one of two responses. We can end it all or we can find our own meaning. It doesn't matter. You can, as one of his characters does, spend your life transferring peas from one pan to another. Or you can jump off a bridge. It's all the same thing. Life is absurd, say the absurdists. There is no God. So there is no point. But, they go on to say, that's fine. Absurdism is an -ism whose influence has been strong in the arts. The idea that nothing has meaning is a liberating one, particularly in areas like literature and drama, which have traditionally been all about the search for meaning. Most notably, absurdism spawned the Theatre of the Absurd. Probably the only theatrical movement inspired by philosophy. The Theatre of the Absurd gave us the French writer Eugene Ionesco, whose play Rhinoceros was about the dangers of conformity and featured a lot of rhinoceroses. The Irish genius Samuel Beckett, whose work is less rhinoceros-based, and the British writer NF Simpson, who wasn't really an absurdist at all, but he's very, very funny indeed, especially in his absurd masterpiece, A Resounding Tinkle. Beckett, by the way, could also be very serious. And as for Ionesco, the critic Kenneth Tynan famously once said, 'Once you've seen all of the Ionesco's plays, you've seen one of them,' which is absurd, but true, just like absurdism. Absurdism suits, comedy, in fact, because the best comedy is essentially absurdist. And perhaps this is why absurdism will never really go away.

31. Allowing mums in jail to hug their children

An uplifting story of two women in the US who are transforming the lives of imprisoned mothers.

Published on 16 June 2017

This video was made by BBC World Hacks

CAPTION: These women are all in jail.

BLONDE HAIRED WOMAN: I'm 23 years old, and I've probably been incarcerated at least ten times.

CAPTION: And they're all mothers.

SERENA: I love him more than anything in the whole world. And I'm very proud of him for handling this the way that he does, because it's not easy.

CAPTION: About 2 in 3 women in US jails are mothers.

RED HAIRED WOMAN: Being incarcerated, you don't get to see your kids, I haven't seen my kid, I haven't even talked to my kid since my son's birthday on February 20.

CAPTION: As many as 1 in 10 are pregnant.

BLONDE HAIRED WOMAN: I came to jail when I was four weeks pregnant.

CAPTION: Many women are shackled during pregnancy and childbirth. This is the story of the Minnesota Prison Doula Project. Changing the system for locked-up mothers.

SERENA: Just the thought of being able to hold my daughter, hug my daughter.

CAPTION: The project is led by two women.

REBECCA SCHLAFER *Psychologist:* We can no longer have this, like, 'lock them up and throw away the key' mentality. It's not working.

SADE, *Mother, 23*: Our babies need us more than they need anyone else. No one can do a mother's job like a mother can do her job.

CAPTION: How to be a mum in jail? St Paul Minnesota USA. Ramsey County Correctional Facility, women's wing.

SERENA: I'm excited to see him. I'm super excited. I always get all sweaty. Then after, like, lunchtime, I can hardly sit still, waiting.

CAPTION: Serena, 27, is a mother.

S: I can't even describe how much I love him, it's more than I've ever loved anything in my whole life and it's more than I ever will love anything, you know. So it's crazy.

CAPTION: Before the project, her son would come here but still only talk on a live video feed. This is common in jails as opposed to full-scale prisons. But now Serena and her son can meet together. The Minessota Prison Doula Project started in 2010. Doula – a helper in pregnancy, birth and motherhood. The programme has created face-to-face visits in a number of jails.

S: Sitting here, like, being able to play with him and stuff that helps, first off him know I'm safe. My dad and my sister have both said he comes back really happy.

JULIA STANLEY *Social Worker:* They say things like, 'I was really angry, I really missed her a lot. I wanted her to know what I was doing.' That's the basic of it. It's a normal child's reaction. But then as an adult, they realised that they went through periods of their life where they didn't realise why they were so angry.

CAPTION: Serena has some difficult news for her son. A social worker, Julia, helps her communicate.

S: Mommy has made a mistake and I had to go on a big girl time out for a little bit. And I didn't get into any more trouble. I just have to switch places because I've been here for a long time. Okay?

SON: But I don't want to stay at aunt Carrie's.

S: Why not, baby?

SON: I don't.

S: Where do you want to stay?

SON: Here.

JS: Here? It is fun here, isn't it? That would be cool. But they don't have any beds for little kiddoes here.

SON: I don't want to.

S: I know it's really hard baby. But can you look at me? No?

JS: It's okay to probably feel a little sad about that. [*speaking later*] So, when a child gets to say to their mom, 'I don't want you to be gone anymore.' And the mom gets to say, 'I know I don't like it either.' And then they get to hug. And then they get to play. That means if that child feels like they were heard and that they can go home and go back to living their life, knowing that at least they got to share how they felt with their mom.

S: Before, I probably wouldn't have even explained to him, so then, like, he would have went home thinking, like, 'Is mom leaving there? Is she . . . what is she doing?' You know, and then he's worried. (*to child*) Bye, baby. I love you.

SON: Bye.

S: There's a good chance that he'll try to follow the same footsteps I did. And so I'm just, like, scared for him, if that happens. But that's why I'm trying to change things now. So . . .

REBECCA SCHLAFER *Psychologist:* Giving pregnant people and mothers permission to completely love their children

ERICA GERITTY *Psychotherapist*: After they've been told by so many people that they are bad moms or shouldn't be moms.

S: But it all depends on the place you're at, because there are people who take the class because it looks good when you go to court.

RS: We know that, like, those are good ingredients to the healthy start of a child's life, right? A mother who is healthy, a mother who is bonded with her baby.

CAPTION: 1/3 of the world's incarcerated women are in the US. 200,000 women are locked up.

RED HAIRED WOMAN: I grew up in the, the system. You know, I grew up with my mom in prison. And so I'm just repeating the cycle and it's time to break the cycle. And that's what they're here telling us to. Just because you've lived a horrible life doesn't mean you can't move forward.

CAPTION: The programme also offers parenting classes

GROUP FACILITATOR: What was your separation, like?

PRISONER: Mine found out over the phone. My ten year old daughter's response to me was, ' Oh Mom, what kind of mess did get yourself into?' What am I supposed to tell her?

SOCIAL WORKER: If you made a mistake and then you covered it up, what does that tell them about when they make a mistake? To feel guilty. To not tell anyone.

PRISONER: Not take responsibility.

SW: To not take responsibility. That's a good one.

PRISONER: The look on your kid's face when you're not there for them and someone else has to do your job. Something that you should be doing.

BLONDE HAIRED WOMAN: I found out I was pregnant in jail. I'm hopeful that I can stay healthy for this child, that I live a life that my . . . that I want for my child. The same life that I want my child to have. I hope I live.

CAPTION: Improving childbirth for incarcerated mothers

BLONDE HAIRED WOMAN: I like the name Grace.

CAPTION: Many women in US jails are shackled during pregnancy and childbirth. But . . . Rebecca and Erica drafted a new law which has changed this in Minnesota. This is Elo and he's one. And his brother Cairo, four. And their mum Sade, 23.

SADE: That . . . that bond is everything with the mother and child.

CAPTION: Sade was in jail when pregnant with Elo. But as part of the Minnesota Prison Doula Project, she was paired with a doula.

MICHELLE THOMAS *Sade's Doula:* She ended up being here for about seven months or something like that, which is a lot longer than she expected. So throughout most of her pregnancy, I met with her once a week.

SADE: She just gave me so much positivity and I just needed that throughout the duration of my pregnancy. She knows how to have a healthy pregnancy, to not go into early labour.

CAPTION: Elo was born after Sade was released. She says a successful birth gave her confidence.

SADE: Whenever I think something is hard, I just think about my son birthing experience because it was hard, but I did it. I did it like nobody did it. I did it. So that's just how I look at my life now.

CAPTION: She says a good relationship with her kids motivates her to stay out of jail.

SADE: I am currently living in my own place, I have my own car. I am in cosmetology school. I have two jobs.

CAPTION: Despite successful stories like this, there's no hard evidence yet about the outcomes of the project.

RS: When I first brought it to the prison, I think it was extremely colouring outside the lines, particularly during a time when it was very much about being tough on crime and tough on criminals.

CAPTION: But they say that their biggest achievement may just be putting focus on prison mothers.

EG: So, So I think the biggest achievement for us has been documenting that these women exist.

SADE: I believe things would have been different. I wouldn't have had that outlet. I wouldn't have anyone to talk to, anyone to educate me, any anyone to give me that . . . that loving support from a mom to a mom.

S: I just want you to know that the time I spent away, I've been working on finding myself so I could get better and build a better life for us. And I love you more than anything in the world, love mum.

32. An A-Z of living through tough times

Spoken word poet Kai-Isiah Jamal shares his experience of growing up in insecure housing.

Made by Weirdos and Creatives, 19 February 2020

Made in collaboration with BBC Briefing

CAPTION: The A-Z of living through tough times Featuring Kai-Isaiah Jamal spoken word artist.

KAI-ISAIAH JAMAL Ain't nobody bang as hard as the bailiffs. Couches be the best place to hide your shadow. Drained 'cause everything be more than what we got. Forgot, we forget that some utopias are anywhere with a roof and a smile that lets us know that we are arriving. Gated with arms that let us know that we are home. Just trying to keep my head and my heart, while my hometown is ripped apart. Kids

round here, ain't like kids over there. Of course some sleep through all the bangs. Privilege means your heart don't skip. Quickly I'm reminded of restoration when I look in the mirror. Since I had the words, I found the way to talk gender and gentrification on the same tongue. Under door letters. Venting here 'cos I still owe money. Won't get a credit score. Worry sits in my guts. You just don't get it. I just wanna sleep without bangs. Ain't got no time, barely some coin left over when the day's done. My ends been changing, deteriorating. Even if they call it a fresher, a lick of paint. Getting a facelift, they laugh, but home ain't that. They killed my hometown, let's be straight. Nothing here is for us. Only the privileged, never the poor. We know too well of how they knock down just to lift up the lucky. Not the community. Opportunities should be affordable for all. Progression can't be at the fault of our building. Quickly replaced by luxury flats, with rents higher and spaces smaller. And nobody smiles. They did once. They did once smile. Back when we could afford to. But universal credit and no credit youths. Set upon unsettled housing. The hidden homeless. Unable to afford a council flat. This is our reality. Vultures in sheep's clothing that they call private landlords. With their best interests at heart. Three kisses to this city for yesterday and four for tomorrow. Zip up my hoody. Keep moving. Keep packing.

33. Are artists or scientists better at future predictions?

From Aldous Huxley to David Bowie, artistic minds have often been extremely good at envisaging the future. Are they better than scientists?

Published on 10 January 2018

This video was made by BBC Archive

CAPTION: Science deals in facts.

ISAAC ASIMOV: The scientist is always inhibited somewhat when it comes to speculation, he can't, or at least he feels he can't, put himself in a position where he seems to be going beyond that, which cold logic and the evidence makes reasonable.

CAPTION: But fiction is far less limited.

JONATHAN MILLER *Alternative Worlds, 1971:* There are a large number of occasions on which writers of science fiction or even ordinary fiction have actually in some strange way prophesied things that turned out so, say, 40 or 50 years later on.

CAPTION: So does having an artistic vision actually help predict the future?

HUGO GERNSBACK *Author, inventor and publisher, 1965*: Anything you can think of that is being done today in the space age we have done before in some way or another.

CAPTION: Even if some of the predictions can take centuries to materialise. In the 15th century, Leonardo Da Vinci drew pictures of a flying machine.

MARK CURRY *Blue Peter, 1989*: Among his many interests, Leonardo was fascinated by flight and flying. He even drew what looks like an idea for a helicopter.

CAPTION: Some artistic predictions take less time to come true.

ALDOUS HUXLEY *Author, Brave New World, 1958:* I projected these things five or six hundred years into the future. And it is rather alarming to find that only 27 years later. Quite a number of these forecasts have already come true and come true with a vengeance.

CAPTION: Totalitarianism. Rapid population growth. Widespread consumption of drugs. And genetic engineering.

DAVID WHITEHOUSE *BBC News, 1997*: Many clones could be produced this way.

CAPTION: But does a fictitious future really lead to fact?

HG: The ideas are usually picked up in various languages. No matter how silly and crazy it seems, because they know that sooner or later it will come true.

CAPTION: [*front cover of book – Superforecasting: The Art and Science of Prediction, Philip Tetlock and Dan Gardner*] According to this book an open mind and an analytical brain are both needed to accurately predict the future. Maybe that's why in 1999 David Bowie was so uncannily accurate…

DAVID BOWIE *1999* I don't think we've even seen the tip of the iceberg. I think the potential of what the Internet is going to do to society, both good and bad, is unimaginable. I think we're actually on the cusp of something exhilarating and terrifying.

CAPTION: While artistic minds have often predicted things that later became fact, it's worth noting that they are sometimes fallible. After all, Stanley Kubrik and Arthur C Clarke wrote 2001: A Space Odyssey where a sentient computer can talk to humans. The stuff of pure science fiction.

NARRATOR: Alexa, are you the beginning of the end of Western civilisation?

ALEXA: No.

34. Are fairy tales sexist? A child's eye view

There's been a lot of talk about whether fairy tales encourage gender stereotypes. What if the roles were reversed?

Made by Quintessence Films, 26 October 2018

IZZY: Gender stereotyping is everywhere, unfortunately.

VOICEOVER: Scene 17, take one.

I: The kind of gender stereotypes that influence young children, it's in media, retailing, TV.

CHARLOTTE: Gender stereotypes in fairy tales, is there's a strong, male knight . . .

I: And . . .

C: . . . who might be a prince.

I: Who's normally a prince. Yeah.

C: But there's a weak princess . . .

I: And they don't *say* she's stupid, but she probably is quite stupid.

C: Because she's stuck in a tower, and she's like, 'Help me'

I: 'Help me, I'm not going to try and save myself.' And then the princess always needs to get rescued by the prince. And . . .

C: Yeah, marry him.

I: Yeah, and marry him.

C: And live happily ever after. We wrote a role reversal fairy tale all about Athena, a self-trained engineer princess and her old friend Greta. (*reading to smaller children*)

I: Once upon a time, there was a princess called Athena. One day, Greta and Athena were riding through the forest and they heard a loud scream from inside the tower, buried deep within the forest. To their surprise, there was a dragon. 'What are you doing here?' Said Athena.

C: 'I'm just guarding this tower.'

I: The dragon said.

C: 'They've locked some wimpy prince in chains and of course, because I'm a woman, I get the worst jobs and the worst pay.

I: 'That's ridiculous.' Suddenly, a loud scream came from the top of the tower. 'Ah, my nail!'. 'Right, I'm going up' said Athena. 'Thank goodness somebody's here,' a voice said, 'There is no hair gel here, and I was locked up by my dad who will not accept me for the person I am. I don't want to be a king, I don't want to hunt, I want to be an artist.' Whilst all this had been going on, Athena had been looking in her toolkit for her laser cutter. 'Okay, keep still. This won't hurt - unless you move. Then it will hurt . . . lots.

C: The prince wriggled when he saw the machine, which was going to be used to save him.

I: Athena quickly cut him out of the chains. 'Don't let what your dad says get to you. Do what you want to do, that's the way I approach life. And thanks for rescuing me, by the way,' the prince said. 'No problem. See you again soon. Bye.' Said Athena. And they all lived happily ever after. Even though they didn't get married. (*applause from children*)

C: Boys need more positive role models.

I: If left unresolved, gender stereotyping can lead to sexism when children grow up. This is why we need to tackle it now.

35. Are maggots the key to a sustainable future?

The man who's turning food waste into maggot-based animal feed

Published on 8 September 2017

This video was made by BBC World Service

CAPTION: These little maggots could help tackle two of the world's big problems: how to feed our growing appetite for meat and what to do with all the food waste going to landfill. Currently, many farmed animals and fish are fed fishmeal which takes millions of tonnes of wild fish from the sea a year. Entrepreneur Jason Drew has another idea.

JASON DREW: We don't have to feed our animals fishmeal. In fact, naturally, a chicken in a field will grub around the field to find an ant or a maggot. That's what they naturally eat.

CAPTION: Jason set up a factory in Cape Town, South Africa to breed maggots using recycled food waste.

CAN CLAIMS *Factory Shift Manager*: The process starts where we take organic waste, which is from restaurants, hotels. Otherwise the waste would go into landfill. We bring them here and we mix them. We take the larvae which we have. We place them on the feed. After eating through it, the larvae is quite big. Then we dry it up. And from there we make our 'MagMeal'.

CAPTION: Jason's factory employs staff from the local township.

CC: The community's struggling because it's a rural community so with us building a factory here, we created a lot of life-changing jobs.

CAPTION: And so far, their maggots have gone down well with these hungry diners.

ANGUS MCINTOSH *Farmer*: I've actually from time to time tried their maggots, just chucked them amongst the chickens and the chickens love it, they go crazy for it.

JD: I'm passionate about two things. One is creating businesses. And the other is creating a sustainable future for us. So to be able to combine an entrepreneurial approach to fixing environment is quite rewarding.

36. Are men and women really from different planets?

Men are from Mars, Women are from Venus - from man caves to more hugs, what did the famous relationship guide actually teach us?

Published on 3 March 2017

This video was made by BBC Woman's Hour

ALICE LEVINE: We're definitely from different planets.

JAMES COOPER *My Dad Wrote a Porno*: You and I are, yeah.

JONATHAN SACCONE-JOLY *Vlogger*: We're sharing the solar system together, so we might as well get along.

ANNA WHITEHOUSE *@mother_pukka* (*pointing to solar system backdrop*) Here she is.

JC: I've never read a self-help book.

AL: That's apparent.

JC: That's very clear.

CAPTION: The most famous relationship book ever was published 'Men are from Mars and Women are from Venus', but what did it teach us?

JENNI MURRAY *Woman's Hour*: There we were trying to break down gender barriers.

JSJ: I read this book when I was a kid because I thought this was the answer to getting girls.

JM: And here was a book in its very title that went back to stereotypes, that we really thought we were moving away from.

JANE GARVEY *Woman's Hour*: I definitely don't think women are more sensitive than men.

JC: You're the aggressive one.

AL: I was going to say, in this equation for sure. Shut up.

AW: My husband keeps saying, there's sometimes just nothing going on. Like, I'm not that complicated.

JSJ: If you were able to hear your mind, and her mind's just like 'I think I'm hungry.'

CAPTION: How to score with the ladies.

JSJ: (*laughter in voice*) Four hugs a day?

JC: You hate to be touched.

AL: Oh, I hate hugs. Get off.

JM: Give her 20 minutes of unsolicited quality attention. Is that all?

JC: Don't read the newspaper or be distracted by anything else during this time. How was your day?

AL: (*laughs*)

JSJ: Practise listening and asking questions. How do you practise?

JG: Offer to build a fire in winter time – because she won't be able to do that herself.

JSJ: I can hear the words. I didn't realise I needed to be more involved.

JC: Wash her car!

AL: (*laughing*) What if I don't have a car? Just my hair.

JSJ: Resist the temptation to solver her problems. Oh, I do that.

JC: Surprise her with a love note or poem.

AL: That would be it. Get out.

CAPTION: How to please your man.

AW: He forgets to pick up something, she says, 'It's okay. You can do it next time you're out.'

JSJ: Yeah!

JG: Four magic words to support a man are 'It's not your fault.' I'd go along with that, as long as it isn't the blokes fault.

AW: She's happy to see him when he gets home. That's quite basic.

AL: My God, this is one of the most depressing things I've ever read. 'She really enjoys having sex with him.' Wow.

JG: Never go into a man's cave or you'll be burned by the dragon it says.

JM: Who would want a man who lives in a cave. Or a shed?

JG: I want to come back to Earth. Or come back in another life as this bloke. I mean, he's having the life of Riley there.

JC: So it's a basically it's a lot of affirmation for the man.

JSJ: I need to give this to my wife. Like, this is ridiculously accurate. This was written, actually about me.

JC: Men have to listen to women.

AL: Whenever they're talking.

JC: And for women, for men they have to . . . ?

AL: Just don't give any advice. Just, just . . . 'Sounds great, babycakes, you do that.'

AG: All of this explains why I'm divorced.

JC: I might stop reading this. It's long.

AL: It's really, really funny. Should we do a podcast about it?

JM: Oh, I can't read any more of this, I'm sorry. It's too painful.

37. Are millennials the most nostalgic generation?

It was a time of Game Boys, Tamagotchis and 10p Freddos - but is there more behind millennials love for the 90s? Cai Morgan takes a look.

Boom Cymru, 10 January 2019

FEMALE: Oh my god! I had one of these.

MALE: Memories!

FEMALE 2: Oh, my God, Gameboy!

MALE: How would you even take a selfie with that?

CAI MORGAN Millennials? Generation Y. Sandwiched between the pre-text self-confident nature of Generation X and Generation Z, born deep into the white knuckle roller coaster ride that is the digital age. Are millennials, the most nostalgic generation?

MALE 2: Yeah, I'd say I and pretty nostalgic

F2: I think am a nostalgic person.

F: It is very good to be nostalgic.

M: It makes you who you are.

CM: As we got closer to the turn of the millennium, the future seemed greater than ever. Blair promised that things can only get better. Easy Internet access brought the world to our doorstep. And even the Spice Girls were telling us that it was time for us to spice up our lives. But this optimism and future stability soon disappeared.

GENA-MOUR BARRETT *Freeland Writer*: I think that millennials are the most nostalgic, because it's like this running joke that millennials have it worse off than anyone else, particularly our parents, for example. When our parents or even grandparents went to things like university or college or things like that, they didn't have to pay. People could afford houses, rent wasn't £900 a month. We, as a generation, look to, you know, when Freddos were 10p and like, 'Oh this was the heyday' and, like, we'll make jokes about that. And hopefully, when we can eventually afford to buy a house, we'll all stop being so nostalgic about it.

CM: Disney are remaking some of our favourite childhood movies. Club night schedules are dominated by throwback nights across the country. Sportswear is back and so are Tamagotchis. So why do we really put timeworn filters on our high resolution images?

JIM WATERSON *Media Editor, the Gurdian*: So I used to work at Buzzfeed and one of the things we always did were, 'Things you only know if you grew up in a certain decade' or, 'Things you only know if you went to this university.' Or 'grew up in this town.' We did that because nostalgia is a really big pull. When I talk to my dad about what it was like in the 60s and 70s, he'd say that, if you didn't buy record that was out that week, then you'd never be able to hear it again. Whereas now we are so used to having everything accessible. We've got Spotify so you can listen to any music that's ever existed. You've got the ability to see every photo that's ever being taken of or tagged on the internet in one place and you've got the ability to watch any film that's ever existed, no matter how obscure. So the main difference, I think, is that you've got access to stuff in a way you didn't used to. You've got the ability to be nostalgic in a way that previous generations didn't.

DR JACOB JUHL *University of Southampton*: The conception of nostalgia has really changed a lot throughout history. Five, six hundred years ago, people largely thought it was a psychological disorder, one that again is associated with homesickness, depression, anxiety. While contemporary research that has been done really since the turn of the century has shown that is a more positive psychological influence on individuals' lives. People use nostalgia to help regulate psychologically adverse situations or feelings.

M2: Our generation, I don't think are very optimistic.

CM: 9/11, the Iraq War, the Boxing Day tsunami, Hurricane Katrina and the 2008 financial crisis, followed by rocketing house prices and an increase in tuition fees and widening political divisions. [*graphic showing Leave/Remain percentages*] Air strikes in the Arab Spring, two hung parliaments and [*montage of four speakers each* saying] Brexit. Brexit. Brexit. Brexit. It's fair to say that since the turn of the millennium, it's been nothing short of a bumpy ride.

JH: People are feeling that life really isn't all that meaningful. They tend to be more nostalgic in those situations. And nostalgia, in turn, helps them feel that, you know, their life has some sort of significance or purpose.

M2: We look back on our childhood as a time when it was full of hope.

CM: So is this the reason why levels of nostalgia are so high amongst the millennial generation?

JW: I'm not even sure the extent to which it's a millennial thing. I think nostalgia's always had a pull. I mean, you just need to look about the way that certain generations talk about World War II or something like that, or other people talk about the 60s. It's always been there. It's just that the things that people consumed were much more rooted in the present.

CM: Eventually, we millennials may reach a breaking point where we can no longer afford to dwell on the past. But I guess until then, we'll just have to relish in the fact that every day is a brand new opportunity to relive history.

38. Are our moral choices really our own?

How much free will do we have over the moral choices we make? Melissa Hogenboom looks at the philosophy of free will and morality.

By Melissa Hogenboom/Pierangelo Pirak, 16 March 2020

Made by BBC Reel

SCIENTIST: Okay, I'm going to ask you that question again. This time can you say, when I say, 'Tortoise', you say, 'What's a tortoise?' Okay, Melissa, you're walking in a desert.

MELISSA HOGENBOOM: I know what a tortoise is.

CAPTION: Free will.

PROFESSOR HELEN BEEBEE *Philosopher*: Most of the awful acts in history, like war, genocides or slavery are the result of acts of obedience, not disobedience.

PROFESSOR NEIL LEVY *Philosopher*: The law does suppose a compatibilist sense of free will.

PROFESSOR HELEN BEEBEE *Philosopher*: You need free will in order to be accountable. To be morally responsible.

CAPTION: We are what we do – the morality of free will.

MH: So now we get to the crux of it. What's the actual point of asking these questions about free will in the first place?

PROFESSOR PETER ULRIC TSE *Neuroscientist*: Because humans have the capacity to reason and humans also have the capacity to realise their potential and become a new kind of person. They are moral or immoral in the sense that they became the kind of person that could, for example, kill a girl. And they have some responsibility in having become such a person, because their own choices led to the cultivation of becoming this kind of person, say, a murderer. Or that kind of person, say someone who'll take care of children.

PROFESSOR HELEN BEEBEE *Philosopher*: So, if you . . . you offered me £100 to torture a kitten, I definitely wouldn't do it. Definitely wouldn't. Er . . . well done me. But why is it that I wouldn't take the £100 to torture the kitchen? Well, it's probably partly an external constraint. Like if £100 was going to . . . was life or death, maybe I would take £100 pounds and torture the kitten. But it's not. So there's the external constraints. But there's also internal constraints. Right? Here I am. I'm the sort of person that doesn't go around torturing kittens for a hundred quid. But that's a function of my background, my environment, my upbringing, all of those things. If I'd been brought up in a very different kind of environment, maybe I would have made a different decision. I wasn't really in control of the fact that I was brought up in that way. It's sort of silly, extreme example. But so, again, you can start worrying about not just the external constraints, like do I have the financial resources or whatever, but also the internal constraints, like how did I get to have the character I had? Oh, that was largely down to my parents, my school, my upbringing, all of those sorts of things, which again, were completely outside my control.

MH: One example of reduced control over our choices seems to be when following orders.

DR EMILIE CASPAR *Neuroscientist*: The moral behaviour of people can change drastically when they just obey the orders of an authority.

MH: Emilie devised an experiment to investigate brain activity in this scenario: two participants were sat facing each other where the agent could deliver a mildly painful electric shock to the victim in exchange for money. Sometimes she would order them to deliver the shock and other times she would not.

EC: Even if people know that, they can say no and refuse an order, specifically in the context of an experiment, because in the case of war, you can still consider that military are afraid of being sent to the, like, the military court. But for the sake of an experiment, people should mainly refuse to follow the orders to send the shock to somebody else. And in fact, we have observed that it's not the case. So I've tested about 600 participants so far and only five refused to administer shocks to somebody else, which is, like, not a lot for sure.

MH: How did the differences play out in the brain between the condition where the participant is free to decide how many shocks, versus when they're told to give shocks?

EC: So, what we have observed is that, first of all, the sense of agency of the agents is reduced when they obey the orders of somebody else. In comparison with

the condition in which participants are free to decide what to do. And that's very interesting, because the sense of agency is a subjective experience that everybody has when one is performing an action. Also, by using electroencephalography, we have seen that outcome processing is reduced when people obey orders. So it means, somehow, that when people obey orders, the brain uses less resources to process the surrounding environments. It's more like a passive condition for the brain.

MH: So here we see external and internal constraints having a measurable effect on brain activity and inhibiting our ability to freely choose our actions. And it's by no means the only situation where this is the case.

PROFESSOR NEIL LEVY *Philosopher*: We put people under all kinds of disadvantages in terms of knowledge, education, opportunities, even brain development, because you can show that poverty leads to less in the way of the capacity to inhibit impulses neutrally. And having put people in these circumstances through social choices, we then blame them when they commit the actions which they are likely to commit in any case. In that sense, I don't think we have free well.

MH: Can I unpick that bit? What is your objection to free will in terms of morality? Why shouldn't we punish someone if they do something horrific to another human being?

NL: Well, we may have to punish them. We have to do that for two reasons. One is to give reasons to other people: if you do these things, this is what happens to you. We may have to imprison or punish also just to prevent people doing it again, for the safety of others. What I'm denying is the retributive punishment, which is what we do. We put them in worse conditions, they come out worse, not better, in order to do that, some people try to justify the existence of free will. I don't think that's morally justified. I think that's treating the unlucky worse because they're unlucky. I don't think we have that kind of free will.

PUT: I don't think that that has to be the case. You don't . . . you don't have to have a punishment-oriented notion of justice at all. I think, you know, for example, the attitude in Sweden where you try to cultivate a new way of thinking in a prisoner as opposed to, you know, hanging them for being an evil person works great. And that is totally consistent with a libertarian free will.

HB: This is a very unpopular view, but I'm a bit inclined to think that moral responsibility kind of comes in degrees. And a big part of the reason why it comes in degrees is because control comes in degrees. So there's a sort of sliding scale of how much control we're exercising and degree of moral responsibility maybe kind of goes along with that. So it's not as though there's a cut-off point. Like, right here is the point where you flip from being totally morally responsible to not being morally responsible at all. It's kind of like you're a bit less morally responsible in this situation than you are in this other situation.

MH: That's quite interesting, because in the Dutch criminal justice system, from what I understand, it's the only system where there's five degrees of moral

responsibility when you commit a crime, it's not black and white. And the punishment is according to which level you are.

HB: That's really interesting. Yeah. And I think the British criminal justice system does tend to see things in black and white. So there's an insanity defence for murder, but it sets the bar pretty high. But that's kind of it. When you think about the age of criminal responsibility, I mean, you know, in some sense, when you've got legal system, you need to impose some boundaries. But the idea that you suddenly flip from being the kind of person that can't be convicted of a crime to someone who can. That's a very strange idea, right?

PUT: We did not solely realise our capacity to choose. I think there's a tremendous amount of scaffolding that goes into the construction of our brains and minds. So just as a building needs scaffolding to be built, but once it's built, you can take the scaffolding away and it is as if the scaffolding was never there, the human brain and mind needs the scaffolding of our culture, of our family or our society, our community to help build us up in every way. Right? We didn't invent our mother language. Right? My mother language is English. I didn't invent English. I was surrounded by people who spoke English as scaffolding. And then I incorporated this incredible gift of English into my mind. Now, I don't need those people. I can go off and live on an island and I have incorporated it and I have the tremendous freedom afforded to me by having language incorporated into my brain. So a lot of the scaffolding happens, I think, before the age of five. And we, as a society, should really think about how can we enhance the scaffolding that goes into the construction of human minds and affords their ability to volitionally choose later in life. How can we enhance that? Our society doesn't really ask that question.

PUT: Well, I think we do have to face up to the fact that certain people, through no fault of their own, are more likely to commit crimes than others, because badly distributing resources damages people. But they're not necessarily lovable because they're damaged, but they have a right to better opportunities. And we have an obligation to ensure that the next generation isn't damaged in the way they have been.

HB: So thinking about free will is much more than academic navel gazing. There are real world implications that force us to reflect not only on ourselves, but the societies we wish to build. Our consciousness, determined or not, does have a direct impact on the universe, where the choices we make will play out for all time.

PUT: So consciousness seems to play a very fundamental role in the universe, especially our own actions. How can this be? Well, my guess is that when we finally understand the neural code, the neural basis of consciousness and how mental events can be causal, science itself will look very different because it will force science to embrace the subjective, to bring the non-publicly observable into the heart of science.

39. Are we living in 'an age of anger'?

Indian author Pankaj Mishra argues that we need to look again at the ideals that underpin democracy.

First published on 8 August 2017, 2 February 2017 (Sic, both dates are online)

PANKAJ MISHRA: Blame modernity for our age of anger. How do we explain our age of anger? Why do racism and misogyny flourish on social media? What is the appeal of lying demagogues? Since 9/11, we have blamed the other, mostly Muslims, for political disorder. But the enemy now is more intimate, as we can see in the rise of Trump and the far right across Europe, the modern world, cherished ideals of liberty, equality and prosperity are more popular than ever before. The problem is that it is difficult for the vast majority of the human population to realise them. These ideals for formulated by a tiny minority of ambitious white men in the 18th century, slave owners in America and networked intellectuals in Europe. Their projects of self and parliament were never meant for the masses, for people not like them. Since 1789, many people so deliberately excluded, whether women enslaved or colonised peoples or the working classes, have struggled for liberty and equality through either revolution or social democracy in recent decades. We have stopped talking about revolution and dismantled social democracy. We have transferred our expectations to the markets. We hope that global capitalism would create general prosperity and equalise societies instead, as more and more people around the world have sought wealth at increasing cost to the environment. We have seen a massive increase in inequality. The result is a toxic politics of resentment that demagogues exploit. This militant disaffection incited by unequal societies is nothing new. For the last two tumultuous centuries, we have been encouraged to pursue ideas that were designed for the benefit of a homogenous few. Billions of people are now chasing a very fragile illusion with ever increasing frustration. To understand our age of anger, we must not only look at the symptoms such as ISIS, economic disparity or the far right, but also at the root cause, the ideals that underpin modernity. Only then can we make the ideas of liberty and equality work for our diverse and environmentally challenged societies.

40. Are you a hedgehog or a fox?

Statistician David Spiegelhalter explains how woodland creatures can help us understand our ability to predict the future.

Published on 27 June 2019

Based on a series from Radio 4

DAVID SPIEGELHALTER, UNIVERSITY OF CAMBRIDGE: Are you a hedgehog or a fox? Are you able to deeply focus on one specific activity such as rolling up in a spiky ball and sleeping through the winter? Or are you alert to changing circumstances and keep your eyes and ears open to new threats and opportunities? My name's David

Spiegelhalter, and I'm a statistician and fascinated by the problems of risk and prediction. Philosopher Isaiah Berlin wrote a famous essay, The Hedgehog and the Fox, after a famous poem by the Greek poet Archilochus who said... The fox knows many things, but the hedgehog knows one big thing. Think of the people you know, either privately or public figures. Are they hedgehogs, with one overarching way of looking at the world, through which they interpret all around them? Or are they foxes, with no big principles of philosophy, who muddle along adapting to what turns up and changing their minds along the way? Politicians of course tend to be hedgehogs, but some are more pragmatic and foxy than others. Now, who would you trust most to make predictions about the future? A confident hedgehog or an uncertain and vacillating fox? This was put to the test in a long series of experiments by political scientist Philip Tetlock, who studied 284 experts making 28,000 predictions about long term events. Tetlock was looking at who predicted best. And mainly it made no difference whether the forecaster was an optimist or a pessimist, conservative or liberal. The only consistent pattern was how they thought, not what they thought. He found that foxes were much better at predicting than were hedgehogs. And hedgehogs were particularly poor at subjects at which they were experts. They were just too confident in their forecasts. A classic hedgehog was the historian Arnold Toynbee, who in 1947 was declared TIME magazine's Man of the Year. Others wrote that he was... The most renowned scholar in the world A universal sage ...largely because his great work, A Study of History, spoke to the biggest fear of the time, that nuclear weapons were going to end civilisation. Toynbee made the confident and comforting prediction that this wouldn't happen... because it was an opposition to his self-proclaimed scientific theory of history. Toynbee thought that Western civilisation wasn't nearly done yet, because it hadn't reached the stage of universal government and a religious renaissance. All 23 civilisations he had studied had done so before they collapsed, and so would the West. He thought the golden age of universal government and religious observance would start around the year 2000. His peers were sceptical and they were right. Today Toynbee is hardly remembered, except perhaps as a classic hedgehog. In his book, Future Babble, Dan Gardner identifies three characteristics of good forecasters. Number one: aggregation. They use multiple sources of information, are open to new knowledge and are happy to work in teams. Number two: metacognition. They have an insight into how they think and the biases they might have, such as seeking evidence that simply confirms pre-set ideas. Number three: humility. They have a willingness to acknowledge uncertainty, admit errors and change their minds. Rather than saying categorically what is going to happen, they are only prepared to give probabilities for future events. Acknowledging, in the words of that great sage, Donald Rumsfeld, both the known unknowns and unknown unknowns. So when someone is telling you what is in store for you, the country, the world... just ask yourself, are they a hedgehog or a fox?

41. Are you going to the toilet wrong?

If you're sitting on the toilet watching this then stop! Here's why you should try squatting instead...

Made by Objekt Films, 10 September 2019

CAPTION: The average person spends over six months of their life on the toilet. And produces 145kg of faecal matter per year. That's about the same weight as an adult panda. But . . . are we going to the toilet wrong? In the mid-20th century, a group of European doctors working in rural Africa were surprised to find very few bowel and digestive issues. The trend was reflected in other developing countries across the world. This wasn't just about diet. The average time spent passing a bowel movement in the seated position is between 114 and 130 seconds. In the squatting position, this is just 51 seconds. Sitting on the toilet puts our anal canal at a 90 degree angle. This causes muscle in the pelvic floor to choke our colon which leads people to strain on the toilet. So why do we use sitting toilets in so many parts of the world? It's thought that the first basic toilets date back around 6,000 years, to ancient Mesopotamia. By AD315, Rome had 144 public toilets – and going to the toilet had become a social event. A 2,000 year old toilet, unearthed on Rome's Palantine hill, had more than 50 holes together . . . cosy. Many people think Thomas Crapper invented the modern seated toilet . . . but he only patented the design in 1861. The first flushing toilet was invented in 1592 by John Harrington, who named it the Ajax. Crapper did, however, develop the U-bend. It was this invention that led to toilets being raised off the ground – to make them easier to install. Hence the sitting toilet, which came to be seen as a sign of European achievement and 'civilisation'. But sitting and straining has been linked to haemorrhoids, fainting and even strokes. In the mid-1960s, Cornell University professor Alexander Kira, described the seated toilet as 'the most ill-suited fixture ever designed.' Elvis Presley's doctor speculated that the heart attack that killed the King was brought on by straining on the toilet. So is it time to rip out our cisterns? Not necessarily. Simply raising your knees slightly from 90 to 35 degrees will help relax your bowels and reduce the strain on the bend where the colon meets the rectum. Maybe there's some use for those phone books after all.

42. Are you sharing too much online?

For many parents, it's natural to share images of their children on social media. But is this fair? We explore the ethics of "sharenting".

Made by Silverfish Films, 7 May 2020

The Open University

Made in partnership with The Open University

INTERVIEWER: Have you guys heard of the term sharenting?

CHILD OF ZANYA: No.

LORENZO *Father of Two:* Er, sharenting? No.

Sharing about being a parent?

Those parents that share everything about their children online?

CAPTION: The Ethics of Sharenting

Caption: Sharenting NOUN (2016) The habitual use of social media to share news, images, etc. of one's children

ZANYA *Mother of Two:* It's something that I do quite regularly to be honest.

L: People come to this country, they haven't been back, they have kids and make their life here. Some of my family back home have never seen them before. If I didn't put them on social media they wouldn't see them.

CAPTION: By age 5, the average UK kid has 1,500 photos of them online. But with posts potentially visible to millions, how do young people feel about sharenting?

CHILD OF ZANYA: Sometimes I get really embarrassed when my mum posts stuff on her Facebook page or her Instagram or whatever, very embarrassing.

CHILD OF ZANYA 2: Very.

ZANYA: Very? -Mmm.

ROSE CAPDEVILA *The Open University*: They might not want their friends to see them that way. They want to have some kind of control over their image. There's a famous case of Gwyneth Paltrow posting a picture of her daughter Apple and it was a selfie. There was nothing really, you would think, contentious about it, yet her daughter complained about it.

CAPTION: (Twitter post) applemartin - Mom we have discussed this. You may not post anything without my consent. Gwynethpaltrow - You can't even see your face!

CAPTION: Apple argued that she had not given consent for the image to be posted. This is becoming more and more a point of tension between parents and children - especially teenagers.

CHILD OF ZANYA (*reading*): In France, kids can sue their parents for sharing too much about them

ZANYA: Wow, I'd be in trouble.

KATE: They're posting about people who are not themselves and that could impact us when we go out into the real world and try to get a job, for example.

EVIE: There is an element of trust there between a parent and a child I'm not comfortable with my face being shown without me knowing what actually I'm being perceived as on their platform.

JOE: It may not seem like something which is particularly significant. It may be very personally upsetting to individuals what parents put up on the internet.

K: For people of our generation, your online identity isn't so much seen as separate from your real-life identity but just an extension of it.

LISA LAZARD *The Open University*: Social media profiles are identity projects.

ZAHRAH I don't think that the government as well as parents should take control over our online identity because it is a part of who we are and we use our posts and stuff like that to express ourselves.

LL: It draws attention to the kind of complex everyday work that those posts are doing which are not about showing off.

VICTORIA NASH *Oxford Internet Institute*: Sharenting isn't new. Those of us that can remember cringy moments seeing kids' photo albums handed around to friends and family know all too well that this is a fairly fundamental urge on behalf of parents to share their pride about their children. It's a way of showing that you're doing that parenting. What is new about sharenting in the digital context is of course that we are leaving a fairly extensive and lengthy digital stream of photos, comments, stories.

CAPTION: The urge to share is a human one - and there are many benefits. But is it fair for children? What are the dangers?

JOANNA, *mother of a young baby*: We didn't want to invade her privacy, even though she's just a baby. That's going to stay online forever.

MARCOS, *father of a young baby*: Any image you post now is going to be on the internet forever and then we don't know what's going to happen in the future with things coming up like deepfake and you're just giving your kid's image away.

CAPTION: There are three key pieces of information used in identity theft: a person's name, date of birth and home address. These may often be posted by parents on social media through location tagging or birthday posts. By 2030, Sharenting could account for up to 7 million incidents of identity theft (2/3 of identity fraud)

CATRIONA HARVARD *The Open University*: Especially now with face-recognition software by posting facial images online you're helping them create a database. You don't know how these images that you've posted are going to be used.

VN: Unfortunately we have paedophile groups who will literally sort of scan videos to take out single shots which seem to expose parts of a child's body or . . . and that's a horrifying thought so I think a lot of this is about education and changing social norms.

LL: One of the strategies that I use is taking pictures of them when they're not actually facing the camera so you can't see her face.

VN: These new digital tools enable us to look back on nice moments from our child's early days, early years, development, etc.

FIONA *Mother of two:* Funny little things that you write on there and then it's like, "Oh yeah that happened then, like a whole year ago."

CHILD OF ZANYA: It's pretty good to let all her friends know that I did this, oh, I went to this school and like, knowing that, oh like, I'm really happy.

VN: If sharenting is done in a responsible way and it enables families to have conversations, for example with their kids as they get older about what you want to have online, how you portray yourself, then actually I think it can be a really important step towards keeping kids themselves safe as they become digitally enabled adults.

43. Are you suffering from eco-anxiety?

Psychologists report a rise in people suffering from climate change anxiety or eco-anxiety. What's it like? And what can you do to cope?

Made by BBC Northern Ireland, 19 March 2019

KATE MONSON *Environmental Cultures Researcher:* If I don't think the future is worth anything, then I'm not gonna have children if I think it is worth something. I will have children.

NIK THAKKAR *Artist*: We are already seeing coastal city flooding. We're already seeing forest fires. We've seen flash floods. We've seen tornadoes when big ecological disasters happen around the world. I feel a sense of anxiety. I feel a sense of sadness and a sense of loss.

SAMUEL MILLER MCDONALD *Oxford Phd Student and Writer:* So imagine you go outside and you look up in the sky and there's a comet there and you know, you've just been told by scientists that that comet is racing toward the Earth and it's going to kill everybody and everything and a big firestorm and nobody else notices the comet. And you say, hey, look, there's a comet and it's going to kill all of us. And people just don't seem to care.

DR STEFFI BEDNAREK *Psychotherapist:* Climate change anxiety as a term is a relatively new term, but by no way a new phenomenon. It's an anxiety that is about the future and trauma that we haven't experienced yet, but that we know is going to come our way.

CAPTION: Dr Steffi has invited three climate change anxiety sufferers to discuss their fears. Psychologists report a big increase in people with anxiety relating to climate change in both the US and UK. *Source: Climate Psychology Alliance*.

SB: . We're facing a very existential fear. This is not a fear about 'How does my body look?' or, 'Am I popular enough?' This is a fear about our survival.

CAPTION: The term "eco-anxiety" is sometimes used, which the American Psychological Association defines as a "chronic fear of environmental doom".

SB: What is it that makes you anxious? What . . . what are the thoughts or what are the details that, when you go there, that's when you touch your anxiety? [*all three clients look anxious*]

NT: In other parts of the world, that are being more affected by climate change than the cities that we currently live it, that's what I feel like . . . we're not doing enough.

SMM: One of the most sort of potent anxieties is the fear of people mistreating each other out of panic and fear, and, you know, it's more maybe how people respond to that.

KM: I just keep thinking about a small child, probably myself. And I just think about how innocent, my . . . God, I'm emotional already. Erm . . . that memory I have of being a child. And it's so valuable. And I just think about all the people that aren't . . . that don't have that preciousness about the world. And I think that's really . . . that's a privilege that is just disappearing. [*in different shot, to camera*] Yeah. I get emotional when I think about the effects that climate change and its related issues will have, I get very angry about those. I feel very powerless. I feel very frustrated.

SB: I think we need more and more people to wake up to this. And anxiety is part of a way of digesting the information. There's no way around that. [*in group*] What is the part that you can play in stretching out and mending the part of the world that is within your reach?

SMM: In the face of constant defeat, just kind of stubbornness and tenacity.

NT: Understand what your impact as a human being is on the planet.

KM: I feel so helpless. But . . . but so empowered by that helplessness that I then want to try and do everything and so (*inhales and exhales*) . . .

SB: We see an unprecedented amount of people who present with anxiety that they can't even locate. And I'm wondering whether this is that people are actually picking up that something is not right.

KM: I don't think it's all . . . I have to believe it's not all bad. Maybe things will be fixed by the time you're an adult and it'll be good. (*laughs*)

SMM: I feel the most hopeful when I remind myself how bad humans have always been at predicting the future.

B

44. BBC presenters share their lightbulb moments

BBC presenters Kim Chakanetsa, David Edmonds and Nomia Iqbal share the ideas that changed their lives.

Published on 7 March 2018

This video was made by BBC Ideas

KIM CHAKANETSA *BBC World Service*: I think over the years, my idea of what objectivity means has started to shift slowly. It went from being quite hardnosed to trying to find a balance between being clear-eyed but also being compassionate. That's a hard balance, a tricky balance to find sometimes. But I think it's one worth aspiring to.

DAVD EDMONDS *BBC World Service*: I studied economics as part of my degree, and when I studied economics, it was all what was called rational economics. And the thought was that humans are rational creatures. And that's what I believed, more or less until I read the work of the Israeli psychologist who won a Nobel prise in economics, Daniel Kahneman. And he just points out that we're not rational, but we're deeply irrational. And more than that, we're irrational in predictable ways. We get things consistently wrong in certain ways. And that's changed the way I look at the human race completely.

NOMIA IQBAL *BBC Asian Network*: The idea that changed my mind happened many years ago when I worked as a receptionist, at a company, and there was this perception that some people worked harder than others. And so our boss had this idea for us to swap jobs for the day. And so I went from being a receptionist to becoming a manager. And it gave me a real insight into another person's job. And it helped me open my eyes and make me realise that not everything is how it seems.

45. Breaking taboos with tattoos

Tattoos can be frowned upon in Asian culture, but tattoo artist Heleena Mistry is trying to challenge this.

Published on 6 February 2018

This video was made by BBC Stories.

HELEENA MISTRY: Hi, I'm Heleena Mistry. I'm 21 years old. I work in Leicester and I'm a tattoo apprentice.

CAPTION: Heleena is one of the few female Aisan tattoo artists in the UK. And her clients are mostly young Asian women.

HM: I grew up in a Guajarati household and we always had Indian artwork, all over the walls. And I just thought, 'What a great way to kind of combine my way of growing up and bring it to an industry that doesn't really have somebody from this background representing this kind of artwork.'

CAPTION: Heleena says India has a strong tradition of tattooing.

HM: When I was a lot younger and I didn't realise what it was, I was really fascinated by how older Indian women would have loads of tattoos on them. Or these, like, weird little dots. And I kind of marked myself as well, because it just showed how I grew up and the images that I saw on Indian women and how beautiful I thought it was.

CAPTION: Heleena says tattoos have now become taboo in Indian culture.

HM: How will you find a husband? What are your in-laws going to think? Like, who would want a daughter-in-law or a girl with tattoos? And it's . . . it's always the older generation that thinks that. And it's . . . and it's not something that defines you.

CAPTION: She's also been criticised on social media, where she advertises her work.

HM: When I do Indian pieces on non-South Asian clients, I do get a bit of controversy, into . . . is it cultural appropriation to have a non-Asian have South-Asian tattoos? And it's . . . it's each to their own, really. I feel like you can't tell somebody that they can have something that means something to them, especially if it *does* mean something to them.

CAPTION: So what's next for Heleena?

HM: I'd absolutely love to work somewhere in London and just kind of grow myself, grow a clientele and just be known for being somebody that represents South Asians and somebody that has gone against the norm to show that it's okay to not be a doctor, be a lawyer. It's okay to do something different and not disrespect your parents or just be a shame to the family just because you stepped outside the norm.

46. Britishisms: Know your mucker from your muppet?

An exploration of Britishisms – that variant of English that is peculiarly British – by poet and writer, Ian McMillan.

Made by Somethin' Else 10 July 2018

IAN MCMILLAN: A to Z of isms – Britishism. Britishism, a term denoting a word or phrase that only functions properly and without footnotes in the United Kingdom, but which has begun to spread across the globe like a cup of tea spilt over a map of the world. Some examples of Britishisms: numpty for a person you consider to be not as clever as you. Muppet, for a person you consider to be not as clever as you.

Fancy – as in, 'I fancy you'. Gobsmacked for being startled or amazed, 'I'm gobsmacked that you fancy that numpty' would have been unfathomable a few years ago. But even Obama has used the word 'gobsmacked' and he's no numpty. A British person in that vast area of the atlas that he calls 'abroad', someone behind a counter in a shop says. How are you? And the British person replies. 'Fine, thanks. How are you?' Which, of course, the person behind the counter wasn't expecting. To the British person, it's a genuine question, to the rest of the world it's just a little flag in the foothills of the day's conversation. Although the word Britishisms was first uttered in the 19th century, it's become more prominent in recent years for reasons that are hard to fathom, but which may have something to do with the international spread of Englishers and the way that, when they rub against each other, sparks can fly. Every country, every region will have its own -isms, of course. There'll be Frenchisms and Australia isms and Canadianisms. And they begin, I guess, with the microlanguages within national borders that don't travel too far or didn't travel too far before we all began to travel. Within Britain, there are various local words that are their own postcode versions of Britishisms, not moving far across what linguists call an isogloss, a place where language use changes over a small geographical space. So in the British Isles, you could say, 'Come in pal, mate, mucker, lovie. Come in my duckie, come in flower, petal, sit down. Sit down on the sofa or the settee, in the front room, the sitting room, the living room, the other room, the lounge.' The essence of the Britishism is perhaps the essence of the British psyche. Eccentric, self-effacing, gently poking fun at itself. To be a trainspotter, with your notebook, scribbling down the numbers of the engines as they trundle by is a very British thing. Welcome to the world of Britishism-spotting last one with an open notebook is a numpty.

47. Buckle up for a drive... in the chicken poo car

Nothing to see here... Just a man powering a car engine with chicken poo. In 1971.

Published on 2 February 2018

This video was made by BBC Archive

CAPTION: This is inventor Harold Bate. Over 50 years ago he had an extraordinary idea to harness the power of poo and invent a car that ran on chicken manure.

HAROLD BATE: You can run a car on chicken manure. You can run it on the gas made from chicken manure. Methane gas, which is natural gas.

CAPTION: Methane was collected from decomposing animal waste. It was placed in a canister which sat inside the car boot and then passed to the car engine via the 'Bate Auto Gas Converter'. And voilà! An effective propellant at pittance of the retail price. Bate proclaimed the poop 'better than petrol' – more powerful and pollution-free.

INTERVIEWER:Well, there's a lot of chicken manure about why aren't we all driving on it?

HB: Well, the simple reason that a lot of people don't know about it, people who do know about it are driving on it.

CAPTION: Sadly, Bate's idea didn't catch on during his lifetime probably because the public was wary of gas-powered cars, fearing them smelly and even dangerous. But in subsequent decades, several unusual car fuel sources were tried. Compressed air. Liquid nitrogen. Chip fat. Whisky residue. Human waste.

PRESENTER: It's a Volkswagen Beetle with a two litre petrol engine. If we just take a look in the boot here, you can see the tanks where the methane gas is stored.

CAPTION: Unveiled in 2010, the so-called 'Dung-Beetle' worked similarly to Bate's 'Chicken Coupe', used gas produced by human excrement. Nowadays, there is a methane-powered bus in service between Bath and Bristol airport and many more are planned. So whilst Bate's chicken manure engine didn't quite take off, gas made from waste, including our own, will certainly be part of our future energy mix.

48. Busting some common myths about being trans

What does transgender mean? How are trans people treated? Three trans people answer some of the most commonly searched questions online.

Made by ITN Productions, 16 December 2019

RYAN: Are trans people gay?

CHARLIE MARTIN: What surgery do trans people have?

ELLIS JOHNSON: Can trans people have sex? Yes. End of story.

[INTRO GRAPHIC: ASK US ANYTHING]

R: Hi, my name's Ryan.

EM: I'm Charlie Martin.

EJ: So my name's Ellis Johnson.

EM: And I'm proud to say that I'm also a trans woman.

EJ: I identify as a trans man.

EM: There are all kinds of questions floating around the internet…

EJ: Let's clear the air.

[INTRO GRAPHIC: “We put some of the most asked questions on the internet to our guests… // … the questions you’d love to know the answer to, but might be too embarrassed to ask…"]

[QUESTION GRAPHIC: WHAT DOES TRANSGENDER MEAN?]

EM: What does transgender mean? Well… good question, because I think there’s still a lot of people that don’t fully understand the real basics. So for me, to put it simply, I was pronounced male at birth, but identify as female and so I’m transgender because I’ve changed my exterior gender presentation to match how I feel.

EJ: An easy working definition to think of is that it is somebody who doesn’t identify with the sex or the gender they were assigned when they were born. And in this country at the moment, you have to be classed as either male or female within six weeks of birth and that sticks with you then for the rest of your life really. Unless you’re transgender, in which case you identify as something other than the sex or the gender that you were assigned.

EM: How do you know if you’re trans? OK, so I came across a really good metaphor for explaining this recently. The first time you picked up a pen or a ball or a tennis racket and you tried to use it, how did you know which hand to use? You tried it with one hand and then you tried it with the other hand, and one hand felt natural and one hand felt unnatural. When you’re walking around with the wrong gender identity and the wrong gender expression, you just know it feels unnatural.

[QUESTION GRAPHIC: HOW DID PEOPLE REACT WHEN YOU CAME OUT TRANS?]

R: My mum, sorry if you’re watching this, she didn’t react very well.

EM: I thought it was going to be a lot worse than it actually was in my own mind. I’m not trying to say it was easy, because it wasn’t at all, but I think from my point of view I probably spent 25 years worrying, and I’d built it up into this horrible thing in my mind that nobody would want to know me or be my friend or anything. Most people were actually just really supportive.

R: My uncle and aunt - they’re great. The first things they asked were, “What pronouns do we use? And what name do you want me to use for you?” And “Is there anything we can do to make it easier?”

EJ: There was only one person, and I won’t forget them, she threw her arms around me and sort of squealed and went, “Congratulations this is amazing! What do you need from me? What can I do?”

R: Anyone who was quite negative about it, I just chose to cut them off - as mean as that sounds - but you kind of have to put yourself first in that.

EJ: Are trans people gay? They can be.

EM: You gender identity is something that’s in here - it’s in your head, and also I think it’s in your heart. You know it’s kind of in your soul. It’s who you feel you are.

Who you feel you are is completely independent of who you're attracted to. So these are two very distinct things that shouldn't be confused.

R: I personally am. But that's just me, personally.

EM: I know when I told people that I was trans, initially quite a few people were like, "Oh is this because you want to be with a guy?" And I was just like, "No, no, no this is nothing to do with that."

EJ: What surgery do trans people have? Firstly, the main thing to think about is not all trans people will have surgery. Not all trans people will want, or need, surgery. But I think it's really important to not focus too much on this idea of surgery, because most of the time, or a lot of the times, specifically in the media, trans people are reduced to body parts.

EM: Most trans people would be very offended if somebody asked them that question. It's a very individual thing, and it's really quite a personal thing as well… Something that quite often I get asked by people, "What surgery have I had?"

EJ: Be careful about why you're asking that question, and in nine times out of 10, you probably don't need to know about it. So steer clear of asking surgery questions, unless a trans person wants to offer you that information, or they want some support, maybe they want to talk about it. But be careful not to ask on your own terms, because trans bodies are not for entertainment.

R: How are trans people treated? Like rubbish honestly.

EM: Hmm… How long have we got?

EJ: Trans people at the moment are treated as a trend. We're treated as being dangerous. We're treated as being abnormal and probably yes, mentally ill as well. There's lots of ways we're treated that are really terrible.

EM: Trans people suffer a huge amount of discrimination, and it's really, really frustrating because it doesn't need to happen. I think if most people could live a week in a trans person's shoes, their whole perspective would change. It's something that I hope to see happen in my lifetime.

[QUESTION GRAPHIC: WHAT IS THE QUESTION YOU WISH PEOPLE ASKED YOU?]

R: I just kind of wish people would ask more about me as a person than inherently going straight into the deep trans questions.

EJ: I wish that people would ask me, "Is what I've read true?"

EM: "How can I be a better ally to the trans community?" is probably the question that I wish people would ask.

C

49. Can education heal the rifts in US society?

Carlos Watson, CEO of Ozy Media, shares his views on lifelong learning - part of a new series featuring ideas recorded on a park bench.

Recorded at Ozyfest - published on 27 July 2018

Made by BBC Ideas and World Service

CARLOS WATSON *Founder and CEO, Ozy Media*: I'm the son of two teachers who married late in life and still had four kids and mostly a kid who grew up black in America in the 70s and 80s, which means I'm an optimist. I think that there are seismic changes going on, not only demographically and not only technologically, but clearly there's a big political divide. In a world in which there are a lot of things up for grabs: Black Lives Matter, robots, national anthem, nuclear weapons like big fundamental questions that people are revisiting. I think helping people think clearly about these is critical. And so even though I know that in some ways the political situation in the States feels very divided, I'm actually more hopeful. And I remember what President Obama said, pointing out what happened in Iowa, often conservative state that he won not once but twice and not by one or two points, but often by double digits, and then flip back to President Trump in this election. And he actually saw that kind of swing as a positive thing and as a reminder that the system isn't very open. It's very fluid that you can change people's minds, but that you've got to do the work to do that. And so I'm hopeful that that work will happen not only by politicians on a retail level, but that there'll be big animating ideas. Maybe there'll be ideas on education. As the son of teachers, I think a lot about how to help kids who often seemed trapped in bad schools get to a different place. As an entrepreneur, I'm really interested in how we make sure that people who come from more modest backgrounds actually get a chance to start these cool companies, rather than people who maybe come from wealthy or upper middle class backgrounds, which is a lot of, frankly, what we see in Silicon Valley and elsewhere. I am a genuine believer that human potential is spread broadly. I'd love to think about our society kind of doubling down not just on education when you're young, but kind of lifelong education. And a really kind of rigorous encouragement of people to kind of really reach and stretch and grow. And when I say that, I don't just mean professionally, but I mean, what kind of parent do we end up being? What kind of lover, husband or friend or wife do we end up being? What kind of person do we be in terms of the kind of things that we care about? So lifelong learning and really rigorous and vibrant lifelong learning would be an idea that I get excited about.

50. Can fashion ever be sustainable?

Can the fashion industry ever be sustainable? And what can you do? Model Charli Howard, host of a new podcast, Fashion Fix, takes a look.

Published on 13 September 2019

Made in association with BBC Sounds

CHARLI HOWARD: So I don't know if it's ever going to be completely possible to be 100 per cent sustainable, but I think you can start off by not ordering as many clothes off the Internet. No one needs that many clothes.

GRAEME RAEBURN *Performance Director at Raeburn fashion studio:* I think ultimately, no, it can't be sustainable because everything is going to have an impact of types. But what we can do is actually radically reduce the impact that it's having.

CH: Fast fashion can be described as clothes that come out every single week in order to satisfy the consumer's needs and wants. And as we're finding out, it's incredibly bad for the environment. We live in a world of Instagram where there's just images every second of the day just being pumped onto your feed. And I think that when it comes to clothes, this kind of creates this excitement in the consumer where they constantly need more.

GR: I think particularly in the United Kingdom, we have a problem with fast fashion and very much profit-driven fashion industry, ever wanting cheaper and more affordable, more rapid turnaround types of clothing. Something might be half as cheap, but if it lasts for only 25 per cent of the time, it's a false economy. Comments are made for lower quality, which means that they're worn less and then actually ultimately thrown away into landfill or incineration. And all of this is very bad for dwindling natural resources on this planet.

CH: Just like diversity, being sustainable is a real buzzword right now. And a lot of companies are jumping on that bandwagon, because it makes them look good. It makes the consumer feel that they're doing something good when they buy a product as well.

GR: On one hand, the fashion industry has been very irresponsible in the pursuit of always having new looks and new trends and celebrating obsolescence, some people might argue, but also with that has come a very rapid processing ability. And there . . . the opportunity is to embrace these new fibres, new processes, new, more environmentally responsible technologies, which actually will make for a more sustainable future for us all. Certainly, some of the more environmentally sound materials are more expensive, but increasingly, as their popularity grows, their actual . . . the cost of the fibre and the manufacture will actually come in line with other traditional fibres. I'd like to think that the UK has pioneered some of the most radical and innovative areas of fashion, both in production and stylistically, and the opportunity now lies with us to do the same and become global leaders in responsible and accountable fashion, too.

CH: I definitely think companies need to be transparent when it comes to how they recycle their clothes. I think that they owe it to us and I think they owe it to the environment as well.

GR: First of all, think about it. Do you want it or do you actually need it? Try and discern between those different states of mind. And if you do absolutely need something, really consider what it is that you're buying, where it's from, what it's made from.

CH: Here are some of my top tips on how to make your wardrobe more sustainable. Wash your clothes less often. The average laundry cycle releases thousands of tiny plastic fragments into the waterways. Donate, sell or swap unwanted clothes. Before you purchase something, make sure that you can really commit to wearing it at least 30 times. Dressing sustainably does not mean that ou have to compromise on style.

GR: The honest truth is that actually fashion is happening and will continue happening. So this might actually prompt more creative explorations of the space, more responsible, accountable types of design and consuming, potentially, into the digital or the virtual. The fantastic thing about the problem with clothing is we're all part of the problem, but we're also all part of the solution.

51. Can hacking your brain give you an extra sense?

Liviu Babitz explains the bio-hack device that he's used to gain a new 'sense'.

Published on 19 July 2017

This video was made by Tomorrow's World

LIVIU BABITZ: There is nothing worse than not knowing where you are. Completely losing your orientation or your location. That cannot happen to me anymore.

NARRATOR: Liviu Babitz is part of a new wave of biohackers. He has an innovative device anchored into his flesh.

LB: This is the North Sense, which is the same thing that I have here. That's to my . . . to my chest.

N: The North Sense works by detecting the Earth's magnetic field.

LB: Each time you will turn it towards north, it will give a slight vibration. So the functionality of it is very simple. What is more complex is the impact that it has on your brain.

N: After several weeks wearing the device, Liviu realised that sometimes he could no longer feel the vibrations?

LB: I was oh, my device is not working. But then you realise that it is working and my brain just started to filter out part of those vibrations.

N: Studies have shown that our brains are remarkably malleable, able to incorporate new stimuli to alter how we perceive the world. For Liviu, the device appears to do far more than just improve his ability to navigate.

LB: The North Sense is giving me a new sense. I can always zoom out in my brain and know exactly which way I am walking or how I'm located on the planet. There is a whole other world that I'm connected to in a much wider way.

N: Some neuroscientists think these kind of experimental devices could unlock totally new human experiences, while others believe that trying to force a new sense into your brain could do irreversible damage. But to Liviu, the benefits far outweigh the potential risks.

LB: We can start sensing things that otherwise we have no ability to. Our senses make us human and having more senses would just make us more human.

52. Can social media actually be good for us?

Katie Thistleton finds out if we can use creativity to 'hack' the way we use social media - and actually benefit our mental health.

Published on 21 March 2018

This video was made by Tomorrow's World

KATIE THISTLETON: Our phones. It seems we're dependent on them. They're a useful tool. A form of communication and connectivity. Yeah, they can be distracting, even addictive. I'm certainly guilty of it myself. What with Instagram, Twitter and Facebook, I can't even count the amount of times a day I'm on social media. I mean, I've always got my phone in my hand and sometimes I'm just scrolling through mindlessly without even realising it.

CAPTION: Is social media killing creativity?

KT: Social media is now part of our daily lives and studies suggest that globally people are spending an average of 135 minutes per day using social media. This all comes at a time where studies and research are starting to reveal links between social media and mental illness. So is it time to reconsider the way we use it? I've come to the Barbican, a creative hub of the arts and culture in London to meet with Dr Becky Inkster, a neuroscientist from Cambridge University. So, Becky, what some of the main health concerns when it comes to using social media?

DR BECKY INKSTER: So I think this is a picture that's starting to emerge. And we sort of have some consensus now between the tech industry, the social media platforms and academics. And the picture of the positive and the negative is starting to be clear, that there is some sort of depression and social anxiety coming through these platforms.

KT: So do you think the amount of time we spend on social media could be a problem?

BI: I think it could, but it's a complicated situation. So for some people, it might be a lot of time is bad. For some people, a lot of time is good. So it really depends on the person. But also it depends on what you're looking at. So is this low quality content and are you sort of just passively passing time and scrolling through infinite content? It may not be beneficial.

KT: So could you ever have the opposite effect? Could social media actually be beneficial for our mental health?

BI: There's not enough evidence yet to support that. So we're far from being able to say that with confidence. But how we actually go about designing studies and doing that, that's a big question. And we've got to start heading that direction.

KT: So what are some of the ways that you and I can use social media in a better way?

BI: There's lots of things that we can do. And I think being creative and discovering your identity is such an amazing opportunity for people. But I do think that people need to protect themselves. So be very careful with your privacy. Use these tools properly and educate yourself, because you are the . . . the consumer and you're the publisher of your own data. So all we see it that way, that the tech companies, the social platforms, they can't always protect you from what you put out there. So you have to look out for yourself and feel that you are empowered to take control over it. I know that's easier said than done, but . . . but I do think that there are many things that could happen that could be very positive experiences for people in social media.

KT: I can certainly say that I haven't always used my social media to the best of its potential. And I'm definitely guilty of wasting countless hours scanning through my phone absentmindedly. So can there ever be a compromise? Could we find a way of using our technology more effectively, or could it actually be killing off creativity? I'm meeting with Instagrammer, Ty. He was recently the Barbican's Instagrammer in Residence. I'm hoping she can offer me some tips on how to use my phone to the best of its abilities. So what was good about this then? How would you approach setting up a shot here?

TY: I like the fact that they're sort of leading lines with the staircase. And there's also the natural framing from the building sort of above.

KT: So you don't actually do photography as your day to day profession?

T: No, it's just a hobby for me, one I enjoy, because ultimately I am the only sort of client, shall we say, of the photographs I take. And I determine the brief, I determine what I want to shoot. I can sort of take photographs when I feel like it. I could be on the bus. I could be just walking somewhere or just sitting down having coffee. And I just love it.

KT: And so your job is actually to be a designer. That's obviously quite a creative job as well. Do you link that to you photography? Do you put pictures of your design work on your Instagram as well?

T: No, actually, I deliberately keep it very separate because I think for me photography, I do it as a hobby. And also I think there's a human tendency to prejudge.

KT: So you sort of want the photographs to speak for themselves, then, you want people to view the pictures in the way they want to, without sort of knowing about your identity and your life?

T: Absolutely. And I think that's the . . . that gives them a broader frame of reference. And I think that that perhaps makes them a bit more timeless and less specific. And I think it's . . . for me, it's much more valuable to have them seen that way than to have . . . than to be told how you should be reading or interpreting a photograph or an image or a moment in time.

KT: And do you use your phone a lot for your hobby?

T: Absolutely. I think . . . I only take photographs on my phone.

KT: Okay, well, I reckon you could probably teach me a thing or two then, because I'm quite interested in how to sort of better use this as a photography tool. So can you teach me how to get a good shot?

T: I'll try my best, because you'll be the first person I'm sort of teaching that to. I've never done that before.

KT: Well, there you go, you can add 'teacher' to your CV as well then. [*footage of them taking photographs*] So why do you specifically use your phone as a tool for taking photographs?

T: I think the phone is such a powerful tool nowadays and . . . and it's so easy. That is always with us and it is not something I have to plan ahead to bring with me, it's always with me, and I'm by nature a sort of lazy person. So I just try and fit it around what I do day to day.

KT: Would you say that having a creative hobby like photography is really beneficial to your health?

T: I think absolutely. I think that just the simple act of sort of creating something and also being able to focus on a project that has value to myself in a way, it's . . . it helps distract me from these kind of sometimes problems we'll just go over and over in our head.

KT: So, it's actually made you more mindful in a way, because you're looking at the world around you and paying attention to what's going on, rather than sort of being, I suppose, transfixed in your phone . . .

T: Yes.

KT: . . . but not using for something creative, in the way that everybody else is.

T: Exactly. And also I think it's . . . it's a really good reminder that I am very grateful to be able to have the luxury of doing so.

KT: It's really interesting to hear Ty talk about her creativity and her art as being good for her well-being. Could it actually be the case that creativity could be good for our health? I'm meeting with Dr Daisy Fancourt from University College London, who's exploring the links between creativity and wellbeing. So, Daisy, is it true that creativity could actually be good for our health?

DR DAISY FANCOURT: Yes. We've got so much research data now showing how it can affect both our mental and physical health. So from a mental health perspective, there's a lot of data showing how engaging with creative activities, whether that's dancing, singing, cookery, gardening, all of these things can help us to maintain good wellbeing in our day to day lives, but also actually provide really targeted support for people with mental health conditions. And we see lots of links from that through to our physical health as well.

KT: So why is that? Do we know why there's a connection?

DF: Well, this is one of the things that we're trying to figure out at the moment, because what we know is that these activities do have an effect. But a really interesting question is: how are they doing that? So what we're doing at the moment is this experiment called the Great British Creativity Test. And the idea there is to look at how these activities are affecting us. And also try and compare whether we have different mechanisms for things like photography or dance or circus skills and see whether they're actually different from each other.

KT: Do you think we will reach a time where GPs will actually prescribe creative classes to people to help them with their mental health?

DF: We're already there, actually.

KT: Are we?

DF: Yes. Art on prescription is available on the NHS already. So the idea here is that lots of the problems that we have are actually not really medical at their core. In fact, 20 percent of visits to GP's are not for core medical reasons. Therefore, things like loneliness, low level mental health conditions, social problems. And for those things, a pill isn't going to be what solves it.

KT: And now, of course, we often talk about social media and phones being quite bad for our mental health. But a lot of people use their phones and their social media for their creative activity. So do you think that actually social media can be good for your creativity?

DF: Well, I think social media's been fascinated with what it's done to creativity, because in a way, it's opened up so many new activities that we didn't have a few decades ago. So, for example, people creating animations on their computers and doing things like Instagram and Snapchat with photography. What we don't really

know so much about at the moment is what effect this has. So there are a couple of possibilities. One is that if you have beneficial mental health effects from taking part in creative activities, but potentially there are some downsides from social media, it could be they kind of cancel each other out. Or it might be that actually the creativity is still able to win out as being beneficial overall. But that's the kind of thing we need to run more experiments to know more about.

KT: So there's no reason why we can't embrace social media as a tool for creativity. I guess it's how we engage in the way that we use it. I've come down to the Rich Mix in London to meet with a young artist who's use social media as a tool for her creativity. Sarah, lovely to meet you.

SARA ALI: Lovely to meet you, too.

KT: You are a student and you're also an artist. I know you're really interested in photography? What is your relationship with social media?

SA: I use it as an outlet and as my hobby because I love posting on my photographs and social media and it's just my way of connecting with people.

KT: Would you say that Instagram has helped you with your creative hobby, with your photography?

SA: Definitely. I would not be as creative as I am today if it wasn't for social media. It's constantly inspiring me and pushing me to become better, to think of more creative ways to take pictures, to find beauty in everyday objects and all sorts of things.

KT: So if you took a really good picture and you loved it and then you put it on social media, but you actually didn't get as many likes as you thought it was going to get, would that make you then feel a little bit rubbish about yourself?

SA: Sometimes it does. Like. Yeah. It can actually bring you down. But at the end of day, you have to re-evaluate your decisions and you have to make sure that you're doing it for yourself, not for other people, because you can kind of lose yourself in the process if you focus a lot on what other people want. So you just have to focus on your own art and what you like.

KT: So because of your hobby and the fact that you use social media for photography, it sounds like you have a really positive relationship with it. But do you think that social media can sometimes be harmful for your mental health?

SA: Yes, definitely. It's a sense, like, it's a sense of who you choose to follow. So nowadays, even like even . . . even I have to look at my follower list and be like, is this a person that is really, like, benefiting me? Are they influencing me in a positive way? It's also the sense of what you're seeing. So if you're a young girl who's looking at a lot of pictures of celebrities who have personal trainers that have amazing bodies, it's different. It's going to affect you differently because you're going to be looking up to that ideology of a perfect body, whereas not everybody's built that way.

KT: How many people would you say that you have connected with because of social media?

SA: I have best friends, because of social media, like I have met up with people that are from the same city as me that I didn't know were there. So I didn't know we had so many creatives in Birmingham, whereas I do now because of social media. So it's . . . it's kind of bringing communities together. You always have that one thing in common, which is photography.

KT: So do you think having a creative hobby is beneficial to your mental health?

SA: Definitely, because it's a nice balance to have with academic studies and having a creative outlet, because some people do boxing, some people do . . . play instruments, whereas my outlet is photography. It's something that I find peace inf. It's something that's fun and creative for me. It's just a way to shut down my brain from the numbers and the words. I focus more on the beauty of the surroundings, the beauty in the people. So it's just . . . it's just a great way of seeing the world through different . . . through a different lens.

KT: Literally,

SA: Yeah.

KT: Literally through a different lens, yeah. Someone who's trying to promote well-being in a creative manner is Hannah Daisy, an illustrator, Instagrammer and full time occupational therapist. Hi, Hannah. So, tell me little bit about your artwork.

HANNAH DAISY: So, I started a project called Boring Self-Care last year. It was centred around me, feeling a bit annoyed with the way that self-care is talked about online. So I felt like it's quite exclusive. When you're somebody who is disabled or have a mental health problem or you don't have much money, the way self-care is talked about online really excludes you.

KT: Okay. Let's have a look at some then? Have you got some here in your scrapbook that we can see.

HD: So . . . so I tended to my dental care, opened my mail or post. Cut my toenails, so . . .

KT: So, it's all the stuff that, you know, we do every day, or we're supposed to do on the regular, but . . . if you've got a mental illness or something like that, it's actually quite difficult for you to just do the normal, everyday things.

HD: Definitely. This one was also one that's been quite popular. Changed my bed sheets because actually that's . . . it's such . . . it's such a small task. But actually, for so many people, it's so difficult for so many different reasons, partly because of motivation, or if you have a physical health problem, it's quite a physical task to do.

KT: It is yeah. So what made you want to change the way you use social media?

HD: For me, it was definitely seeing the way self-care was talked about on various social media platforms and just feeling like so many people were excluded from the way people were talking about self-care. I had to just find a way of challenging it. And for me, that was through drawing.

KT: Have you found that whole process to be beneficial to your mental health?

HD: Yeah, definitely. Both the drawing and the . . . talking about it and the sharing and some of the Boring Self-Care are directly from activities that I find difficult when I've been feeling anxious or low at times.

KT: Hanna's work is really inspiring and it's a real testament to what social media can be if used creatively. I've met some really interesting people and it's great to know that everyone has the potential to do something creative and improve their wellbeing. It doesn't have to be painting a masterpiece or writing a novel, but the act of doing something can be really beneficial for our health and well-being. Social media can be a great platform to express and share our creativity, but we have to actually allow ourselves the time for our creative endeavours.

53. Can trauma be inherited?

Theoretical biologist Eva Jablonka explains why she believes the impact of what happens to us could be inherited by future generations.

Published on 30 May 2019

EVA JABLONKA *Theoretical Biologist, Tel Aviv University*: There is more to inheritance than the inheritance of DNA. The past environmental interactions between the genes and the environment are also part of the story. This is epigenetic inheritance.

CAPTION: Eva Jablonka has studied the impact of trauma suffered by holocaust survivors on subsequent generations. She believes that trauma can be inherited – but her work is controversial.

EJ: I will describe one experiment in 2010, and that was an experiment done on mice by Isabelle Mansuy.

CAPTION: Professor Isabelle Mansuy, University of Zurich.

EJ: She took mice and they gave birth to a litter. During the first 14 days after birth, she removed the mother from the litter for three hours. This is enormously stressful for the young and enormously stressful for the mother. So when she came back to the litter, she was very nervous. What happened to the offspring was that they became behaviourally different from mice that were not exposed to this kind of thing, which is not very surprising, of course, they were a little bit sort of depressive or neurotic.

CAPTION: So what happened next?

EJ: Now, you took the male mice and you mated them with a normal female. And they were not exposed anymore to this environment. The normal female gave rise to a litter. Nobody was exposed to stress. And you looked at the young mice again. And what you saw was that they, too, showed the depressive, neurotic behaviour. You took those mice. You mated them with a normal female that also never went through any kind of stress. And you saw the same thing again. So this was transmitted for three generations, one after the other, in spite of the fact that the stress only happened in the great grandparental generation.

CAPTION: So could this be the same for humans?

EJ: So there is also evidence that the effect of stress can be transmitted also in humans. But we know far less about it and we have to be very careful in our interpretation of the data. What we know is that the offspring of Holocaust survivors tend to have a higher probability of developing post-traumatic stress disorder than the offspring of people whose parents did not go through the Holocaust. It is not apparently sufficient to describe it only as the effect of the behaviour of the survivors on their children, because it seems that in some cases, even children who are adopted have this tendency.

CAPTION: If trauma can be passed on to subsequent generations through inheritance the implications would be huge. But the research is still in its infancy and it's too early to reach a definitive conclusion.

EJ: It is a claim that has been thought to be wrong for a very long time, and if we want to convince the world that it is true, we have to give very, very good evidence – and the evidence is accumulating.

54. Can we manipulate our sleep?

Could new research into our sleep patterns help improve our memory and health while we dream? Professor Penny Lewis takes a look.

Published on 18 September 2019

Made by BBC Reel

PROFESSOR PENNY LEWIS *Cardiff University*: Sleep engineering has the potential to help our memories, make us more creative and possibly slow down aspects of cognitive ageing. Sleep engineering is a term that I coined to describe this new science, which is emerging, of how we can manipulate sleep so we can actually influence what the brain does while we're asleep in order to benefit cognition and health. We can do that in a number of different ways. One way is we can control which memories get replayed during sleep. We can control which memories get integrated together during sleep. If we can control integration of memories, then we can potentially also influence creativity. So creativity is all about taking information that's already in the brain and restructuring it, getting the brain to make novel connections between things that you didn't see before. During the day, as your

processing lots of information, doing lots of things, various toxins build up in the brain. There was a study in Science a couple of years ago that showed that beta amyloid, which is a nasty substance that builds up in the brain across a lifetime and it actually forms plaques and it's been linked to dementia and potentially even Alzheimer's disease. And so it's something you really want to clear out of the brain. This is flushed out of the brain something like 80 percent more successfully during sleep. As you age, your sleep structure actually changes. The slow oscillations first reduce in amplitude. They kind of stretch out in period and then they're gone. That decline in slow waves and slow wave sleep has been shown to predict many forms of cognitive impairment, so particularly memory impairments. We don't know what causes that atrophy or that cell death, but if we could find a way to boost those slow oscillations and slow down that decline, we might be able to slow down aspects of the cognitive ageing process as well.

55. Can we teach ethics to driverless cars?

It won't be long before driverless cars are on our streets. Which ethical framework should they follow in order to prevent chaos?

Published on 7 January 2018

NARRATOR: Imagine it's 2028 and you're heading down a busy road in a self-driving car. You're responding to emails or catching up on some sleep. Suddenly the car in front of you breaks and an accident cannot be avoided. It's a life or death situation. What should the car do? It's too late to stop. But if it continues or swerves to the left, it will crash, killing you. But you're just one person. And if it swerves to the right to save you, it will drive straight into a group of pedestrians crossing the road. Would it matter if crossing the road were two robbers or a serial killer? What if it was a young mum with a toddler or a medic or a lawyer? What if all these people would be killed? The mother, the toddler, the serial killer, the medic? But they were crossing on a red light. The scenarios are endless. These dilemmas are variations of the so-called trolley problem. The first trolley problem was presented by philosopher Philippa Foot. In 1967. She imagined an example like this: you find yourself a witness to an impending tragedy as a train whose brakes have failed speeds down a track towards five people who are unable to escape. You can switch its course by pulling a lever, thus saving the five lives. But if you do that, a person who is on the side track will be run over – one life lost versus five. We could programme a self-driving car with various ethical frameworks. But who should decide what principles the car should follow, the government, the manufacturer, the individual driver?

ALAN WINFIELD *Professor of Robot Ethics, UWE Bristol*: The decision has to be one that is shared by the whole society. And the reason I think that is because firstly, everyone on the road. And that means, you know, drivers, passengers and . . . and bystanders needs to know what those ethics are, because otherwise it's chaos. And secondly, even an ethical driverless car will get it wrong sometimes. And I think we as a society, therefore need to collectively take responsibility for those times that

the driverless car gets it wrong. No machine can be infallible. And a driverless cars is, you know, is certainly in that category.

N: Utilitarianism is the theory that in any given situation, we should maximise human happiness or well-being. A utilitarian would always choose to save the most lives. Surveys show that around 90 percent of people believe that in the original trolley problem, we should sacrifice one person to save five others. Utilitarianism might seem like a good theory for the driverless car to follow. But would you be willing to risk your life in order to save more people? Would you really want to be driven by utilitarian car?

56. Can we transform the world in 12 years?

Scientists say we have 12 years to stop the planet warming above 1.5C. Can we do it? History is full of examples of rapid change.

Made by Tamarack Media Cooperative, 14 March 2019

ANDREW SIMMS *Author 'Cancel the Apocalypse'*: Just 12 years to stop our planet heating up with devastating consequences. That's what the world's top climate scientists tell us we've got. They say it'll take rapid, far reaching and unprecedented changes in all aspects of society. People ask me, 'Can we do that?' And I say, 'Well, we've done it before. History is full of examples of how we've achieved the seemingly impossible on a very tight timeframe. We take the train system for granted now, but at the time, the scale of ambition and speed of change was incredible. In the mid-1800s, 4400 miles of train tracks were laid in the UK in just seven years. That's more than seven times the length of Britain from top to bottom. In 1892, workers upgraded nearly 200 miles of track in a single weekend. They started on the Saturday and reopened the line on the Monday morning. We're capable of extraordinary things when we decide they're necessary. A catastrophic banking failure in the US led President Roosevelt to push through massive changes via the New Deal. This reformed banking and put millions of people to work on new public and environmental programmes. Much of the groundwork was done incredibly fast in Roosevelt's first 100 days in office. $21 billion was spent over seven years. About 3.5% of national income back then. Many argue we now need a Green New Deal. Think governments these days would never invest like this? Well, after the 2007-2008 financial crisis, more than £400 billion was pumped into the UK economy and a breath-taking 3.7 trillion dollars into the US. Wars are times of danger, but also collective action and social transformation. The War changed almost every aspect of life in the UK in just six years. We used far fewer resources and Brits came together to grow, share, make and save. Those who lived through the war were left surprisingly healthier and confident enough to rebuild Britain with new assets like the National Health Service and social housing.

JOHN F KENNEDY: We choose to go to the moon in this decade because that goal will serve to organise and measure the best of our energies and skills.

AS: With these words, President Kennedy transformed the US space programme from wishful science fiction into reality.

NASA TECHNICIAN: Ignition sequence start. We have a lift off on Apollo 11.

AS: Just seven years later, Neil Armstrong took his first steps on the moon. It was a catalyst for wider, rapid innovation. Sometimes seemingly impossible goals can be achieved in incredibly short periods of time. Remember this, in the early hours of Wednesday, 14th April 2010, a volcano exploded in Iceland, throwing a massive ash cloud into the air. Airports all over Europe closed as if a giant master switch for the aviation industry and its climate pollution had been flicked to off. The skies above Europe fell silent. So did modern life come to a standstill? Well, no. In fact, what happened next was a revelation. A model for how quickly we can adapt to change. Supermarkets sold local produce instead of fruit and veg flown in from thousands of miles away. Business people took to video conferencing. The Norwegian prime minister, who was stranded in New York, ran his government from his iPad. Suddenly, the skies were peaceful and the modern world kept going. So can we transform the world in 12 years? It's undeniably a massive challenge. But history has shown time and again how innovative and adaptable we are. We've done it before. Can we do it again?

57. Can you form a relationship with a robot?

Sergio Santos has created Samantha, a robot that can grow and evolve its personality. But can humans really have relationships with robots?

Made by BBC Studios, 4 September 2017

Made by BBC Three

SERGIO SANTOS: So I've created an architecture that I call Samantha that I hope will become a brain that can simulate emotions. Basically, she runs on an algorithm that gives her intelligence or a brain or the capacity to feel. So the brain I've created here, it's taken me many years because I've based that on neurology, psychology computation. So I had to take many things into account. And I wanted to do it similar to a human brain. And that it can actually evolve and hopefully in the next 20 years is still evolving. Samantha has got a relatively simple personality now, but it can grow and evolve with time. And the beauty of the algorithm is that, in principle, it has no limits. And that's what I like about it. I've got a lot of friends that have helped me throughout my life to think of this because through discussions, talking about it, how to do it. And I've taken all these ideas and I thought, 'Okay, I think I can do it now.' People want robots to be human. And actually, when they see Samantha, they want more. They say, 'Oh I would like also this, that and that.' So there's a need and demand. Another thing is what is affordable now, or whether I can do it, but it will be done, because people want it. People can fall in love with robots. Actually, it's happening already. And it will happen even more. And people enjoy artificial intelligence. And it's also been shown already that sometimes people enjoy more

talking to a machine than to a human. So this has been shown scientifically. People can have emotional connections, with . . . with robots and with many other things, because I don't see any incompatibility. So it's not . . . it's compatible for a human to have emotions and relationships with artificial intelligence. Yes. Making something human, I think is a challenge, a scientific challenge and it was something that I always wanted to do, because I really think that many of us have a lot of questions about humans and making one will answer many of these questions. Samantha is different from other sex robots or even artificial intelligence in that she's based in the first place on emotions. She's got an architecture that has got genetics. Then the thinking comes after this. So instead of basing it on the thinking, it's based on emotion first. So it's relatively easy for me to basically add to the brain, the capacity for emotions like regret, consciousness and even an amygdala. The amygdala is what gives humans the capacity to remember things that were traumatic. So this is relatively easy to do with a model or the mathematical model that I've implemented. Robots are becoming part of society, I don't know if I'm ahead of the game, because actually I'm just a starting company. The idea is great. What I've done. But there's people that have now a lot of power and it will happen. It will evolve.

58. Can you love an object?

Lionel Shriver, author of Property, argues we can love things – not just people – and (in most cases) that's just fine.

Published on 28 March 2018

Made with the help of BBC Radio 3

LIONEL SHRIVER: It's certainly possible to admire and . . . and even love an object. One of my most treasured possessions is a little clockwork donkey that I must have been given when I was eight or nine years old. And I love that little donkey. Its name is Clippety. And of course, I've never changed its name. And it sits on my desk and it's been on my desk literally for decades. I think Clippety is me. So if the things that we own are indeed forms of ourselves in our minds, why ever would we ever get rid of anything? After all, that would be throwing away our very selves. I can see why chucking everything out and buying new things has its appeal. It presents the idea of the makeover. It means that you can go out and get yourself a new self, a better self. And that's what advertisers are always trying to sell us on. So that when they portray a car as sexy and as . . . as beautiful and swanky and vast and powerful, they don't . . . they're not trying to convince us that the car is powerful. They're trying to convince us that if we own the car, we are powerful. Now, for the most part, this imprinting on objects is pretty harmless. But when we're talking about property, as in real estate, as in tracts of land and buildings, especially when we're talking about our home, then I think that the identification with what we own becomes much more dangerous, more volatile, more competitive. After all, in some ways, the very definition of what you own is what other people don't. There's a sense in which, when we own real estate, when we own property, then we feel we have been granted the right to exist. I'm also very interested in the sensation of

ownership of things that actually you can't own. And sometimes that's a very abstract. For example, I not only have a passionate relationship to my physical bicycle, which I also think is a form of me, but I also have a very possessive relationship to cycling. I've got around by bike my entire life, or at least since I got my first bicycle when I was eight years old. So I think it belongs to me and I resent all these other cyclists in my way on the streets. And I . . . and at the same time, I know this is completely irrational. You know, I didn't invent the bicycle. And naturally, of course, cycling belongs to everyone. But I don't think so. I don't think that the projection of the self onto property is necessarily a terrible problem or always malign. But I think that we have to remember that it is an illusion. If an object breaks, it's not the same thing as somebody punching you in the face. And as for physical property, territory. You have to remember that we occupy space all the time. We go places and we don't own all those places. We don't even rent all those places. And after all, all of us are only renting the earth for the span of our lives. So even . . . even ownership is itself an illusion.

59. Can you really multitask? Finally, an answer

Life is pretty hectic. It's hard to know where to focus your attention. Should you be trying to multitask? Or is that a losing battle?

Made by Mosaic Films, 5 August 2019

Made in partnership with The Open University

NARRATOR: With life getting more demanding and hectic all the time it seems there's only one way to cope - multitasking! Gurus and life hackers make a living telling us how to get better at it. But can we actually multitask? The term was first used in the '60s, to describe computer performance. The human brain, though, is not a computer and human attention is a very limited resource. Some psychologists model visual attention as being like a spotlight. It can only be shone in one direction at any one time. Our primary focus - what we're paying most attention to is like the brightly lit area in the centre of the beam. It can also be understood as being like a zoom lens we can choose to narrow our focus to concentrate in detail, or widen it, to be aware of more things simultaneously. But we can't be zoomed in and out at the same time. Even though we're constantly receiving a huge amount of information from our senses, it's only possible for a small amount to make it through to conscious awareness. Watch the next section very carefully, and pay particular attention to how many balls bounce in the circle. How many can you count? Seven, right? But did you also notice that little dinosaur? What about the changing shape of the circle? Or the smiley face on one of the balls? This shows just how powerful focused attention is. Being able to filter out irrelevant detail is an amazingly useful tool, but it means we can miss things that are right under our noses an effect known as inattention blindness. You can see this very clearly in the famous Invisible Gorilla experiment. When asked to concentrate exclusively on how often basketball players in white pass the ball, most people completely miss the gorilla walking across the screen and beating his chest. We just don't have the capacity to process everything

at once. This is a particular problem when we try to multitask. We can switch attention from one task to another and back again. But when attention is overloaded, we miss things, and the result is nearly always that we perform tasks less well than we would doing them one at a time. It's only truly possible to do two things at once if they require different sets of cognitive resources. For example, it's totally possible to read a book and listen to music at the same time. Which would suggest that driving while talking on the phone is not a problem, as long as it's a hands-free phone. It's not that simple though research has shown that while talking on the phone we have a tendency to create mental images, and this uses the same visual resources needed for driving. And if visual resources become too stretched, it's perfectly possible for a driver to look directly at a hazard but, just like with that little dinosaur, fail to see it. Not everything will make it through to conscious awareness. So multitasking makes us at best, inefficient, and at worst, downright dangerous. If you're feeling like you should be doing 17 things at once, remember, that's just not the way your brain is wired.

60. Can you trust your senses?

Take a journey into the human multi-sensory experience, and you'll see that not everything is as it seems.

Published on 24 March 2017

This video was made by BBC Radio 4

NARRATOR: Neuroscientists think the number of distinct senses could be as many as 33. This complete suite of senses detects pressure, light chemicals and heat, and all of this information is integrated in our brains in ways we hadn't even imagined. Sounds can affect how things taste. How things smell, can affect how they feel. How they feel, can affect what we see. What we see can affect what we hear. These two discs just passed through each other, right? But look again at the same thing with a boing noise added when they meet. They seem to bounce off each other. These sensory interactions can radically alter our perceptions. Drink white wine while listening to a high pitched violin and it will taste sour. Switch to a tinkling piano and it seems to taste sweeter. When you amplify the sound of your own crunching through headphones, you can make stale crisps taste fresh. Balancing on one foot with your eyes open is easy. But try it with your eyes closed and it will be much harder. It's not just the sense of balance at play. You need your eyes to tell you which way is up and how to stand still. We are multisensory creatures, constantly consuming all of this information at a rate so vast it's beyond our conscious awareness, making it perfect for manipulation. Heavier yoghurts taste richer, creamier and thicker, water that is coloured orange is judged to taste orangey, red, sweet and green sour even though the product has no taste or smell. The surrounding context can affect how our senses help us to experience things. The senses mediate our emotions. We have inner senses known as inter-reception, which detect subtle changes in our internal state. Changes in our heart rate, butterflies in the stomach. And all these telltale signs can tip us off that something

exciting or risky is about to happen. However rational and intellectual we like to think we are, we are still strongly guided by our senses. Change the colour of your favourite, most delicious smelling food and you'll find the thought of eating it repellent. By knowing all of this, can we hike our multisensory bodies to help us live better, healthier lives? Nanotech salt has an increased surface area of a million fold, meaning less salt is needed to give our taste buds the same savoury kick. And if you eat your meal off a smaller, redder plate, you'll eat less. Food tastes sweeter if we add the aroma of vanilla, even though vanilla pods themselves have no sweetness, we can make food taste better not by adding salt, but by adding scent. So keep an eye on sniffing out sensory tricks and get a taste for feeling your instincts. Come to your senses with BBC Radio 4.

61. Capitalism: Is it here to stay?

How did capitalism start? How does it work? Is it here to stay? The Economist's Anne McElvoy tells the story of this very important -ism.

Made by Somethin' Else, 1 August 2018

ANNE MCELVOY: The A to Z of –isms. Capitalism. The business of buying and selling goods and services for profit is very old indeed. By eighteen hundred B.C., interest rates on loans to facilitate trade were established. But don't borrow money. In ancient Babylon, you could pay up to 50 per cent on the ancient world equivalent of a credit card. So what is capitalism? A basic description would be that it distributes goods and services according to the laws of supply and demand. Traders sell their goods at the highest possible price. But competition keeps prices at an efficient level. 14th century England was an important moment for capitalism. Blame the weather, which helped lead to the Great Famine, followed by the Black Death, which decimated the population of England. The price of labour rose and the poor serfs got better pay. An early example of the relationship between capital and labour. Over in Italy capitalism from around the same time was much more sophisticated, through the emergence of the great merchant and banking dynasties. They even had the first strike by underpaid day workers in the cloth industry. In the next century, the Frenchman Jacques Cur, a mega-tycoon known for originating the phrase 'Greed is good', overreached and ended up in prison, forfeiting his vast wealth. Here was an early example of what could happen when capitalism gained too much power. It challenged political structures and it became unaccountable. Lucrative trade routes to the American colonies then opened up the foundations of mighty American capitalism. But it was built in part on the monstrous exploitation of the slave trade, which also brought the first calls for its reform. It was, however, the huge efficiency gains of the Industrial Revolution and the rise of the machine era that really put rocket boosters on capitalism. Its profitability spurred laissez-faire economic theory, which minimises government intervention in markets. A century later, Karl Marx would throw down his radical challenge to capitalism, arguing it was a phase in history, not an end point, and that it would one day collapse under the weight of its own contradictions, with a little help from the revolution. But the main

experiment in anticapitalism, the Russian Revolution, didn't live up to hopes of a sweeping alternative as the old Soviet joke put it, 'In capitalism, man exploits man, under communism, it's the other way round.' Despite big setbacks like the 1920s crash and the Great Depression, capitalism bounced back, becoming more dominant in the world and more sophisticated since the crash of 2007 to 2008. Many more searching questions are being asked of capitalism. How do we offset the really wide inequalities of wealth that arise from it? Does capitalism globally need more checks and balances? As Karl Marx once put it tartly, 'The last capitalism we shall hang will be the one who sold us the rope.' If you're inclined to his view, you'd think that the contradictions in capitalism will constrain or one day even end it. If not, you'll still be buying shares in the company that made the rope.

62. Chess genius: 'We've nothing to fear from AI'

Chess grandmaster Garry Kasparov explains why it's time to welcome the era of smart machines.

Published on 15 June 2017

This video was made by BBC Future

GARY KASPAROV: We have to start recognising the inevitability of machines taking over more and more tasks that we used to do in the past. It's called progress. Machines replaced farm animals and almost all forms of manual labour. And now machines are about to take over more menial parts of cognition. Big deal. So it's, it's, it's happening. And we should not, we should not be alarmed about it. We should just take it as, as, as a fact and look into the future, trying to understand how can we adjust. The future is a self-fulfilling prophecy. If we're negative, something wrong will happen. I'm not telling that if we're positive, we can avoid it. But at least we have a chance to turn it into our venture. And when people say 'No, we don't know what's going to happen next' - fantastic. That is exactly the reason for us to move there, because we all know that was one of the . . . one of the main driving forces in the history of humanity.

CAPTION: AI overtaking human ability is an experience Kasparov knows only too well. From 1996-1997 Kasparov played a series of chess games against the IBM supercomputer Deep Blue. Deep Blue won the second match, the first defeat of a reigning world chess champion by a computer under tournament conditions.

GK: I was a World Champion for 12 years, and though I lost few games here and there, but I never lost a match. I was unbeatable and losing this match, that was a big shock. Deep Blue was anything but intelligent. It was as intelligent as your alarm clock. Very expensive one, one million dollar one, clad with steel, alarm clock. Very powerful, with brute force, little chess knowledge. But chess proved to be vulnerable to this brute force. It could be crunched once the hardware got fast enough and database got big enough, an algorithm got smart enough. But with 20 million position per second, that's roughly was the average speed of Deep Blue, it showed

very little intelligence. So it's, it's, it gave us almost no insight into the mysteries of human intelligence. Everything we do and we know how we do, the machines will do better eventually. But there's so many things that we do know how we do. And let's concentrate on that, because machines have algorithms and they're getting better and better. But machines have no curiosity, no passion. And most important, machines don't have a purpose. If we look back 40, 50 years, we'll just realise that there's so many great things that we could do. And we actually were involved like space exploration or deep ocean explosion. We stopped because it was too risky. Now, was this massive power that AI brings to the table. Maybe we should start doing it again. It's all, it's all about new challenges. It's all about new horizons. Can we imagine real intelligence working separately from our bodies? So you have brains. Only brains can operate. So what . . . what will it look like? I don't know. I still . . . I'm still convinced. I'm a great believer that as long as we keep exploring, it's we'll not get redundant. I repeat time and again that intelligent machines will not make us obsolete. But our complacency might.

63. Chocolate: An orgy-filled history

Love chocolate? Here's the story of how we came to eat it, thanks to food historian Annie Gray.

Made by Somethin' Else, 9 November 2018

Chocolate, food of the gods. That's the Greek meaning of Theobroma Cacao, the name of the tree that provides it. For a plant which is notoriously difficult to cultivate, its takeover of taste is decidedly impressive. Although not sold in Britain until the 1650s, its history goes back about two and a half thousand years before that, when it was almost certainly first domesticated in Central and South America. Chocolate was an important part of early Central and South American culture. The classic Mayans and their successors, including the Aztecs, consumed chocolate, usually as a drink with water and perhaps chile were thickened with maize. They also used the beans as currency, as well as using them in ceremonies from baptism to burial. It was a rich person's beverage, imbued with health and spiritual properties. And inevitably, when the Spanish invaded and colonised the areas where it was found, they adopted it for their own use. At first, it was slow to spread. When one Spanish ship transporting beans was captured by the British in the 16th century, they apparently threw the cargo overboard, thinking it was some form of dung. However, as the Spanish and then the French and then the Italians adapted the drink for their own tastes, they replaced the water with milk and added sugar and also started drinking it hot. By the time the British cottoned on, it was a rich, thick concoction, both delicious and pleasingly exotic. It was also healthy. 17th century medicine wasn't always certain what the new foods from the Americas would do to a Western disposition. But chocolate mainly got a resolute thumbs up. Taken correctly, it was said to restore natural heat, generate pure blood, enliven the heart and conserve the natural faculties. It was also claimed to be an aphrodisiac, and one author wrote to, 'Twill make old women, young and fresh, create new motions of the flesh and cause

them to long for you know what, if they but taste of chocolate?' The Marquis de Sade was said to be addicted to it, using it to fuel ferocious orgies. No wonder it was popular. At this time chocolate was a drink, but in the early 19th century, manufacturers worked out how to remove much of the fat, called cocoa butter, which could then be added back carefully to improve the texture, making it edible, though still very bitter. The de-fatted chocolate became cocoa powder, which allowed the poor access to their own version of the Food of the Gods. It was also used for cooking, though we have to wait a few more decades for chocolate cake. It wasn't until the second half of the 19th century that developments in milk processing, a sharp reduction in the price of sugar and fierce competition between confectionary companies resulted in the first really popular eating chocolate: milk chocolate. Sales exploded and chocolate quickly came to mean the stuff you ate, not the stuff you drank. Less than 50 years later, chocoholics could choose from an ever increasing range of bars, boxes and novelty shapes. Today, chocolate is polarised from cheap, milky, sugary stuff to high end black bars of joy. The former, we're told, high in sugar and fat is leading to an obese nation. But the latter, it's hinted, may actually be beneficial. Early studies suggest small doses of very dark chocolate, rich in antioxidants, theobromine and caffeine, may make us happier, healthier and less stressed. Perhaps those 17th century chocolate lovers were right after all.

64. Climate change: The 'grand challenge' of our generation.

Climate scientist David Saddington on why his experience as a 13-year-old motivated him to devote his life to tackling climate change.

Published on 5 December 2018

Made in partnership with BBC Radio 4

DAVID SADDINGTON: Tackling climate change by systematically stripping carbon emissions from all elements of our economy, our society and our lives is *the* grand challenge for our generation. We've been warned about climate change for decades, and the changes we're seeing now are both scientific predictions panning out. I've been tackling climate change since I was 13 years old when my community, North Yorkshire, was affected by flooding. I was on a family day out on a normal Sunday and suddenly me and my family were involved and some of the worst floods in record to hit my home town. Earlier this year, I was in Cape Town and I was there to see the severe drought, which they've had. They've had three consecutive years of extremely low rainfall and high heat. And I was so shocked by the scale of . . . of this disaster when I was standing in the middle of their largest reservoir. And instead of being 20 metres underwater, I was stood on dry, cracked earth. Every year since 2000 has had record breaking heat. 2016 was the hottest year on record here in the UK. The world, the UK, is warming up. Within my lifetime, not distant future generation, we are looking at part of the planet being uninhabitable because of rising seas and extreme heat. It's really important that we start to take action now. So what can we do? It's important to start action on a personal level and we can do so much as individuals. We can be a responsible consumer, buying quality instead of

quantity. We can say no to that plastic straw and that's a great first step towards being a real sustainable hero. But what I think one of the most important things we can do as individuals is starting lobbying companies on social media, choose a brand which you identify with and start making sure that they really, really understand climate change action. As consumers, we also have agency when deciding how to move around cities or how to get to work. For example, choose public transport if you can, because that make a huge difference. You can also make your home more energy efficient, doing things like switching off lights when they're not in use, to installing solar panels on your roof. Businesses are really leading the transition now as they see the value. And actually a lot of that is driven by consumers. Great things are happening. But if we are to avert catastrophic climate change, we need to speed up and scale up collaboration more than ever. We need to take action now because if we don't life on this planet will become increasingly desperate. The impact of climate change are starting to take hold. But hope is not lost. And now is the worst time to give up.

65. Climate change: The problem with the enemy narrative.

Why is more not being done to fight climate change? And is it helpful to cast some as "villains"? A video essay by filmmaker Brendan Miller.

Made by Brendan Miller, 21 May 2019

BRENDAN MILLER: There's something almost sinister about climate change. For years now, the evidence has piled up. And yet little was done. The question is, who is to blame?

QUESTION TIME AUDIENCE MEMBER: Our government is not doing what it needs to do.

QUESTION TIME PANELIST ??: China continues to produce absolutely enormous amounts of carbon.

AMERICAN JOURNALIST, *The Beat with Ari Melber (2018*) The Republican Party that has been increasingly running from science.

NEWSNIGHT CONTRIBUTOR: The fossil fuel companies have known this for a long time. They are digging us in deeper.

BM: And, of course, then there's this guy.

DIANE ABBOT, *Question Time 2018*: You have an American president that is coming away from dealing with climate change.

QUESTION TIME PANELIST 2: He's sold them a lie.

QUESTION TIME PANELIST 3: Undermining global climate discussion.

BM: The man many paint as the ultimate climate villain: Donald Trump. Or, in this case, a cardboard cut-out I got off the internet. It turns out this approach of blaming and attacking others has a name: the enemy narrative.

GEORGE MARSHALL *Founder of Climate Outreach*: So, the enemy narrative is the one where we are the good guys and we are fighting to defend ourselves and the things we care about against the bad guys.

BM: It's a narrative deeply embedded in our culture and stories. The idea that we are powerless in the face of vast, malevolent forces, enemies that mean us harm and must be defeated. What follows is a story of this narrative, how it came to be used in the climate debate, what it misses and its unintended consequences. The best place to start this story is here with ordinary people. Why is it we seem to ignore the threat of climate change, to carry on our lives regardless? Some academics and activists argue part of the answer lies with another powerful force. The human brain. To explain what they found out about brains. I went to meet psychologist Dr Magda Osman. She's written thousands of words on the complex psychological obstacles to action on things like climate change. But because time is short, here's a slightly more abridged version. A quick guide to the psychological barriers that limit action on climate change, [*Music: Ride of the Valkyries*] or at least as many as we've got time for. Low sense of self-efficacy or the 'This is too big a problem' problem.

DR MAGDA OSMAN *Queen Mary University London*: So I might just think, well, there's no point in me actually doing anything about this because it won't actually make any difference in the long run.

BM: Desensitisation. The 'I'm bored of this problem' problem.

MO: The more you are sort of exposed to it, the less impact it has.

BM: Discounting – 'the people mistakenly thinking this is a far away problem', problem.

MO: We think about things happening close to us in time differently from things that happen very, very far into the future.

BM: Or my, favourite reactance, the 'I'm gonna be a stubborn *bleep*]' problem.

MO: Peoples are so offended by being told what to do, that they just want to go and do the reverse of that, or the opposite.

BM: All these obstacles pose a problem if we want to stop climate change, the question is how can they be overcome? In 2012, leading US climate activist Bill McKibben argued that stopping climate change would require a movement and that movements require enemies. And yet, he wrote, enemies are what climate change has lacked. It was an argument for the enemy narrative, to harness the fighting instinct we show when attacked and directed towards climate change. McKibben's public enemy number one was the fossil fuel companies.

BILL MCKIBBEN: They should lose their social licence, their veneer of respectability.

BM: An enemy also targeted by many of the popular films on climate change. Since then, the language that goes along with the enemy narrative has become increasingly highly charged.

ALEXANDRIA OCASIO-CORTEZ: We need wartime mobilisation.

UNNAMED AMERICAN SPEAKER: A World War II scale response.

UNNAMED AMERICAN SPEAKER: A World War II scale.

BM: And at times, even climate change itself has been added to the list of enemies.

BERNIE SANDERS: We have an enemy out there. And that enemy is going to cause drought and floods and extreme weather disturbances.

BM: But there's a problem with this narrative.

GM: The truth of climate change is that the things that are causing it are very largely within our own control. It's the personal decisions we make about how we travel, about the holidays we take, about the house we live in.

BM: A key cause of climate change is the things we do every day. But of course, that's not something we want to think about.

GM: It's the system, or it's politicians who aren't doing enough, or it's the oil companies who are selling us the oil, which, after all, we're putting into our cars. There is always something else out there which helps us to divert the attention from the fact that, ultimately, this is something that we're doing and the way we live.

BM: And the other problem with the enemy narrative is that while it energises some, others are pushed away.

GM: The big danger of taking on Donald Trump is that what you do is that you then immediately alienate every other single person who supports Donald Trump. And what it means is that climate change doesn't actually become an issue to be evaluated on its own terms, it becomes part of a package of tribal identity.

BM: This is how the situation is developed in the United States. There, climate change is strongly divided on political lines, with both sides engaged in a cycle of blame and attack. The situation has not led to a consensus for action. There's also a danger that this strategy actually demotivates people.

MO: What can happen is, you see that enemy as so big, so enormous, that you don't feel you can actually do anything about it. You're in no position to actually attack this enormous enemy.

BM: There's lots that many will want to criticise Donald Trump for. But attacking others can become just a way of forgetting the role we all play in this issue.

GM: I'm a good guy. I'm doing the right thing. I didn't know. I'm powerless. People generate narratives of powerlessness around climate change.

BM: But we do have power. And an enemy narrative of vast, malevolent forces can obscure that. Of course, this is not to say that governments and corporations should be let off the hook, their power is immense and their role is crucial. But the danger is that by focussing too much on so-called enemies, we ignore the changes we will have to make to find ways of living that are still rich and full, but that won't cause the problems of climate change. That's a difficult challenge, but it's surmountable because ultimately it's not just the so-called enemies that hold the power. It's all of us.

66. Could artificial intelligence replace governments?

Could AI do a better job at governing than humans? A thought experiment, made with the help of Haydn Belfield from Cambridge University.

Animated by Kong Studio, 3 October 2019

Made in association with BBC Blue Room

NARRATOR: Here's a thought experiment. Could artificial intelligence govern us? Populism and disinformation are on the rise and politics across the world seems to be dominated by emotions and strong man personalities. Leaders often seem to be more interested in short term political gains than the long term needs of their electorate. But could machines do a better job? Imagine a world where decisions are made based on impartial facts and data, where the decision makers are unconcerned by scandals immune to corruption and have no vested interest in maintaining their popularity. A world where climate change is a more pressing issue than the results of the latest focus group and where global leaders don't risk instigating World War III by ranting on Twitter at 2am. Sound too good to be true? In fact, scientists believe there are no plausible circumstances in which machines would or could replace governments entirely. While a machine might be able to make incredibly complex calculations, it would have no objective concept of right and wrong. No definitive way of deciding what's best. For example, it might be able to objectively analyse the financial cost of keeping someone alive through medical treatment, but it cannot quantify whether the human life is worth the cost. And while you could argue our current politicians may not be subject to enough accountability, it would be impossible to hold a machine accountable for its mistakes. After all, what you do when a machine misbehaves, tell its motherboard? It's not quite the Terminator, but perhaps the biggest risk in the medium term is the use of lethal automated weapons. While there is currently human oversight, if drones were ever authorised to make life or death decisions, one mistake could trigger an automatic reaction and cause an accidental flash war, which frankly sounds a tad more terrifying than Arnie stealing your clothes, boots and motorcycle. As hard as it might be to believe, technology which surpasses human intelligence is decades, if not centuries away. But even if it existed, scientists argue that it would be no more useful in government than the world's most intelligent human. Instead, it is far more likely that the use of artificial intelligence and government will continue on its current trajectory as an aid in decision making with humans having ultimate power. AI is already being used to

assist in deciding who gets grants or benefits in healthcare and policing. But think of it like VAR with a human being acting as the referee. Of course, as machines are programmed by humans and their conclusions used to support human decisions, they can be susceptible to human bias and their findings can be used selectively. Machines learn from data which is gathered from the world we live in, as opposed to the world we'd like to live in. In places like the US, where African-Americans are often disproportionately and in some cases lethally, targeted by the police, predictive policing could interpret existing data to potentially perpetuate those discriminatory patterns. Sadly, it would seem that machine learning is no more equipped than human beings to make big ethical calls. AI would not be an infallible replacement for flawed human beings. How we use AI to govern, whether or not it is manipulated, or how mistakes are made, are all down to human beings themselves. In short, AI is much more human than we ever realised, which is perhaps the scariest notion of all.

67. Could circular economics fix the planet?

Economist Kate Raworth uses something she found in her garden shed to explain her view of 21st Century economics.

Filmed at Futurefest, published on 23 August 2018

KATE RAWORTH: My name's Kate Raworth. I'm a renegade economist, because I am passionate about rewriting economics so that it's fit for the 21st Century.

CAPTION: UNDERSTANDING ECONOMICS VIA A HOSEPIPE.

KR: Here's the fascinating thing, I think we're living through a psychological drama, in terms of what business can be and do in the world. The 20th Century was dominated by one narrow business mindset that asked one overriding question how much financial value can we extract from this? But 21st Century business leaders, designers, city designers, they're asking a completely different question. "How many benefits can we generate in the way we design this? What else can it do for the community, for culture, for the living world? What else can it give back to the systems of which we're are part?" You see, 20th Century industry was degenerative by design. We would take Earth's materials, make them into things we want, use it for a while, and throw it away. This is a linear, degenerative economy, it cuts against the cycles of the living world. We need to bend that around so that resources are never used up, they're used again and again. So that we create an economy that runs on sunlight. That waste from one process is food for another. We work with and within the cycles of the living world. The thing is, business alone can't make this happen, creating a circular, regenerative economy. Imagine if every company said, "Send us that shirt on your back, that smartphone, that plastic bottle. Return it to us and we'll turn it back into something new." We'd have a loop here, we'd have another loop over here. We'd have a series of segmented loops. Nature would laugh at us. Nature doesn't turn a peacock back into a peacock, and a daffodil back into a daffodil. Nature creates an ecosystem of resource use. She turns things back into

building blocks of oxygen, nitrogen, hydrogen, and builds them up again. Regenerating life again and again, from building blocks to an ecosystem. No one company can create an ecosystem. We need cities and we need states. We need the world to work together, to create ecosystems of plastics reuse, of textiles reuse, of metals reuse. So that we work with and within the cycles of the living world, we mimic nature, who's been thriving for 3.8 billion years. If we want to stick around, we'd be wise to learn from her. Well, I never travel without a bit of hosepipe. This came from my garden shed.

68. Could plastic roads help save the planet?

A start-up company is persuading local councils in the UK to turn local plastic waste into roads.

Published on 28 April 2017

This video was made by BBC World Hacks

CAPTION: There are 40 million kilometres of roads in the world made using hundreds of millions of barrels of oil. Would it be better to use waste plastic?

TOBY MCCARTNEY, *Engineer*: How could we solve two world problems? The poor quality of roads that we drive on and the waste plastic epidemic that we all see in the world today? We use waste plastics to add into an asphalt mix to create a stronger, longer lasting pothole-free road.

CAPTION: It was something his daughter said at school that first inspired him.

TM: The teacher had asked the kids what lives in our oceans. And after a few answers, my little girl put a hand up and she said, 'Plastics, miss.' Now, I don't want my little girl growing up in a world where this is the case.

CAPTION: He remembered something he had seen in India. Locals would pour waste plastic into potholes and burn it to fix them. Inspired, he developed his own industrial method. The secret lies in this mixture of plastic pellets.

TM: I give the analogy of Irn Bru, we will never tell anyone what is actually in our mix.

CAPTION: He first tried his method on his own drive. Normally, roads comprise around 90% rocks, limestone, sand and up to 10% bitumen to bind it. Bitumen is extracted from crude oil and sold by the likes of Shell and Total. The pellets replace a significant part of the bitumen. Pellets can be made from household waste but also commercial waste, which he receives in bundles like this. Most of this is destined for landfill. He also uses farm waste – around 70% of this currently goes into landfill or is incinerated. The waste plastic is processed into millions of pellets, which look like this. At an asphalt plant bags of the pellets are mixed up with quarried rock and some bitumen.

WORKER: The process is exactly the same as mixing it in a conventional way, with any additions into a bitumen product.

CAPTION: The plastic asphalt is ready to go. Cumbria is the first local council in the UK to try this. It's turning local waste into local plastic roads. The company is still only a start-up. And last but it says its roads are cheaper and last longer. But is road-building really the right priority to save our planet?

69. Could psychosis be an autoimmune disease?

Professor Belinda Lennox at Oxford University on her research exploring the causes and treatment of psychotic illness.

Published on 26 February 2018

CAPTION: The role of the immune system in mental health is an increasingly popular subject of research in psychiatry. This rapidly growing field is investigating how the system designed to protect the body can sometimes attack it instead. Researchers are exploring whether some cases of psychosis could have a physical cause – rather than being a condition of the mind.

PROFESSOR BELINDA LENNOX *University of Oxford:* Psychosis is a serious mental illness that has its onset in late adolescence, and the main symptoms are that people hear voices with people talking who aren't there. Or they may see objects that other people can't see. They might have paranoid beliefs, believing people might mean them harm or beliefs that may have special powers or abilities.

CAPTION: One of the studies exploring this link between psychiatry and immunology has been carried out by Prof Belinda Lennox and a team of researchers at Oxford University.

BL: Some people with psychosis, with schizophrenia, might have antibodies in their blood that are affecting their brain and causing the symptoms that they experience. So this is the immune system turning on itself and causing these difficulties.

CAPTION: The team took blood samples from 228 patients with first-time psychotic episodes. And found that around 3% had high levels of NMDA receptor antibodies – proteins that control electrical impulses in the brain responsible for the perception of reality.

BL: At the moment, the standard treatment for somebody with psychosis is treatment with antipsychotic drugs, which are very non-specific medications that help some of the symptoms of psychosis. But not all of them. And psychological treatments and social approaches as well. But none of these treatments address the cause of the illness. They help the symptoms. They don't help the cause.

CAPTION: Professor Lennox tested a new treatment on a small group of nine patients from her study. Immunotherapy – to date used mainly on cancer patients –

involves plasma exchange, where disease-causing antibodies are flushed out of the blood or replaced with 'good' antibodies from healthy blood donors. After the treatment, patients took steroids to stop them producing more antibodies.

BL: Eight out of nine of them made a dramatic improvement in their symptoms. The one that didn't make such an improvement actually didn't complete their course of treatment either. So that's why it was encouraging, particularly we were giving steroids to people, which, it is traditionally is thought to actually make psychosis worse. But nobody got worse and most people got better.

CAPTION: A 'double-blind' clinical trial is now needed, where neither the patients nor the doctors know whether patients are getting the active treatment or a placebo. Professor Lennox believes her findings might be a significant advance in her field, offering hope for effective diagnosis and treatment for some patients with psychosis. The Oxford study is very small, but some believe immunopyschiatry could be a benchmark for broadening our understanding of mental illness.

70. Could you be suffering from 'plant blindness'?

Are you unable to appreciate or notice plants in your environment? Here's what you could be missing out on...

Filmed at Kew Gardens, 16 September 2020

Made in partnership with The Open University

NARRATOR: If I asked you to close your eyes and imagine some wildlife you would probably conjure up an image similar to this… Or even this… The focus of your visualisation was most likely the cute little fox, rather than the Digitalis plant or the Conium Maculatum plant. Well, you're not alone in this, a 2016 study showed that study participants remember pictures of animals better than they remember images of plants.

CAPTION: Plant Blindness

LUCY JONES Author of Losing Eden: We've never been at this point of disconnection and estrangement from the natural world before.

CAPTION: Three-quarters of UK children aged five to 12 now spend less time outside than prisoners

DR CARLY COWELL Senior science officer (CITES): We're surrounded by synthetic and electronic entertainment and we don't interact with plants and nature as we once would have had we been growing our own food or hunting for our own food. And this has resulted in what is known as the Nature Deficit Disorder, where people don't recognise plants at all other than something that they may consume for dinner.

CAPTION: The term plant blindness was coined by botanist Elisabeth Schussler and James Wandersee in 1998. It means the inability to see or notice the plants in one's own environment. Part of this is down to biology and evolution

CC: The human eye sees green a lot easier than any other colour so it tends to group green objects together and fade them into the background. And then there's the evolutionary development within humans that early humans were threatened by animals. We also had to look out for movement, for a fast moving lion coming to eat us. Therefore, the human eye picks up movement and looks for movement. So we often don't recognise plants which are relatively unmoving.

CAPTION: But research increasingly points to the huge benefits that spending time in nature brings to us.

LJ: Connecting with nature affects us from our heads to our toes, from micro bacteria in the soil, which studies show can enhance wellbeing, to petrichor, the smell of the earth after it's rained, to the sound of birdsong, which has been found to decrease the stress hormone cortisol. I realised I was disconnected from the natural world about eight years ago during a period of recovery from depression and addiction issues. I found myself drawn to walking daily on Walthamstow marshes. And the experience of being in nature and walking on the marshes became as important and as therapeutic as the medication, the psychotherapy and the support of friends and family.

CAPTION: A 2018 study found a strong link between access to green space and reduced risk of mental health problems.

LJ: Those who have less access to outdoor space, and two and a half million people in Britain don't live within easy, 10 minute walking distance of a green space, have fewer opportunities to decrease their stress through contact and connection with the natural world.

CAPTION: We have all heard about campaigns to save animals from extinction but many plants are facing extinction at an even faster rate.

CC: Every year, more plant species go extinct than animal species. And in fact, CITES, which is the Convention on International Trade in Endangered Wild Species, that's fauna and flora, has 30,000 plant species listed compared to the 5,000 animal species which are in danger of extinction from legal and illegal trade. Plants and fungi are the foundation on which humans and animals really depend. And yet they're not recognised and they are the underdogs. They just keep toiling away and keeping us alive.

LJ: You don't need anything to go out in nature. You just need to find something that you're interested or curious in. I love insects and lichen and moss. I'm always looking around for different species I can find and patterns and shapes. So I'd say just find something that makes you feel wonder and awe and say, "Wow," and just continue your lines of curiosity.

CC: Plants are essential to us. They're not just a green background or something for us or animals to eat. They are significant in our survival as a species and as a planet.

71. Couple goals: Did these French writers have it sussed?

The unique relationship between French intellectuals Jean-Paul Sartre and Simone de Beauvoir.

Published on 12 December 2017

Made by BBC Culture

LISA APPIGNANESI *Author of Simone de Beauvoir (Life and Times)*: Paris, 1929. Simone de Beauvoir and Jean-Paul Sartre made a pact. They promised to remain committed, if not sexually faithful to one another. They never married, but they kept their word for the following 51 years. In the process, they became the first truly modern couple. I don't know any other square in the world that's named for two writers, philosophers, lovers. This is the place that Satre and Simone de Beauvoir spent their war years. And now this is a square that's named for them: The Place Sartre-Beauvoir. From the late 19th century on, groups of artists and thinkers came together in these Paris cafes to write, to discuss the very nature of what it meant to live and to be free. And in the case of Sartre and de Beauvoir, to experiment with a unique and daring new kind of relationship.

PASCALE FAUTRIER *Author of The Paris of Sartre and de Beauvoir*: Satre explains to Simone de Beauvoir that he does not intend to remain faithful all his life to the same female companion, that he wants to live other adventures. He proposes to her a relationship that is not a bourgeois marriage. It is something quite unconventional, and very daring, especially for Simone de Beauvoir, since she is giving him her virginity out of wedlock.

LA: For Sartre and de Beauvoir, their unconventional pact was part of the spirit of challenging tradition and all aspects of conventional bourgeois life. And it fed directly into their work. Their relationship helped them question society itself.

JULIA KRISTEVA *Philosopher and Psychoanalyst:* They decide from there, being in a very, very intense overhaul of Western philosophy, raising the question of what is freedom, how can one be free? They decide that as they are and as they love each other they can be free. And that supposes and independence of thought and sexuality and at the same time, a great complicity. Complicity in their action and their erotic life in parallel.

LA: It was Sartre who suggested to Beauvoir she might want to consider a situation with women, whilst she edited and revised his work, beginning from his very first novel. I'm sitting here at the Café de Flore, right in the middle of the Saint-Germain, the very heart of cafe land in Paris. This is where, during the war years, Sartre and Simone de Beauvoir would come, first of all, to have their morning tea,

but secondly, also to write. Under German occupation, existentialism came into being marked by Sartre's *Being and Nothingness* of 1943. It was a philosophy that stressed that it was existence, day to day life and its choices that made humans, not any inherited essence. With liberation from the Nazi yoke, Sartre and de Beauvoir became the iconic leaders of the new philosophy.

PF: Certain aspects of existentialism are going to be in the spirit of the time of liberation and will be readily adopted by the crowds. Notably, this idea that individuals are not defined a priori by their background, by their place of birth, by religion etc, but that they have to build themselves, that they have to invent themselves. And I think we are at that time, especially in Paris, we are in an atmosphere where people want to be creative, after Nazism, with the 68 million deaths of this terrible Second World War, and they think that Sartre's proposal offers them something that will enable them to invent their own lives and to invent themselves.

LA: Over the course of their long lives, Sartre and Simone de Beauvoir remained two of the leading intellectual figures of our time. If Sartre initially received greater recognition, all that changed with successive waves of the woman's movement, which Simone de Beauvoir's great work continues to inspire.

JK: I received The Second Sex as an anthropological revolution. This has changed the place of the man and the woman, the relationship between men and women. And it's something unique in the world. I think that we cannot think of their relationship only in terms of a man and a woman. This is obviously a part of it and it is very engaging today, but they condense a whole cultural, political and ethical memory.

PF: I think they have a lot to tell us today. I think that freedom, their freedom at once intimate, personal, political, their freedom to think is something that is in danger today.

LA: In 1980, some 50,000 people filed behind Sartre's funeral cortege through the streets of Paris and ended up right here behind me at the Cimetière du Montparnasse. In 1986, almost exactly to the day, Simone de Beauvoir followed him. Amongst the crowd that came with her to this Cimetière du Montparnasse a man called out 'Women, you owe her everything.' And I think we do. We owe her a very, very great deal. De Beauvoir had declared that whatever her many books, literary prises, whatever her role in the women's movement, her greatest achievement in life was her relationship with Sartre. What made it so was they carried on their conversation over a lifetime, working together, sifting each other's ideas, honing them. For all its occasional trials and the ways it has been disputed under different moral climbs, their experiment in coupledom was a thriving one. And it has left an enduring legacy.

D

72. Darwinism: The theory of evolution explained

What is Darwinism? And how much impact did Charles Darwin's theory of evolution have on the world? Philosopher Nigel Warburton explores.

Made by Somethin' Else, 11 October 2018

NIGEL WARBURTON: The A to Z of isms... Darwinism. The philosopher Daniel Dennett described Charles Darwin's theory of evolution, Darwinism, as "the single best idea anyone has ever had". It certainly was a brilliant one, though Darwin wasn't the only one to come up with it. The naturalist and explorer Alfred Russel Wallace put forward a very similar explanation of the biological data independently of him at around the same time. But once Darwin published his book, On The Origin Of Species, in 1859, the theory of evolution was ever-after linked with his name. It was a radical idea because, although Darwin didn't spell this out, people soon realised it entailed the view that human beings were just another species in the animal kingdom and shared a common ancestor with apes. For Victorian England, this was quite a bombshell. As a young man, Darwin had spent five years as a naturalist on a round the world trip aboard HMS Beagle. He'd gradually come to realise that species change over time they evolve. Imagine you're a finch on a Galapagos island. There are lots of plants with seeds, but not much else to eat. Your bill is a good shape for cracking them open. Lucky you. That's probably just the result of a variation you find within a species. You happen to have a beak that allows you to eat seeds. Others aren't so fortunate. You survive and reproduce, and pass that trait on to some of your offspring. The offspring that have beaks like yours flourish. The same thing happens in the next generation. Gradually, over many thousands of years, the finches on this island that survive become better adapted to the available foodstuff. Your type of beak predominates. On another island, the main diet is prickly pear, and the finches that survive and flourish there have very different shaped beaks from yours. Not only do members of a species change as a result of such evolution, but also entirely new species emerge. Today's Darwinism is rather different from Charles Darwin's Darwinism though. We now have a much better understanding of the biology of heredity than he did. Darwinism today is a powerful combination of Darwin's general theory with modern genetics. Darwinism is central to understanding how we came to be what we are. It's possibly the most important ism yet.

73. Debate: Can porn be ethical?

The global porn industry is worth an estimate $97bn a year, but very little is produced ethically. Can anything be done to change that?

Published on 3 May 2019

CAPTION: Sarah Ditum is a journalist and a feminist. She believes that pornography by its very nature is unethical – and damages all of us. Nichi Hodgson is an author and journalist. She believes that producing ethical pornography can make a huge difference to the industry. We brought them face to face to see if they could find common ground.

SARAH DITUM: What we see in pornography is so much about men controlling and dominating and hurting women. Men are consuming huge quantities of pornography. They have no idea where it comes from at all. They have no interest or concern about the performers, in the majority situations. I'd say it's not a trustworthy industry. And yet the consumers don't care.

NICHI HODGDSON: Well, I think people that watch it presume that it's acting and that might be right and it might be wrong in some cases. But they presume that people are performing something to a script, something that's been choreographed, and that if they can go to the cinema and watch a violent movie where people are being paid to act, then it isn't any different in pornography.

SD: I think it's just a get out clues that people give to themselves, because they want to see pretty vicious things being done to women.

NH: I think something that's really difficult for us to get our heads round as ethical people, if we call ourselves that, is that desire is amoral. Now, it's not *immoral*, but we might fantasise about things that we'd never have . . . we'd never dream of doing in real life. And so pornography tends to fill that void. So something that you might think about doing that, you know, maybe it is a kind of . . . it is a kind of position that you would never want to do with a partner, but you might want to watch it. And if you could guarantee that that person wasn't harmed in the process, then is it wrong to want to watch that?

SD: I think desire has to be moral, right? If we're not putting our desires to the test of our morals, then what is even the point of having morals? Right?

NH: I think that the things that compel us sexually are often developed in at a very young age when we haven't really developed a full moral compass. People will often have massive guilt about the kind of porn they watch because they just can't help but be compelled by something that they would find abhorrent in real life. So there's a kind of . . . there's a contradiction, often, in how people live as moral people, but how they desire when, you know, the lights go out.

SD: Do we have to be frank about that stuff? Like, it's okay to have feelings that you can't act on in your day to day life? But the fact that you have those feelings doesn't mean that you've got a right to see them enacted for you or a right to indulge them, because the more something is normalised, the more it becomes something that is a part of everyday life. And that dynamic within pornography, that idea that it's men's pleasure and seeing a woman suffer for a man's pleasure is not only normal, but is also a part of what's pleasurable. It's enormously harmful for all of us.

CAPTION: How can performers be protected?

SD: To start with, you have the problem that you're paying someone to have sex, which immediately complicates the idea of consent. It takes away the option of saying no. So there very routine stories from women who've worked on sets who've found that scenes have escalated from what they've agreed, to stuff that they were really not comfortable with. And where the porn industry does sort of have this apparatus of appearing ethical and will do, for example, exit interviews where a performer will confirm that they consented to everything and they were happy with everything that they did within the scene. One of the problems with those is that you have to do your exit interview before you get the cheque. So there have been cases of women who've come out and said, 'Actually, I didn't mean that exit interview. It's just that either I said that then, or I would have gone through this absolutely horrible experience and not even got paid for it in the end.'

NH: I do firmly believe that there are ways of protecting all performers involved in the porn industry. And I think it's really important to say that men can also be vulnerable to exploitation as well as women, even if we see men performing dominant acts and always being on top, so to speak, in the industry. We know that sometimes they're forced or encouraged to take Viagra, way past the point of comfort and also anybody that's on set for too many hours, not getting proper breaks, not being paid properly and having their content pirated is being affected. So it doesn't matter about their gender in that respect.

SD: I think you're right, that all performers are working in an exploitative industry and that affects both men and women. But the particular, you know, like the nature of sexism, is that it does come down harder on women. A woman's career is shorter. The kind of acts that a woman has to do in pornography to collect the big bucks like . . . you are going to age out of pornography at a very young age. And for women, that means doing stuff that is tougher and tougher on your body.

NH: From the perspective of someone that's been a sex worker and done sex . . . sexual things with people that I didn't know, didn't necessarily like or find attractive, but that they were paying me to do those things with them. I would say that in those situations I was happy to take the money, because it was preferable to lots of other kinds of work. And I was often, you know, I was treated really well by and large, I . . . everything we did was consensual. I set the terms of it. So I don't think sex is the same for everyone. I think some people can sell sex or sexual services without ever being harmed by it in a psychological or a physical way. And for some people, that's not the case. For lots of people, sex is a very precious and intimate thing that they don't want to share with just anyone. But for other people, it's just something they can do with their body.

SD: I'd say . . . should say here, I'm (*laughter in voice*) super happy that you're not traumatised. That is very good news. But, because it's an act of necessity for a lot of women, the levels of trauma among women who've sold sex are really, really high. The level of exposure to other kinds of violence are really, really high. And that's true whether they're selling sex on a person-to-person basis or whether they're selling sex as part of pornography. And again, it's about how many negative consequences are we willing to tolerate so that we can have this particular media?

CAPTION: Can ethical porn production make a difference?

NH: So obviously, the so-called golden age of porn is over. That's the 90s when there were big studios with big budgets and people were probably making more fun stuff that was better scripted and better paid. And there was the opportunity for women in particular to make lots of money out of it. We know now that most people making gonzo porn, so that's shot, you know, on personal phones or cameras. And that's really a big issue for the ethical side of it. If people are working in these atomised communities, whether making content at all hours, then that definitely leaves more people open to being exploited. But at the same time, you know, 10 years ago, we didn't have a discussion about ethical porn. Today we do. Today, there are numerous places you can go on the Internet to find it. I think ethical porn and the stuff that's produced by women for women and by LGBT performers and producers proves that there's another way to make the material.

SD: It's a really small coterie of people who are trying to produce ethical porn. The fact that they exist isn't making a difference to the rest of the industry. You know, if I keep my own hens, that is not going to change the egg industry as a whole.

NH: You are always going to get people wanting to watch other people have sex on film. You know, people are turned on by watching other people have sex. So that's kind of a fact of the human condition. The industry is the problem. So rather than just say there's no way forward with it and it's inevitably always going to be exploitative, we should be really championing the people that are trying to do something better. And I don't think it's just like keeping your own hens. It's a grassroots movement at the moment, but with momentum and consumer pressure, it can grow.

SD: But how are people going to find the pornography that's ethical? I mean, how are people even going to be educated away from consuming unethical pornography, given that a lot of the appeal of pornography is secretive? It is about seeing things that are bad and dirty and not acceptable in the rest of your life, maybe. So where is the impetus to be ethical in consuming stuff that is fundamentally unethical?

NH: Well, I think if people have a sense of living an ethical life, like, they care about the environment or fast fashion or where their food comes from, it's kind of the next step, isn't it, to think about ethical sexuality and ethical pornography?

SD: Ethical pornography occupies a niche. Do you think most consumers of pornography really are ethical or are inclined to be ethical? There is no internal pressure to create an ethical product.

NH: So, I think about sugar, for example, and the fair trade movement. So you know, how many years ago, 20 years ago, that was a tiny coalition of charities and people interested in having a better product that pushed forward that movement. And today we know the biggest manufacturers of chocolate are using Fairtrade products. So that came from lots of different people pushing together. And I think when we talk about men consuming unethical porn, if they don't think there's any other option, that's probably all they will consume. But if the market starts to

expand and they become more aware of other things they can view, then there's every chance that they might take that preference.

CAPTION: Final Thoughts.

NH: So if I'm right, Sarah, what you think about pornography is that it can never be ethical to film people on camera having sex when it's not about consent, it's about money?

SD: Yeah, I think that that's a fairly good summary of what I think the big problem with porn is. (*laughs*)

NH: And also that while we have a majority of men consuming unethical content very easily, there is never going to be any impetus for people to make, watch or purchase anything else.

SD: I've really enjoyed talking to you because I think in some ways your position is quite hopeful and you really do think that individual good actors making what they think is ethical porn can help to transform the whole industry. And at the same time, I think you also acknowledge that it's an industry with massive, massive problems. It is not . . . that it's not a good place to work as things currently stand.

NH: Yeah, I would say that's completely true. I definitely don't think that it's the best it can be. But I think there are some people that are really radical and trying to do something really positive. And I hope that if we support them, then good can come of it.

74. Did War of the Worlds really cause mass panic?

In 1938, Orson Welles convinced Americans that Martians had landed. Or did he?

Published on 1 March 2018

This video was made by BBC Archive

CAPTION: Orson Welles had a distinguished career on both stage and screen, directing the legendary Citizen Kane at only 25. His name is also synonymous with alien invasion and mass hysteria, thanks to a 1938 radio programme.

ORSON WELLES *1955*: The War of the Worlds broadcast we did based on H.G. Wells's story of the invasion of the world by the Martians. The Martians themselves, looked something like that. We did on the show exactly what would have happened if the world had been invaded. That little music playing And then an announcer coming on and saying, 'Excuse me, we interrupt this programme to bring you an announcement from Jersey City. Jersey City's just fallen.'

CAPTION: The broadcast aired in the tense political climate of 1938. American audiences were primed for a catastrophic announcement of war, though not an extra-terrestrial one. Newspapers reported claims that panic had swept the nation.

OW: Highways were jammed with cars going one way or another, those people who were in the cities were going to the hills and those people who were in the hills, were coming into the cities. They were phoning us from all over the place, some of them reporting that they'd seen Martians landing in their back yards. There were others that claimed to have been attacked.

CAPTION: However, some have questioned the actual extent of the panic. Did Welles really convince a country that Martians had invaded Earth? Radio surveys showed few people actually tuned into the broadcast. And while newspapers reported mass panic, no deaths or serious injuries occurred. Nevertheless, fantastic tales of a country in chaos persisted.

PROF W JOSEPH CAMPBELL *Archive on Four, Flack Productions*: Sometimes it's estimated that one million people were panic stricken or pitched into hysteria. That is a complete exaggeration. There may have been upwards of a million people or so who were frightened or disturbed. But that is a far cry from being pitched into panic and engaging in mass hysteria. William Randolph Hearst's New York Journal and American claimed there are hundreds of thousands of people into the streets. So the newspaper editorials, the leaders in newspapers in this country were, in my view, partly responsible for embedding this myth.

CAPTION: At the time of Welles's broadcast, radio was a relatively new medium. The myth of the panic-inducing broadcast was taken as evidence of the dangers of radio as opposed to the supposed reliability of newspapers.

OW: When the radio came in, I suppose, now television, anything that came through that new machine was believed. So in a way, our broadcast was an assault on the credibility of that machine. We wanted people to understand that they shouldn't swallow everything that came through the tap.

CAPTION: And yet, Welles continued to spread wild stories about the panic.

OW: If you think this is an exaggeration, according to my informant who is highly placed and should be believed. This is a really true story, I'd ask you to believe that.

75. Do eggs contain the secrets of the universe?

Eggs are amazing. They're the pinnacle of design and possibly the shape of the universe itself. Welcome to the wonderful world of eggs.

Made by Flock London, 18 April 2019

NARRATOR: This is an egg. But then, you already knew that. You know because eggs have been central to human existence for thousands of years. In fact, you probably take it for granted, after all, it's only an egg. But if you're prepared to look closer to see through its calcium carbonate shell you'll find a microcosm of the universe. Don't believe me? Let's start at the beginning. The very beginning. Several

religions, multiple traditions, the Ancient Egyptians, the Greeks, the Romans, the Incas all have eggs at the heart of their creation stories. In southern California, the origin story of the Cahuilla people likens the creation of the entire universe to the cracking of an egg. A little further east, the Omaha tribe of Nebraska and Iowa spoke of an egg being dropped into the world's oceans. Protected by a bird serpent, inside this egg lay sleeping all of the mothers and all of the fathers of everyone yet to be born. But these are stories. Where's the science? In 2006, data gathered by Nasa's Wilkinson satellite suggested that the Universe itself may be an ellipsoid - an oval. Egg shaped. The science community remain unable to categorically prove or disprove this theory but it remains possible we're all living inside a massive, ever-expanding egg. In 1609, Johannes Kepler confirmed that the planets, including our own, go around the sun, not in a perfect circle but in an elliptical orbit. The moon's elliptical orbit makes it appear to regularly change size in the night sky. Without this egg-shaped dance our moon may seem far less interesting. Far from being smooth, an egg's shell is more like the surface of the moon. Bumpy and grainy in texture, a single eggshell is covered in up to 17,000 tiny craters. But it's also semi-permeable, allowing air and moisture to pass through it. This remarkable shape, not only is it possibly the shape of the actual universe, it's also the pinnacle of architectural design. Here is a structure with no internal solid support and yet it's strong enough to protect and nurture life itself inside. If one point of the shell is put under external force, the stress is distributed evenly across the entire dome. Which is why you can't crush an egg with the palm of your hand. But how to replicate nature's perfect aerodynamic design? An egg has no obvious beginning or end so where do you even start? It wasn't until the 20th Century that human architects started to get the hang of building egg-like structures on a grand scale. 'The Egg' in Beijing seats 5,452 people in three halls and is more than 1,000 square metres in size. That's one seriously big egg. Imagine the size of the egg cup. Eggs have inspired artists from Dali to Faberge and made memorable movie cameos Sigourney Weaver's haunted 12-pack in Ghostbusters, Paul Newman eating 50 in Cool Hand Luke, and John Hurt falling foul of a particularly nasty one in Alien. In Gulliver's Travels, when the people of Lilliput went to war with their neighbours, it was over which way round to eat a boiled egg. On Instagram, we liked this egg, in greater numbers than we'd liked anything else ever before. Mr Strong ate nothing but eggs, which actually was not a bad idea. An egg's protein has the perfect mix of amino acids required to build human tissue, second only to our mother's milk. Eggs have also whisked their way into our everyday lexicon. I'm not yolking. Let me eggsplain people can be 'good eggs' or 'bad eggs'. If you're particularly smart an eggspert in your chosen field perhaps you might be called an 'egghead'. We send our kids on egg hunts. We scramble, we poach, we bake. If you want to make an omelette, we all know what to do. Not knowing how to boil an egg is considered shorthand for someone who can't cook. And yet, when searching 'how to boil an egg', Google will offer up more than a billion results. Perhaps it's not as simple as we thought. Much like the egg itself. People have been welcoming spring by decorating eggs with bright colours since the Middle Ages. But John Cadbury didn't make his first chocolate egg until 1875. Eighty million chocolate eggs are now sold every year in the UK alone. The average child eats eight. At Easter, it seems, the egg will always come first... But then of course, you already knew that.

76. Do police sketches actually help catch criminals?

Could you put a face into words? Tui McLean explores the challenges of translating a witness's description of a face into an image.

Published on 19 May 2020

TUI MCLEAN, BBC: Looking at me now, you could probably have a decent go at describing me. But what about now? You might remember more or less that I have pale skin and dark hair. But what If I asked you to describe my nose? Would you say it was flat? Long? Pointy? And what about my eyes? Round? Almond shaped? Wide set? Deep-set? Close together? Difficult to be specific isn't it? And that gives you some indication of the kinds of problems that detectives face when they're trying to recreate images of suspects. The idea behind police sketches is simple. An eyewitness sees a crime and works with the police to create an image of the criminal. But how accurate are these kinds of sketches? Do they really help catch criminals? Experiments by forensic psychologists in the UK found that faces were identified correctly by police sketches in just 8% of cases. There have been some cases where police sketches have worked well, such as the Oklahoma Bomber, Timothy McVeigh, and the sketch of serial killer Ted Bundy which prompted people who knew Bundy to call the authorities. But more often than not, the similarities are not that close and a police sketch ends up being mostly a guestimate. And one reason it's so difficult to get them right is because our brains aren't wired to process each individual feature on a face.

GRAHAM PIKE, THE OPEN UNIVERSITY: When the mind remembers a face it doesn't look at the face and break it up into databases of noses and eyes and ears and then try to reconstruct them, which is how the early systems work. Instead, when we look at faces, we remember the whole face. So our mind is storing the face holistically.

TUI MCLEAN: When it comes to police sketches, the process of reconstructing a face from memory, detail by detail, is the opposite of how we naturally recall faces. In the 60s and 70s, systems such as Identikit and Photofit tried to fix this problem with large databases of interchangeable features. By the 80s, computerized systems such as E-FIT meant they could be a bit more customised, but the witness still had to scroll through lists of individual features, so any face constructed was limited by those options. And these aren't the only hurdles. Not only do we find it difficult to identify individual features, we also struggle to describe them.

GRAHAM PIKE, THE OPEN UNIVERSITY: So when you see the face of a perpetrator, if you're unlucky enough to be a witness to a crime, you see the face, so it's visual. But when the police officer asks you to describe it you have to give a verbal response and our brains aren't very good at swapping between modalities, swapping from the visual to the verbal.

TUI MCLEAN: And then there's the issue of time…

CHARLIE FROWD, UNIVERSITY OF CENTRAL LANCASHIRE: The problem is, is that witnesses are normally interviewed a couple of days or a week after a crime. And when this happens, witnesses struggle to remember what the face looks like and they struggle to remember the parts of the face. And what we know is, for unfamiliar faces, our memory tends to be particularly good for the hair and the outer part of the face. And yet when you become familiar with the face, it's the central internal features that you tend to rely on in order to be able to recognize somebody's faces. So a witness will tend to construct the outer part of the face well, but somebody who's trying to recognize the face will be looking at the central part of the face. And so there's a kind of a mismatch in what's accurate in the face.

TUI MCLEAN: And that's what has led to EvoFIT, a composite facial system that Charlie Frowd helped to develop. It presents randomly generated faces that users are able to tweak, adjusting them by variables such as pleasantness, attractiveness or honesty.

CHARLIE FROWD, UNIVERSITY OF CENTRAL LANCASHIRE: We built a system that shows witnesses screens of faces and they're asked to select faces that look like the person that they've seen. Those choices are then combined together and another screen is produced. In some of the experiments what we've been doing is showing witnesses faces where the outer part is deemphasized or blurred to help a witness focus on the central part of the face. And that's actually quite effective to help people construct the central part of the face more accurate and so produce a more identifiable composite. We've shown in the laboratory identification can be about 75% correct. So performance that really is quite good and actually valuable for police and for policing.

TUI MCLEAN: EvoFIT helped catch a serial rapist in Manchester who was recognised by a facial composite on Crimewatch and turned in to the police by his own brother.

GRAHAM PIKE, THE OPEN UNIVERSITY: Very often perhaps the facial composite images aren't that accurate, but nonetheless, they can be an invaluable prompt to somebody who maybe looks at it and thinks, "Is that someone I know?" And that can be all that's needed to push them over the line and call the police and say, "I think it's this person."

77. Do we have a right not to be lonely?

Kimberley Brownlee, professor of philosophy at the University of Warwick, explores what we could do to prevent loneliness.

Animation by Martin Stacey & Neil Evan, 8 May 2018

Made in partnership with The University of Warwick

KIMBERLEY BROWNLEE: Long distance sailors who braved months alone at sea tend to report that their greatest challenge is the soul destroying loneliness. We're prone to feeling lonely when we're socially isolated. But we can also feel lonely when

we're not isolated, when we're in relationships with people who care about us. So what is that terrible loneliness, as philosopher Bertrand Russell puts it, where one shivering consciousness looks over the rim of the world into the cold, unfathomable, lifeless abyss? Loneliness is the unwelcome feeling that we lack companions, that we have fewer or poor relationships than we want. Feeling lonely is like feeling pain, thirst or fear. It triggers our fight or flight response. In small doses, loneliness can help us. It can prod us to reach out to other people. But when loneliness becomes chronic and acute, it's corrosive. Some of us turn to drugs to deal with loneliness. Some of us join abusive relationships or gangs. It's correlated with health risks such as depression, reduced immunity and even suicidal behaviour. Studies indicate that young people feel lonely as often as older people do. Even young children can feel deep loneliness. If loneliness is a serious social problem. What do we do about it? Can we have a right not to be lonely? We cannot have a right against *feeling* lonely, but we could have rights against some of the underlying conditions that tend to cause loneliness. Such as a right not to be persistently socially isolated, including a right not to be left to fend for ourselves when we need help to stay social, like the physically impaired person who needs some help to get out of the house. Although this isn't currently an explicit right in international agreements, arguably it should be, because human rights are about the brute moral minimum that we owe each other as human beings. In addition to talking about rights, we can work individually to alleviate our own and each other's loneliness. There is value in small social connections, like the visit to the doctor, the ride on the bus and the trip to the grocery shop. We can make it a habit, as writer George Monbiot suggests, to start conversations with people we don't know. These micro moments of connection aren't just nice. According to social psychologist Barbara Friedrichsen, they change us for the better emotionally and physically. It's like getting exercise. And it goes both ways. Our hearts capacity for love, obeys the biological law: use it or lose it. As children's singer Charlotte Diamond puts it, 'Give four hugs a day. That's the minimum, not the maximum.'

78. Do we need a new understanding of national identity?

Political scientist and author Francis Fukuyama says we need national identities that unite rather than divide us.

Published on 11 December 2018

FRANCIS FUKUYAMA: In many respects, national identity has a bad reputation because it's associated with the sort of nationalism, the ethnic nationalism of the early 20th century that led to the two world wars and disaster for Europe. But national identity does not have to be aggressive and it certainly does not have to be based on ethnicity. My name is Francis Fukuyama. I am a fellow at Stanford University and a political scientist. I think in a modern democracy, you need a sense of national identity, meaning that people have to understand what they have in common, their belief in the legitimacy of democratic institutions, the institutions that allow them to deliberate, to act collectively, to make decisions. And if we build

identity around these kinds of ideas, constitutionalism, the rule of law, principle of basic human equality, I think our democracies would do better. If people believe they're part of the same community, they're not going to be fighting each other. And if you look at the problem in the Middle East right now with countries like Iraq, Syria, Afghanistan, Libya, Yemen, they're not nations. There's no overarching sense of identity and therefore tremendous internal actual violent conflict in those societies. It's important for economic development. I think if countries or the elites and countries don't think that they've got a common public purpose, they're going to simply steal from the public purse for their own private benefit. One thing that is actually quite critical is if you actually want a social safety net or a welfare state that protects the weaker members of the community, it's not going to work if you don't believe that you have a community. The most successful welfare states like the states in Scandinavia think of themselves as big families where the stronger members support the weaker members. I think one of the big problems in modern democracies is that people have identified with smaller and smaller groups. That has led to an overall polarisation of their societies such that the democracy doesn't work very well because people line up in these opposing camps. I think that the final really important element has to do with trust. This is an intangible property that really is related to people's belief that other people in their society are reliable, are honest, will keep their commitments. And that's something that is very hard to generate. It's easy to lose. It's hard to generate. And part of what a national identity does is it increases the radius of trust such that it extends to some extent across the entire society rather than being located in particular ethnic groups or particular enclaves or particular social classes. And that's I think, you know, finally, one of the reasons that national identity is necessary for the smooth functioning of a society.

79. Do we need to re-think our ideas of time?

As a society, we're so focused on the short term. But is this wrecking the environment? Do we need to think more long term? If so, how?

Made by Tamarack Media Cooperative, 24 January 2020

ELLA SALTMARSHE *Long Term Project*: We live in a short term world. We're so focused on what's right in front of us - whether that's our social media feeds, the latest political headlines or the latest fashion trends. It's all about now. And that the problem is that kind of tunnel vision of short termism is leading to a situation where we might only be left with a short term as a species. So it's often said that we are the first generation to truly feel the impacts of climate change, and the last generation to meaningfully be able to do anything about it. If short-termism got us into this mess, can long-termism get us out of it? For us, anything that we're saying, we do it in mind that our seven generations are sitting with us already. When you talk about how can we establish things for the next seven generations, we're not just talking about the things that we can teach them, but the things that they have to know to survive. All my artwork deals with time, on very different levels. Some are quite experiential, like a mirror ball that has 10,000 eclipses beaming around the room.

I've made clocks that tell the time on other planets. Humans are kind of evolved to think within our own lifespans, and so I think things like art can allow you to take a step outside of that. But not in a kind of science fiction way - more in a way that connects to Earth and connects to living organisms. Future Library came about in 2014. We planted 1,000 trees just on the outskirts of Oslo, and in a century's time, they're going to be cut down, pulped and made into a book. Every year the author brings their text to the forest and people gather together and we go on the same walk through the forest and then they present their manuscript. The questions have gone from thinking about the paper book and digital ways of reading and, will the book still exist? To, will humanity exist? Will there be a reader in 100 years? And that's really shocking. My job description as set out in law is to act as the guardian of the interests of future generations, so I feel pretty pressured by that, that's quite a big job description. The Well-being of Future Generations Act was passed by our National Assembly in 2015. It requires all of our public bodies to demonstrate how they're taking decisions in a way which meets today's needs, without compromising the ability of future generations to meet their own needs. I suppose one of the biggest test cases for the act was around building a 13-mile stretch of motorway. It had been previously thought that this was a done deal not only is it potentially not the right thing to do for future generations, we would also be asking them to pay for it. I asked the government to explain to me how they were thinking about the long term there and how they considered future trends and scenarios, and the First Minister came back and rejected the proposals. Sometimes the points made is, "Well we've got enough problems to deal with now without thinking about the future." But I don't think doing the right thing for current generations and future generations is mutually exclusive. Politicians are not renowned for their long-term thinking, so actually taking a step, not just to say in some aspirational policy document, but actually in law, "No, we will require ourselves to think to the long term and we'll appoint someone who is independent and will hold us to account for doing that." That's quite a brave move. So we found that engaging with the long term changes the way that people behave in the short term. Stretching people's capacity to care about future generations means that they take responsibility for that future. None of us is going to live forever, we're all mortal. The question we're asking is, what do we want to leave behind? How can we leave a better legacy for future generations? How might we be better ancestors?

80. Do we only use 10% of our brains?

Find out whether it's true that we only use a fraction of our brains in daily life.

Published on 15 March 2018

This video was made by BBC Future

CAPTION: The '10% of our brain' myth – how much do we really use? Old myths die hard. And this one has had a long life. Perhaps because it gives us hope. If 90% of our brain is free, we can do a lot with it. It's just a matter of using it. The brain is one of the most costly parts to maintain. It is only 2% of our weight but uses 50% of our

glucose reserve and 20% of the oxygen we breathe. Spending 90% of all this in cells that have no use is not just efficient! Indeed, our daily life requires our brains to work extensively. Brain activity scans show that even the most menial tasks activate many parts of it. But, if our brains are full, how do we learn stuff? New skills don't take brain space that was not used before. When we do or learn new things, we train our brain to act differently. We force it to create new connections within neurons. And to lose those we don't need. So: we do use a lot of our brain. But we can transform it in great ways!

81. Do we think differently in different languages?

How much of an impact does the language you speak have on how you actually think?

Made by Silverfish Films, 24 October 2019

MAN: So do we think differently . . .

INTERVIEWER: . . . in different languages?

MAN: Okay.

MAN 2 (*speaks foreign language*) Sorry, it's like a tongue-twister.

CAPTION: There are over 7,000 languages in the world. Does that mean there are 7,000 ways of seeing it?

PANOS ATHANASOPOULOS *Professor of Linguistics, Lancaster University:* The Whorfian Hypothesis as it's known, which is the idea that our language affects our thinking, has been debated for decades, even centuries.

CHRISTOPHER HART *Professor of Linguistics, Lancaster University*: There's a growing amount of experimental evidence that differences across languages have an influence on the way speakers of those languages conceive of the world. We can see that different languages structure the world in different ways. They carve up the various continua and different types of relations in the world.

SOPHIE SCOTT: *Professor of Cognitive Neuroscience, UCL*: The way the different languages chop up the, world, almost can vary. And that does actually influence how you see that world.

FEMALE *Dutch/French*: I think that language changes everything about the way you think.

MALE *Yoruba (Nigeria):* I go into a certain mindset. I sound deeper, I don't know why.

FEMALE *Portuguese (Brazil)* I perceive situations differently. I react differently.

FEMALE *German*: I think I'm more grounded and more in touch with my emotions in German.

FEMALE *Dutch/French*: Yeah, it makes me feel more assertive when I'm speaking Dutch because you kind of just get straight to the point.

PA: It's not just for talking. Language is for organising an otherwise messy world into identifiable categories. It give us ready labels.

MALE *German*: It's like Lego. You add another word to the word and that makes it more precise.

FEMALE *Dutch/French*: Language in French is super-gendered. So everything has a masculine or feminine. And it just makes everything feel a bit more. One or the other.

SS: If you have a word like bridge, if it's in a language where it's is carrying a masculine gender, then bridges will be described by people slightly differently. So it might its usefulness or its power might be more associated with the feminine gender, whereas its strength and its size might be more sort of associated with the masculine agenda.

CH: The structure of a language forces us to attend to certain aspects of a language that are . . . certain aspects of reality that are relevant for a language at the moment of using that language. It's known as the thinking for speaking hypothesis. There's evidence that language involves some kind of image simulation and that has a consequence for how we perceive of certain events.

SS: Colour is quite a complex property of the visual world. Your brain's decoding colour and quite a complicated way.

PA: So you have many languages that have a term to denote both green and blue. And typically we'll call this a 'grue term'. You find this in languages like the Himba, for example, in the Namibian plains. In this experiment, we asked participants to look at the colour tile. Then after 30 seconds, we'll show them the full array of colours. We say, 'Now pick the one that you just saw.' And it's a very difficult task, if you're an English speaker. But a Himba speaker can do it like child's play because that colour is central to them. You simply cannot recognise colours that are not easily encoded in your native language.

CH: I think by virtue of being born into a particular culture and the language that goes with that culture, we are almost certainly given to think in a particular way.

SS: The human brain doesn't work out of the box. You grow up and you're growing up learning languages in particular environments. So you've got, you know, by the time you're dealing with an adult, you're dealing with a brain that has been trained up to be an expert along a number of quite specific dimensions.

PA: There's actually another very, very good reason for learning language, that's simply to gain another perspective on the world.

MALE *Uzbek (Uzebkistan)* You can actually say a lot more, a lot quicker in Uzbek than you can in English, which is quite interesting. They used to be nomadic, which means that the language has to be a lot quicker because you're speaking to people while moving around and all this kind of stuff.

CH: But in a sense, language is culture and culture is language.

MALE *Uzbek* Speaking different language is almost kind of gateway into a completely different cultural understanding.

[*speakers speaking different languages*]

PA: Cognitive diversity I think is at the core of human nature. It is probably if you're looking for universals, diversity is probably the one true universal of humanity.

82. Does Mars' position at birth affect sporting ability?

Mathematician Hannah Fry investigates the Mars Effect, a controversial study of astrology by Michel Gauquelin.

Published on 12 September 2015

Original programme made for BBC Four

HANNAH FRY: There have been a number of scientific studies that have tried to test astrology. Most famous was the work of a French psychologist, Michel Gauquelin, who in the 1950s published a study that appeared to show a link between sporting ability and the position of Mars at birth. So this is the chart that Gauquelin constructed for sporting champions in his paper that he released in 1955. This is the horizon. This here is the visible sky. This is the hemisphere below the horizon. And this line shows you how many athletes were born when Mars was in a particular position. Now, quite quickly, you see that there are two very clear spikes here. One just after Mars rises. And another after the zenith after Mars culminates. At the time, this was considered to be a statistically significant connection, one that became known as the Mars Effect. And it caused quite a stir. Many people, even some scientists, thought Gauquelin had established a proof for the concepts of astrology, that the positions of the planets are birth really do have an impact on our lives. But to mathematicians like me, the result is not so groundbreaking. If you toss a coin as a 50 percent chance, they'll come up with heads. So if I end that with 10 heads in a row, you'd be well within your rights to be suspicious that something a bit dodgy was going on, that this coin was disproportionately coming up with heads. But now imagine that I had 100 coins or maybe even a thousand. It becomes increasingly likely that one of these coins will come up with 10 heads in a row. But this time, you can't just pick out that coin and accuse it of being biased. It's just a natural result of randomness. And that's what happened with the Gauquelin I study. He was looking for so many different correlations. Thousands and thousands of birth dates with ten planets and 12 positions in the sky that he was bound to come across some spurious

patterns. And that's what the Mars effect is. He didn't adjust for the number of combinations and the result is just there by chance.

83. Does being paid more make you perform better?

In this reconstruction of a classic experiment, we explore whether a financial incentive makes us better at completing tasks.

Made by Boffin Media 6 March 2018

CAPTION: The candle problem. Does being paid more make you perform better? We recreated a classic psychology experiment to find out.

GAIL KINMAN *Professor of Occupational Psychology*: Back in the 1940s, there was a psychologist called Duncker. He gave his participants a candle in a box with some tacks and he asked them to fix the candle onto the wall, in whichever way they could. Glucksberg in the 1960s went back to the original Duncker experiments with a different variation. So one group were told that they were given a financial incentive if they did it quickly and another group were told that they were doing it just to see how long this experiment took.

CAPTION: So, are people better at fixing a candle to a wall if offered money? We tested it out ourselves.

CAPTION: Group One. No financial incentive. BBC Producer in a white coat (not a scientist)

BBC PRODUCER: So what I want you to do is attach the candle to the cork board, so that when you light the candle the wax doesn't drip onto the table.

GK: The tack isn't long enough to go through the candle. He's going to light the candle, even though it's not fixed to the board, which could actually be very dangerous.

CAPTION: Dangerous enough for us to have to stop it right there.

MALE PARTICIPANT: I was just thinking, maybe if I put one of the pins at the back of the . . . back of the board. I wasn't expecting to board to catch fire, but you know.

GK: Trying to create some kinds of little cradle.

FEMALE PARTICIPANT: The candle was just falling apart and then all of a sudden, I worked it out.

GK: And he's actually fixing the box to the wall in a very unusual type of way. Oh, this is looking promising – treating the box as an object in its own rights and not just a receptacle.

CAPTION: The 'solution' as identified in the original experiment. But first our group found equally creative solutions.

GK: In the 1960s, surprisingly, the people who were offered the financial incentive didn't actually do it as well or as quickly as the people who didn't have the reward.

CAPTION: We offered this group money to see if they would complete the task faster. We had barely left the room and our first volunteer was on the case.

GK: So this participant is starting off well and has done it, very quickly. Well done. Trying the candle out. Ooh, ooh, the box is coming out. Got it. Using the box for its purpose. Some people do freeze under pressure.

MALE PARTICIPANT 2: Yeah, in a way here, money motivated me to do it. In a way it's in between the lines of creativity and also the money factor.

CAPTION: Our results were inconclusive, both groups did roughly the same. But our sample size was tiny and hardly scientific. So, did we learn anything about our attitudes to money?

GK: There's a lot of evidence now that people do not work for monetary rewards alone. They work for intrinsic reasons, and it's very important for people to have a certain amount of money. Beyond that, it ceases to matter. And if you don't have that intrinsic interest, you're not going to be creative and your problem-solving tendencies won't necessarily be so good.

84. Does birth order really matter?

There are lots of stereotypes about the eldest child, youngest child and middle child... But are there really birth order characteristics?

Published on 19 December 2019

DR RADHA MODGIL *GP and Presenter:* How birth order affects our personalities fascinates many of us. And it's not just at Christmas time when we're arguing over why the elder sibling has to peel potatoes and why everyone's forgotten the middle child has no gravy with their lunch. Although you may not realise it, you've probably absorbed these stereotypes from birth order theory. Birth order theory is the idea that our position in our family affects our personality characteristics, IQ and even our life success and that these last long into adulthood. Now, at this point, I should probably let you know that I am the youngest of four, but I absolutely promise you that that will not bias in any way whatsoever the information I'm about to give you now. One of the most influential characters in this story was Alfred Adler, an Austrian physician and psychotherapist. He wanted to try and understand why children who were raised in the same family seem to have different personalities. Now, at this point, I should mention that Alfred Adler was actually a middle child, the second of seven children. In 1927, Adler theorised the birth order affected personality hugely, but his parents treated children differently, according to whether they were the eldest or the youngest. He also believed that parents comparing siblings created a sense of inferiority. Since then, researchers have added to this list

of birth order characteristics. Here are just some of them. They might ring a few bells. For example, the older child thought to be a people pleaser, responsible, reliable, cautious, but perhaps bossy and controlling. The older child traditionally has been thought to be getting lots of parental attention. So when the second sibling arrives, they can often feel neglected or dethroned. Famous older children include Winston Churchill and J.K. Rowling. The middle child is thought to be often left out, ignored. So they tend to be the peacemaker. They tend to adapt their personalities to fit him with perhaps what the older child has already taken away in that family niche. Famous middle children include Bill Gates and Madonna. The youngest child is often thought of as being self-centred, manipulative, fun, entertaining and charming. The youngest child is often thought to have to work harder to get attention and to maintain independence and seem different from their siblings. Famous younger children include Cameron Diaz and Mahatma Gandhi. And if you don't have siblings then don't feel left out, because Adla had something to say about the personality characteristics of people without siblings. Only children are often thought to be self-centred, independent, looking for approval and mature. As they have no older or younger siblings, they often take on the personality characteristics of either the eldest child or the youngest child. Fame only children include Daniel Radcliffe and Leonardo da Vinci. In 1996, American psychologist Frank Sulloway theorised that these differences may be due to Darwin's theory of competition and Survival within every family, every child has to compete for parental attention and investment in order to survive. So, for example, the elder sibling taking on the responsible role of looking after the younger siblings, so when the younger child comes along, they have to develop a different way of being in that family and find their own niche, for example, by being more adventurous. By doing this, they reduce competition and enhance cooperation within the family, so chances of survival for everyone are increased. Over time, results of further studies have been inconsistent. Some have totally backed up Adler's theory. Others have totally negated it. Some studies have shown there are differences, that these are not meaningful. And others have shown that actually any differences found are due to study design - for example, how many siblings are in a family or the relative ages of siblings? So who knows? Birth order is a fascinating subject, but pinning down exactly what impact it has, if any, is still a massive challenge. But from a personal perspective, I still think the youngest child is by far superior.

85. Does humanity's future lie out at sea?

Forget Mars... in the future, humanity will live at sea argues Joe Quirk, president of the Seasteading Institute.

Made by Somethin' Else, 5 April 2018

JOE QUIRK: Long before humanity colonise Mars, our children will live in floating nations on the sea. Calcium carbonate will be harvested directly from seawater, creating sea shell cities grown organically using 3D printed bio rock. The aquatic generation will live in upside down skyscrapers, sea scrapers where tremendous

weight will hang deep below the sea, securing such stability that neighbourhoods will be raised on pillars high above the waves simply by reaching a depth of a thousand metres, seascrapers will produce a super abundance of electricity through the magic of ocean thermal energy conversion, a proven green technology that uses the ocean as a solar panel. At 500 metres, a rich concentration of nutrients is suspended in seawater, where sunlight can't reach. Seascrapers will draw this elixir to the surface to spark a riot of photosynthesis, ocean gardens will sprout in a fountain of life. Vast seaweed farms will absorb megatons of carbonic acid, reducing ocean acidity to feed the world with environmentally restorative food. The first to seek jobs on ocean farms will be the poorest billion on earth. They will come to the blue frontier because floating societies will require refugees to survive economically. Imagine if Venice were a floating jigsaw puzzle where each island could be piloted independently. Mobile land will empower individuals to exit poorly-governed societies and choose better ones. Each floating homestead will be a nano-nation seastead. Humanity is emerging from our land-based slumber and awakening to the seastead century. Seasteading will restore the environment, enrich the poor and liberate humanity from politicians. The seas cannot support a state, but fluid interaction will incentivise civil society. More than two thirds of the Earth's surface waits to be discovered. Then homo aquaticus will explore the depths beneath. Oceans first, the stars next.

86. Does modern dating encourage racial prejudice?

Journalist Moya Lothian-McLean looks at how modern dating can perpetuate racial prejudice, by encouraging preferred 'types'.

Published on 22 April 2019

MOYA LOTHIAN-MCLEAN: What is racial fetishism? It involves favouring a person or culture belonging to a specific race or ethnic group. And while racial fetishism is being called out more and more frequently, there's still one space where it's not only acceptable, it's encouraged - and that's dating. Racial fetishism in dating is rampant. But in the face of it, you probably wouldn't recognise it as such. That's because when it comes to bedroom politics, holding strong racial preferences has become the norm. When someone says to me, 'You're my type', I instantly know what they mean. They're not saying they like me because they have a thing for women who have a deep and abiding love for Robbie Williams or can't watch an animated movie without sobbing like a baby. They are saying, 'I like mixed race girls.' 'So what?' you might think. 'What's the problem with being attracted to a specific ethnic group? It's a compliment.' Well, not really. Researchers of romantic attraction have showed that who we find ourselves drawn to is not actually biologically programmed. So those who think that we have a natural preference to one ethnic group, well, it's not innate. It's based on a variety of social and cultural factors, like being brought up in a society that prizes Eurocentric beauty standards over other minorities, or dating one person from a particular ethnic group, and then deciding that from now on you're only going to look for potential partners a bit like them. Our experiences and

conditioning knit together to create what we consider our 'type' – a word that is most used to describe purely aesthetic attraction and excuses us from examining the strong racial preferences bound up within that. Saying something like, 'Mixed race girls are my type' is seen as a positive, but it shouldn't be. It's lumping an entire ethnic group together as one homogenous mass as if we're interchangeable. The difference between our personalities, our likes, our dislikes all fall away in the face of our ethnicity. It's saying that we are no more or no less than the first thing you see – our race. And on the flip side is racial exclusion, which pretty much speaks for itself. It's that throwaway comment about not dating X ethnicity because you just don't find them attractive. You'd think in our new woke world racial preferences in dating would be getting phased out. But the rise of online dating websites, where aesthetics are everything means the problem is getting worse. Some apps even allow users to filter matches by ethnicity. Over half of 16 to 34 year olds use dating apps, but the algorithms actually mean they're not exactly getting us to mingle with a huge range of people. And when they do, existing biases come into play, like black women being ranked the last attractive by men on OK Cupid. Or the study that found black men and women were 10 times more likely to message white people than vice versa. Of course, we can't police the people we are attracted to, but we can question the types that we fetishise or exclude. So the next time you hear someone say they have an ethnic type or they don't date a certain demographic, look them straight in the eye and ask one question: why?

87. Does the universe have hidden dimensions?

The BBC's Melissa Hogenboom explores the theory that there are hidden dimensions in the universe, beyond those we can see.

Published on 13 November 2020

Made by BBC Reel

MELISSA HOGENBOOM: Look at me. I'm obviously three dimensional. Well, actually, I'm currently a two dimensional representation of my 3D self, playing out on the flat screen of your phone or your computer. But what if our world is just a three dimensional representation of a higher dimensional reality?

PROFESSOR LISA RANDALL *Harvard University:* Things that we don't see doesn't mean they don't exist. And in fact, there can be extra dimensions of space that are just beyond things that we've actually observed, for whatever reason, it might be that light, with which we use to see things doesn't travel in those dimensions. It might be those dimensions are just so tiny. They're inaccessible to us. It could be they're warped in a way that they're inaccessible. There's many different reasons or several different reasons, I should say, why we would not have directly seen them. Now, why would you think about it if you can't observe it? Well, there is a chance that there could be observable consequences.

MH: We're back to today and there's a circle growing bigger and smaller right next to me. But if we rotate this 2D world around the third dimension, we can see it's just

a 3D sphere travelling through my 2D world. This higher dimensional object has an observable effect in my flat world.

LR: Even though we can't observe it all at once. There are ways to put together all that information. And of course, mathematically, and we can think about more abstractly what's going on in extra dimensions, even without being able to completely visualise it. And there are some really tough problems in particle physics that people have worked really hard on for years that we have not come to a solution for. And one of the possibilities is that these extra dimensions play a role. And if they do play a role, then they potentially have observable consequences.

MH: If there were other dimensions of space, it could result in particles having added constraints or freedoms that we can't fathom in our 3D world, or maybe gravity having different strengths along these extra dimensions. All this could help explain some mind-bending things about our universe that we still don't fully understand, from the nature of dark matter to the behaviour of black holes, or even why the Higgs Boson is the mass that it is.

PROFESSOR MALCOLM FAIRBAIRN *King's College London*: Some of the physicists, namely string theorists, they come up with theories which try to explain some of the discrepancies between quantum mechanics and gravity called quantum gravity theories, by saying that particles are not made out of points they're made out of little bits of string. But it turns out that those theories only usually work if there are not three space dimensions, but usually nine dimensions of space or even 10 dimensions of space, but still just one dimension of time. So then your space time becomes instead of what we say, three plus one. So three space and one time, it could become nine plus one or ten plus one. So 10 space and one time. In order for string theory to work properly, it has to have these extra space dimensions. And then you have to ask yourself, well, why do people like string theory so much? And the answer to that is that it solves a lot of the problems that we get when we try to unify quantum mechanics and Einstein's theory of gravity. And not a lot of theories can do that. So it holds tremendous promise. So much promise that people are willing to consider these extra dimensions might exist.

MH: In other words, extra dimensions allow us to think about these big unknowns in new ways with some super clever maths.

LR: It's like saying, you know, my . . . my living room isn't working for a theatre, so let's get a stage. Doesn't automatically give you a show. You have to figure out how to use the stage to actually create something interesting. So in the context of the stage, which is the extradimensional universe, we sometimes can find new ideas that would not have worked in the context of only three dimensions of space.

88. Does your name match your face?

Five nuggets about names to get you thinking.

Published on 23 February 2018

CAPTION: 1. Round heads. Look at these two shapes. Which one is Bouba and which one is Kiki? Most people would choose the rough-edged shape to be Kiki and the rounded one to be Bouba. The Bouba/Kiki effect was first observed by German psychologist Wolfgang Kohler. It's the way we process sounds. If we round our lips to pronounce a name, we expect that person to have a round-shaped face. If someone has a harsher-sounding name, like Kiki, we expect them to have an angular face. According to research by Dr David Barton and Professor Jamin Halberstadt at the University of Otago in New Zealand we expect names to 'fit' faces, and we judge others negatively when they don't. A mismatch could even influence our voting decisions. 2. Vocal vibrations. Researchers at Columbia University found that female and male names are phonetically different (Michael L Slepian and Adam D Galinsky). If you put two fingers on your throat and then pronounce male names, like Adam or James, notice how they make your vocal chords vibrate. Female names like Tina or Sarah are softer, 'unvoiced' – they are pronounced without vocal chord vibrations. 3. I.N.I.T.I.A.L.S matter!

WIJNAND VAN TILBURG: My name is Wijnand AP van TIlburg and I work at King's College London in the psychology department.

CAPTION: Doctor van Tilburg conducted an experiment to see whether middle initials matter. He gave students an extract from a law text to read.

WVT: One version contained an author with no middle initials. The other versions had one, two, three or four middle initials instead. And what we found was that students liked this written work better if the author had more middle initials. Even though the exact text of the . . . of the essay was the same.

CAPTION: They concluded people associate middle initials with intellectual performance.

WVT: This is something to do with the stereotypes that people use. So because people with middle initials are seen as more prestigious, people automatically, but incorrectly, assume that their work must therefore be of a higher standard.

CAPTION: Little words between your name like von or van also have the same effect. Dr Van Tilburg tested whether the same perception would apply in other fields such as sports and found that it didn't. It only works in an intellectual context. 4. The name pronunciation effect. This is Professor Simon Laham at the University of Melbourne. He's co-author of The Name-Pronunciation Effect. He found the easier a surname is to pronounce, the more positively that name and by extension that person is judged. This is regardless of whether the surname is common, unusual or foreign. In one of the studies, participants were given a fake article about candidates for upcoming elections. They found people were more likely to vote for those with easier-to-pronounce surnames. In another study, they took hundreds of surnames from US law firms – everyone from senior partners down to associates. The easier the surname was to pronounce, the higher the person was in the hierarchy. They concluded the name pronunciation effect could impact on success. It's a phenomenon called 'processing ease'. If a name is easy to pronounce, it brings on a feeling of positivity, which has a knock on effect on how we view that person. 5. Was

it meant to be? Nominative determinism is a theory that our name guides us towards our life path. The term was suggested to New Scientist editors by a reader in 1994. They noticed an interesting pattern between specialists in various fields and their surnames. Usain Bolt – world record-holding sprinter. Igor Judge – Lord Chief Justice of England and Wales. Russell Brain – eminent British neurologist. Thomas Crapper – manufacturer of Victorian toilets.

89. Dr Spock: The man who changed childcare

Dr Benjamin Spock's parenting guide, Baby and Childcare, sold over 50m copies, and changed the way millions of children were brought up.

Originally published on: 18 March 2015

This video was made by BBC World Service

PROFESSOR LYNN BLOOM *Biographer of Dr Bejamin Spock:* He believed a child is happy, sociable, sturdy. They probably wouldn't break. Enjoy your child. When our children were born, Bard and Laird, ages two and zero, when I started writing the biography of Dr Spock. I used *Baby and Child Care* to rear them. And it was a terrific book. He has a very, very friendly tone toward parents, whereas many books of advice are very condescending. It starts out, 'Trust yourself. You know more than you think you do. Trust yourself. You will be all right for the baby. He will be fine under your care.' And that is so reassuring. I myself was brought up in the 30s where it was a very rigid schedule, and if the baby didn't like that and screamed, you just let them cry it out. His advice was, follow the baby's lead, if the baby is hungry, he'll let you know. If the baby is crying, pick him up. If you want to cuddle your child it's all right. Very, very different. The book was published in 1946. Within the first year it sold a million copies. Everybody was using Spock. The first thing you noticed about him was he was very tall. Even in his 60s, he was full of energy. You got the feeling even when he was sitting down that he was always in motion. Once we invited him and his wife to lunch, the children were probably then one and three. They had a toy tea set. And he would pretend to drink from the set and sip. And then he would say, 'Aah.' and this was just absolutely enchanting to the children. When Ben talked to babies, he became a baby. He would listen to them. He would talk back to them. He would repeat their sounds. He would look them in the eye and they loved it. He told me that he was the baby in that book. He was reliving his childhood. He had what was probably stricter than the usual Victorian upbringing. His mother was very, very strict.

DR BENJAMIN SPOCK: Other children in the neighbourhood after they had their 5:30 supper, they were allowed to go out and play. But the Spocks of my generation had to stay in after supper and we gnashed out teeth and protested to our mother. But she never was softened by any pleas.

LB: In a reaction, you could say, he wrote the book. In the 1960s people started to blame him for hippies, for people using pot, for people singing anti-war songs. They were referred to a times as the Spock-marked generation.

BS: I was opposing the war in Vietnam and I began to be called permissive and it was by people like Spiro Agnew.

SPIRO AGNEW *US Vice President, 1970:* According to St. Louis 4.23 - Physician, heal thyself.

LB: When Spock became a politicised figure, then people stopped using Spock. Some of them because they accused him of being a liberal, which he was. Dr Spock's legacy is don't get so uptight about everything, a child is happy, sociable, polite and ultimately independent.

E

90. Elephant's trunk? The story of the @ sign

Everyone uses it, but not many know its official name, so here's a brief history of the asperand.

Made by Dayglow Media & Pencil & Pepper, 10 January 2018

CAPTION: In Welsh it's sometimes called a snail. In Hungary it's known as a maggot. In Hebrew it's a strudel. While the Danes see an elephant's trunk. For poetic Kazakhs it's a moon's ear. Ubiquitous now in emails and Twitter, the @ sign has a history. The first recorded use was in 1345 (*graphic: The Manasses Chronicle*) where an @ sign is the first letter in the word 'Amen'. By the 16th Century, in southern European documents of trade, the sign represented amphora, a storage jar used since Roman times. By the 18th Century it was called 'commercial A' and meant 'at the rate of.' It didn't make it onto the earliest typewriters, but was included by 1889 when it became a standard character. By 1963 @ was included in the new internationally recognised character set and its future was ensured. In 1971 computer programmer Ray Tomlinson was at work on Arpanet, the prototype of the internet. He added some of his own code to an existing program and sent a message from one computer to another – the first email. Ray needed a character to separate the message's recipient from the computer it would arrive at. Looking down at his teletype keyboard, he chose the @ symbol, changing the world forever.

91. Emily Maitlis: My best idea? Luminous sewing needles!

BBC's Emily Maitlis reflects on her missed opportunity as a sewing needle billionaire, and why she won't go running with a politician again…

Published on 8 May 2018

This video was made by BBC Ideas

EMILY MAITLIS: My best idea, and I think to be fair, I peaked when I was about seven, is the luminous sewing needle. So every needle in a pack would be either bright orange, bright yellow, it meant you could drop them the whole time and always find them on a carpet. Why would you have a stainless steel needle or a pin that you lose the whole time? Funnily enough they changed the pinheads, but they never did it to the needle. This is quite micro. Okay. But I used to want to sort of patent all my ideas as a kid. I was always coming up with ideas. And I remember sort of trying to work out how you got a patent and how you wrote to the office. Obviously I never, ever did, which is why I'm not a needle billionaire.

CAPTION: My worst idea.

My worst idea might have been one of my journalistic ones, I decided before the last election that I would take senior politicians of every hue running with me. And during the sort of healthy, hearty outdoor exercise, they would all spill their minds and start telling me extraordinary things that you couldn't get in the course of a normal sit down studio interview. I remember running with Jim Murphy, who's about (*shot from BBC Newsnight, 2015*) about twice my height and incredibly fit and runs between 2:00 and 3:00 in the morning and I could barely keep up with him. He was like this giraffe sprinting along and I was kind of panting like a little poodle behind him. And I don't think we got any ideas at all because I couldn't . . . I couldn't really breathe.

CAPTION: The idea that I would like to see introduced.

EM: I would change daylight saving time because I find the difference in mood when the clock goes back so thorough, I, I think I actually . . . and I don't think I'm alone, I go into a sort of hibernation and I mark that date in October when, you know, the clocks go back and it all gets dark, and I think, 'Okay, that's the end of . . . the end of going out.' I know it sounds ridiculous, but I still think, 'Oh, God, you know, it's the end of wanting to do things, it's the end of going out.' And the same in March, you know, the whole sort of leap forward thing is a real sort of sign that you can get up and do things and just feel energised again. And I do sort of think it's a weirdly anachronistic law or policy or whatever . . . strategy to have in this day and age. So, yeah, I'd get rid of daylight saving time.

92. Existentialism: Who hasn't had an existential crisis?

In the midst of an existential crisis? What's it all about? Help is at hand from philosopher Julian Baggini.

Made by Somethin' Else, 10 September 2018

JULIAN BAGGINI: The A to Z of isms... existentialism. There they are, the quintessential existentialists, lounging in a Parisian left bank cafe discussing the meaninglessness of life. There is some truth behind every detail of this stereotype. But in its totality, it's a misleading caricature. It owes much to Jean-Paul Sartre and Albert Camus, both philosophers, writers and famous public intellectuals in France from the Second World War until Sartre's death in 1980, Sartre argued that the fundamental principle of existentialism is that existence precedes essence. In other words, we have to create our own lives, our own selves, our own values. God does not exist. We are born without a destiny. It's all up to us. We are therefore condemned to be free, condemned because our freedom is far from that of the carefree, hedonistic consumer on a shopping spree. We have an absolute responsibility for ourselves which can lead to despair and anguish, even questioning the point of living. A classic existential crisis. This existential angst has not gone away. It's the human condition as real today as ever. Political freedom and material prosperity end the struggle for basic existence and survival, but only increased the struggle to find genuine meaning for our existence. Why are we here? How can we make a difference? How should we really live? Sartre took our freedom as given, but his partner and fellow philosopher Simone de Beauvoir pointed out that it's not always that simple. In her seminal book, The Second Sex, she argued that society and political structures often conspire to hold women back. Camus argued that, yes, we are free, but the world itself is absurd. He retold the classical myth of Sisyphus, condemned forever to push a rock up a hill, only to see it roll back down, for him to start all over again. Like Sisyphus, our task is to accept our own absurd lives cheerfully. Wonderful though life can be, it has no ultimate purpose and we all end as dust. However, not all existentialists believe we live in a godless, senseless universe. The father of existentialism, the 19th century Dane, Søren Kierkegaard, believed in the Christian God, but argued reason and evidence can never prove that he exists. We have to take a non-rational leap of faith. At its heart then, existentialism is not really all about meaninglessness. It's about the responsibility we all have to make the right choices in life, both for ourselves and for others. A heavy responsibility indeed. And just as important now as in post-war Paris.

F

93. Feeling lonely? It might be your house

Is 'luxury co-living' a solution to loneliness for young professionals in big cities?

Published on 22 March 2017

This video was made by BBC World Hacks

RUTH *38, Business Consultant:* I felt very isolated previously, living in London. Even with, you know, really lovely housemates. People are always busy. You go to put a dinner in someone's diary. And you're looking two months ahead. And so, if your family and close friends of far away, which is in my case, my family live in Derbyshire. It's nice to have that family feel.

CAPTION: 83% of 18 to 34 year olds in Britain say they feel lonely. (Source: Nationwide survey by Opinium). Reza Merchant, 28, thinks he has a solution. Co-living – a solution to loneliness in big cities? The Collective with 546 residents bills itself as a new type of 'co-living'. But it's aimed at a particular affluent market: young professionals earning £25,000 - £40,000. Aim: It's all about creating a 'community'. They claim . . .

COLLECTIVE ADVERT MALE VOICE: The collective is ultimately a way of living that responds to the need to feel part of a community, and we respond to that by really focussing on providing not only communal spaces, but encouraging that interaction within those spaces.

R: This is a way to actually, as an adult, be part of something perhaps you might have left behind when you were a student.

CAPTION: Price per week: £195 - £330, significantly more than average rent in London. But the rooms are small.

R: This is my studio and there's two bedrooms that I share with my roommate. This is my bedroom. It is compact. It's fine for what I need it for. I'm in my room, you know, a limited amount of time in the mornings and in the evenings. I'm single, so it works for me, but I can imagine just being in that space, two of you, would be . . . would be quite tight.

CAPTION: But the owner points out the rent covers: utilities, WiFi, Council tax, cleaning, gym and other communal facilities. In-house facilities include: cinema, co-working spaces, games room, and more.

REZA MERCHANT *CEO and Founder of the Collective*: Peoples living space is compact, but, you know, we really focus on shared space and we really focus on encouraging that interaction between people.

RUTH: From somebody who personally suffers from anxiety. I can appreciate how people must feel sometimes being here, because it is so huge. They sometimes feel overwhelmed. They've got nobody to perhaps talk to because they don't necessarily build lots of deep personal connections with people.

CAPTION: The demographic is almost but not exclusively young. Is this only a solution for well-off single people?

REZA MERCHANT: We get approached all the time about, 'Would you want to do this for, like, you know, elderly people or would you want to do this for, you know, like young families or even like single mothers?' You know, we're doing this for the first time. No one had ever done something like this. So there are definitely some design elements that we're now working to put right in our future buildings.

94. Feminism: What does it mean to be a feminist?

What is feminism? And when did the term enter the dictionary? Writer and broadcaster Natalie Haynes has a brief history.

Made by Somethin' Else, 19 January 2018

NATALIE HAYNES The A to Z of isms... feminism. The word feminism was coined in the 19th century by French philosopher and socialist Charles Fourier. But while feminists all seek equality between the sexes across political, social and cultural spheres, there is no one type of feminism. The author, Rebecca West, wrote in 1913. I myself have never been able to find out precisely what feminism is. I only know that people call me a feminist whenever I express sentiments that differentiate me from a doormat. The first wave of feminists fought for women to be able to vote and own property. Until these gains were made, largely in the late 19th and early 20th centuries, women often needed male guardians to transact business on their behalf, which was particularly galling if your guardian was an idiot. In 1949, the brilliant French philosopher Simone de Beauvoir published The Second Sex. She argued that one is not born, but rather becomes a woman. This was good news for those who felt constrained by the expectation that women should be quiet and nice. Beauvoir's critics - and feminisms critics - have often said that anger is not very ladylike. This is no bad thing. Who wouldn't rather be a woman than a lady? Feminism has gradually shifted for women around the world to advocate many different kinds of change, like equal pay and reproductive freedom. Most recently, social media has become a crucial tool for raising awareness and encouraging debate. Feminist campaigns to combat female genital mutilation to acknowledge the contributions made by women in the past and to speak out against sexual abuse in all its forms have filtered into mainstream cultural discourse. At the end of 2017, Time magazine named women who had broken their silence on sexual assault as its Person of the Year. There is still a long way to go before men and women have full equality all over the world, and resistance to this idea has not disappeared. Perhaps feminism boils down to the words of Dorothy Parker, who once said, 'My idea is that all of us, men as well as women, whoever we are, should be considered as human beings.

95. Finally! A simple explainer on crypto-currencies

Maybe you're already a Bitcoin millionaire? But, just in case you're not and still unsure about how it works, here's a simple explanation.

Published on 11 February 2018

This video was made by BBC Panorama

NARRATOR: When you want to buy something normally using your normal bank card, this is what happens. I give my card details to the shop. The shop asks the bank if I'm good for the money. The bank checks its records to see if I've got enough in my account. If I do, it lets the shop know. It updates its records to show the movement

of money from my account to the shops. Oh, and it takes a little cut for its trouble. Now, if you wanted to remove the bank from that system, who else would you trust to keep those records and not alter them or cheat in any way? (*to camera*) Well, I wouldn't trust you. (*to stuffed penguin*) I wouldn't trust you. In fact, I wouldn't trust any single person. But I might trust everyone. The idea is you don't have a central record of transactions. Instead, you distribute many, many copies of this ledger around the world. Each owner of each copy records every transaction. So to buy something using cryptocurrency, I give the shop my details. The shop asks all the bookkeepers if I'm good for the money. The bookkeepers all check their records to see if I have enough. If I do, they tell the shop. And then all update their records to show the movement of money. So there's no way that a forged transaction can make it in. If I try to alter a ledger, it won't match all of the other copies and it gets rejected. Oh, and one of them at random will be given a reward of some newly created cryptocurrency. This is how crypto currencies work. And remember, all of these bookkeeper's, all of these ledgers, they're not actually people. They're computers. Lots of computers.

96. Finding a new normal - how to thrive as a stepfamily

'Blending' families doesn't always come easy. Here's some advice on how to make it work.

Published on 11 June 2019

Made in collaboration with Crossing Divides

LILY KHAN *Stepfamily Member:* I say being in a blended family, the hardest part is the beginning. It's war. It's emotional. It's difficult. You're getting used to new people.

ALISON O'MAHONY *Be Stepwise Founder*: Stepfamilies are born of loss. Coming together and making a blended family work and crossing that divide into make it successful is quite tricky.

PROFESSOR LISA DOODSON *Psychologist, Happy Steps founder:* So you've met your partner. You're really happy. You're moving on. You may be moving in together. Things are going to be great. Or are they?

CAPTION: BBC Crossing Divides. How to make a stepfamily work.

CAPTION: Tip #1 Have realistic expectations.

LD: Don't expect it to be perfect. Don't expect the children to love you immediately. Children have had losses. Children need to mourn what used to be their family, and things have changed. Everything's sort of moving about and shifting. So give everybody time to do that. They will do so at their own pace. Don't expect them to be where you are with your partner. Recognising it takes probably four years as the average for stepfamily to form. So, you know, don't rush things.

You know, you might have been together two or three years, but you're still on a journey.

CAPTION: Tip #2 Work out your role.

AO: You may go into the step family as a step parent and assume you're going to be something. Maybe it's a surrogate mother. Maybe you want to be the bonus mother. Or maybe you want to be nothing at all to those stepchildren. But also you're dealing with the children's expectations of you.

LD: If I ask you what a mum is supposed to do or a dad, a biological mum or dad, most people have a great idea. We all know. But if I ask the same people, what's a stepmum? What's a stepdad? I probably get different answers. My own research found that that stepmums have significantly higher anxiety than biological mums. This confusion with role, not knowing what they were supposed to do. Were they supposed to, you know, take more control in the house, where they supposed to be more integrated with the children, leave the children to the biological parent? Think about what you're comfortable doing. Are you comfortable spending more time with the children? The important thing is to talk to your partner, work out what role you have in your family. There are no rights and wrongs. But it is important that you both agree.

CAPTION: Tip #3 Give new siblings time to bond.

LK: With my stepsister, it took about a year until we started feeling like proper family. And I do consider her now like a full sister and someone I can go to, kind of, in a time of need. It probably as well took a year until we started bickering, like you do over clothes and shoes mainly. And I think that's when you can really tell that you're starting to feel like family when you feel like you can just lose your rag at someone if they borrow your crop top.

LD: Stepfamilies are often very busy homes. There can be children from both partners. There can be children from the new partnership. They may not all get on. Again, that's really common. Siblings don't necessarily get on. Try finding ways of engaging older children. So try and develop something to do, an activity with each of the children so they can feel special, they can develop a relationship with both parent, the biological parent and also the stepparent. So find a thing to do. It might be going out on a bike ride. It might be making cakes together, whatever works in your family. Each family member will come into this new family with different memories. But you want to make your own memories as a family, so bring everyone together. And that should start to bring everybody to feel a sense of belonging.

CAPTION: Tip #4 Don't become a 'Disney Parent'.

LD: Some of you might have heard the term Disney Dad. It's a term that people use where the biological dad sees his kids, perhaps at weekends or holidays, and he feels that he's got to make it the best time ever. So his children are coming, he's missed them and he just wants to make up for the time when he's not with them. It could mean that that time becomes just fun time. And that's not real and it's not sustainable. Don't let the children be feeling that 'I'm only going to dad's because of

what he's going to give me, there'll be a new present, we're going to go and do something great.' That shouldn't be the case. It's fine to treat your children, but not all the time.

CAPTION: Tip #5 Find your own normal.

LK: When people ask me if I am upset about my parents divorcing, I would say no. Like, never. I'm so happy now. My parents are happy in respective relationships. And I gained a younger sister and two older brothers. And for me now, having that, like that's worth, you know, maybe a year or two of . . . of some quite hard times. But now I look back and I think, well, you know, that's great. I've gained all of this.

LD: Most stepfamilies have this a period where they're trying to sort of not be a stepfamily. They just want to blend in. And it's not about blending in. It's about being who you are. Enjoy it. And you'll find, you know, as you develop, as you integrate, you'll find your own norm and your own happiness.

97. Five Latin phrases that are still meaningful today

Classicist Daisy Dunn unpicks the Latin phrases that have stood the test of time.

Published on 1 November 2018

DAISY DUNN: There are good reasons you see so many people with Latin tattoos. For a start, Latin is a highly economical language. You can say a lot in just a handful of words. Another reason is that Latin literature is full of timeless truisms. Observations made over two thousand years ago are often as applicable to us now as they were to the Romans. Here are five quotes from Latin authors I feel are just as relevant to us today. Number one: *Non Videmus Manticae Quod In Tergo Est*. We cannot see the baggage that's on our own back. In the mid-1st century B.C., the Latin love poet Catullus observed a common human trait. While we find it really easy to recognise faults in other people, we tend to be more or less blind to our own. 'Each of us has been assigned his own fault', he wrote, 'but we cannot see the baggage that's on our own back.' Catullus's message, then from over two thousand years ago is to think about your own faults before criticising others. Two: Omnia Vincit Amor - love conquers all. Love in Virgil's line isn't just a human emotion, it's a divine force, Love – Amor – is Cupid, the son of Venus, the goddess of love. He will strike you with his arrow and make you fall hopelessly in love. The lovesick poet, he sighed Omnia Vincit Amor – knew that to be in love isn't necessarily to be happy. To be in love is also to be in pain. Virgil shows us there's no point in trying to fight it. You're better off yielding to love than trying to shield yourself from his spell. Three:@ Si Hortum In Bibliotheca Habes Deerit Nihil. If you have a garden and a library, you lack nothing. Cicero actually wrote, 'If you have a garden *in* the library, you lack nothing.' Houses in Rome typically had the garden in the middle of the house rather than at the back. In the ancient world, there was a tradition for learning outside. Students at Plato's Academy in Greece, for instance, used to learn amongst the trees. Cicero's message is if you have books and nature, you have everything. Four: In Vino Veritas. In wine is

truth. Anyone whose drunk a few glasses can vouch for this. Wine loosens the tongue. It may make you talk a lot of nonsense, but as the ancients knew, it could also make you spill your secrets. The historian Pliny the Elder alluded to a popular saying about wine bringing out the truth, at the same time he pitied the drunks who do not see the sun rising and therefore they have shorter lives. Five: Donec Eris Sospes Multas Numerabis Amicos. 'For as long as you're are doing well, you'll have many friends.' Ovid is one of the leading poets of his day, but fell foul of the Emperor and was banished to the coast of modern Romania. While there he wrote about his miserable fate, which he blamed on a poem and a mistake. The poem was full of advice about how to love and make love and was far too raunchy for his times. What the mistake was remains a mystery to this day. In exile, the once popular poet found himself friendless. The message is surely to work out who your real friends are before it's too late.

98. Five absurd beliefs from the ancient world

Classicist Daisy Dunn unpicks five nonsensical pearls of wisdom from the past.

Published on 9 January 2019

DAISY DUNN: The Greeks and Romans gave us so much that it's little wonder we continue to sing their praises as great inventors, artists and writers. But not everything they thought has stood the test of time. Here are five of their most absurd pieces of wisdom. Number One: if a woman says no, she means yes – Ovid. Highly damaging piece of advice from the Latin poet Ovid's guide to love. Women act coy, he maintained, and may even put up a fight. But secretly, they want to be overcome in battle. Now to women today, especially in the era of #MeToo it's pretty abhorrent. And in fact, the poem from which this piece of advice comes actually helped to land Ovid in exile for being so sexually explicit. Two: Dark skinned men produce black semen - Herodotus. Herodotus, the so-called father of history believe this to be true. Both of Ethiopians and certain Indians. To modernise it may look racist. But to him, it was little more than a curiosity worthy of note. He did not provide a source for this nugget, apparently believing it to be true simply on logical grounds. Perhaps he thought it was one of those, 'Well, I never' anecdotes that would enliven his histories of Greece's wars against Persia. Three: women are incomplete men – Aristotle. Together with Plato, Aristotle was the most influential philosopher from antiquity. He wrote on everything from drama to animals, but he did entertain some rather peculiar ideas about biology. He saw men and women as completely different. Men were hot and dry. Women were cold and wet. If reproduction happens properly, he thought, then the embryo should be male, like its father. A daughter is the result of a man's semen being too weak to overpower a women's reproductive matter. Four: women who see monkeys during intercourse, their children will resemble monkeys – Soranus. A medical marvel from Soranus, a doctor of the Roman Empire. His thinking is that you can inherit not just the physical characteristics of your parents, but even the thoughts they had when they were actually conceiving you. Soranus thought it particularly important that a woman be

sober during sex, just in case she conceived a deranged child. He also advised her against picturing monkeys or other animals in case the child came out looking like one. Far better to picture a statue so that a child might have long, graceful limbs - but hopefully not be too rigid and cold. Five: beware the fifth day of the month. It is dreadful, Hesiod. In the 7th century B.C. a poet called Hesiod composed a poem on the farmers year. He believed that some days of the month were more suitable for some tasks than others and endeavoured to give landowners the best possible advice. Fifth days struck him as peculiarly threatening. Hesiod's misgivings haven't stood the test of time. But perhaps in the future people will look back on us and laugh for us finding Friday the 13th so unlucky.

99. Five compelling reasons why we all need to sleep more

Feeling tired? Neuroscientist and author Matthew Walker explains how proper sleep will help us live longer, healthier, more creative lives.

Published on 26 July 2018

MATTHEW WALKER: The decimation of sleep throughout the developed world is having a catastrophic impact on our health, our wellness and the safety and the education of our children. Sleep actually enhances your memory and it refreshes your learning ability.

CAPTION: 1: Memory and Learning.

MW: You need sleep after learning to essentially hit the save button on those new memories so that you don't forget. But what we've also learnt is that you need sleep before learning as well. And now to almost prepare your brain a little bit like a dry sponge ready to initially soak up new information. So you need sleep on both sides of that equation. And that's why pulling the all-nighter before the exam is a very bad idea.

CAPTION: 2: Creativity.

MW: When you sleep, you actually see almost a threefold increase in creative abilities as a consequence. And there's some wonderful anecdotes demonstrating this sleep-inspired creative benefit. Keith Richards from the Rolling Stones actually used to go to sleep with a guitar and a tape recorder because he understood the power of dream sleep, what we call REM sleep. And he describes in his autobiography how one night he started the tape recorder, went to sleep, and the next morning the tape ran all the way through. He rewound it back and there in some ghostly vision were the opening chords of Satisfaction, the most famous Rolling Stones song. And then he said it was followed by about 43 minutes of snoring thereafter. It's probably the reason that no one has ever told you to stay awake on a problem.

CAPTION 3: Health.

MW: Sleep is a wonderful health panacea. Every major disease that seems to be killing us in the developed world has significant, and many of them, causal links to a lack of sleep. So the two most feared diseases, which are Alzheimer's disease and cancer, both have strong links to short sleep duration across the lifespan.

CAPTION 4: Life Expectancy.

MW: Short sleep will actually predict all-cause mortality. So you may have heard that old maxim, people would tell you that you can sleep when you're dead. Well, it is mortally unwise advice if you adopt that mindset. We know from the science that you will be both dead sooner and the quality of that now shorter life will be significantly worse.

CAPTION 5: Good for Business.

MW: Less sleep does not equal more productivity. It's a fallacy that still remains in business, and it's actually a very costly one, too. The Rand Corporation several years ago performed a global survey of the cost of sleep deprivation across nations. And what they found was that insufficient sleep within the workplace cost most nations about two percent of their GDP. So just think about that. If we could solve the sleep crisis within the workplace. We could perhaps double the budget for education. Maybe we could even half the healthcare deficit that was suffering in most of these developed nations. So sound sleep is sound business. That's exactly what the science teaches us.

100. Five habits that hold women back at work

Leadership coach Sally Helgesen explores common behaviours that hinder women's (and men's) career progression.

Published on 14 May 2019

SALLY HELGESEN: Leadership going forward is only going to be great if women are at 50%. Hi, I'm Sally Helgesen. I'm an author, speaker and leadership development consultant and I work all over the world. Here, I'm going to talk about five of those behaviours that most commonly get in women's ways. The first behaviour is a reluctance to claim your achievements, expecting others to spontaneously notice and reward your contributions and your hard work. When I do workshops now, I often ask, 'How good are you at bringing attention to your work?' And what I often hear is, 'I'm not good at that at all.' And when I ask them, 'Why aren't you good?' I hear one of two responses. The first is, 'I would think that if I do good work, people should notice.' They probably should, but I don't think it's going to happen in today's workplace. The other thing I hear is, 'If I have to act like that obnoxious jerk down the hall to get noticed, I'd rather not get noticed.' And that's problematic because it behaves an either/or way of thinking that is going to get in your way. If you set yourself up, either you're obnoxious and constantly talking about yourself or you just hang back and hope others notice, you've got a kind of no-win place to be. For example, you might identify 'You know, I think that my boss

doesn't really understand how well-connected I am in this organisation. So I think what I'm going to do is once a week, I'm going to shoot him a quick email that just summarises the main people that I've managed to talk to that week.' I have seen this be remarkably successful for women. The second behaviour is the disease to please. That is hoping and wanting everyone to think you are a wonderful and always nice person. Now, this is a typical behaviour that can be very helpful early in your career, but can really get in your way as you seek to rise. Why is that true? First of all, if you're always seeking to please, you're going to have a hard time holding other people accountable for showing up for what they've promised, because you're going to be afraid that maybe they won't like you. You're going to have a hard time saying no to things and end up saying yes too often. And you're going to let people who will take advantage, violate your own boundaries and waste a lot of time. We're not saying here that you don't want to be a wonderful person, but being invested in everyone thinking you're wonderful and nice is, if you seek to rise, going to get in your way. If you can start small, again, by asserting boundaries in one way, say to yourself, 'Right now I'm overcommitted. So that in the next month when people ask me to join a new task force or something else, I'm going to think about it very deliberately before I say yes.' And I'm not only going to think about how would it please them, but I'm going to think about how might it serve me? Is this really in my best interests? A third behaviour that often gets in women's way is perfectionism, trying to put so much energy into doing everything right that you can't see the forest through the trees and you waste a lot of time trying to make improvements at the margins that aren't going to necessarily position you to move higher. One big problem with being a perfectionist is that you'll have trouble delegating work to other people because you're so invested in it being perfect. You're going to be afraid that they'll make mistakes. So you'll end up doing often a lot of work of other peoples yourself. And I often hear perfectionists say, 'Oh, it's just easier to do everything myself.' Now, again, you want to start small here. You might just want to identify one person who you're going to decide to delegate to, give them an opportunity, offer them feedback, but don't stay on top of it and take that risk. One of the things that's really interesting is that studies show that women in organisations tend to be more rewarded for being precise and correct, whereas men in organisations tend to be rewarded more for risk taking and boldness. So as you seek to rise, you want to learn to take risks and move away from being overly precise and perfectionistic. The fourth behaviour is ruminating over the mistakes you've made. This can really keep you stuck, and it's much more common in women than men. Research has shown that rumination is much more likely to be a behavioural impediment for women. It's a form of beating yourself up rather than letting mistakes go and figuring your human being and you will make mistakes like everyone else. Finally, minimising either in terms of the speech or minimising in terms of how you hold your physical self in the world. Women can be reluctant to hold their space, that is shrinking their body at times or not really standing up with authority as if they belong where they are, especially when they're at higher echelons, or trying to position themselves as a leader. Women often will also use minimising phrases in their speech. 'Oh, do you just have one minute?' 'Can I only make one point?' And of course, our old favourite, apologising, is a form of minimising yourself. So, what you want to do, if you're trying to position yourself as a leader is to hold your space and

show up as if you know that you are worthy, whole and complete. But I want to point out that I've been doing a lot of interviews and a lot of events, and I can't tell you how many times people have said, men have said to me, 'I really identify with some of these behaviours.' And that speaks to a I think, a greater commonality between women and men. That is one of the real forces that is driving and changing the workplace.

101. Five simple ways to sharpen your critical thinking

The world can feel very polarised and confusing at times. Here are five strategies to boost your critical thinking skills.

Animated by Ana Stefaniak, 23 December 2020

Made in partnership with The Open University

UNNAMED NARRATOR: We're lucky to live in an age where the sum total of human knowledge is pretty much available at the click of a button. We've never had access to so much information. But not all of what's out there is quite what it seems. So here's a few strategies to navigate your way through. And avoid falling out with people along the way.

TITLE CARD: FIVE WAYS TO SHARPEN YOUR CRITICAL THINKING MADE IN PARTNERSHIP WITH THE OPEN UNIVERSITY

1. BEWARE OF CONFIRMATION BIAS

UN: We all enjoy that sweet dopamine hit of feeling like we're right. In repeated experiments, psychologists have shown we're much more likely to accept something as evidence if it confirms what we already think we know. And much more likely to discount information if it contradicts our views. It's what's known as "confirmation bias". It's one of the key "cognitive biases" that humans have, and it operates at an unconscious level - affecting our ability to process information. This is especially true for issues which are emotionally charged, or where our views are deeply held. But it can come into play at any time. So don't rush to decide. And be actively prepared to change your mind.

2. EMBRACE NUANCE AND COMPLEXITY

UN: So many of our discussions take place on social media platforms where algorithms reward our desire to see and hear our views confirmed. But in life, most situations are nuanced and complicated – acknowledging that can enrich the way that we view the world. For example, what colour is the sky? Well, the obvious answer is blue. But at sunrise or sunset, it can be red. On a cold misty morning, white or grey. At night, midnight blue or black. But imagine for a moment the blue of the sky on a sunny day. Is it really blue? The colour blue has a short wavelength, meaning it scatters more than other colours – making it more visible to the human eye. So the sky looks blue to us humans, even though there's a whole spectrum of

colours out there. Even something that seems totally self-evident can be more nuanced than you think.

3. PRACTISE INTELLECTUAL HUMILITY

UN: One approach to, well, arguing, is to let go of the idea of being "right". Or at least seriously consider that you might be, actually, be wrong. Putting yourself in the other person's shoes can lead to much more productive outcomes. Really try to understand where the other person is coming from. It's what's called "intellectual empathy". It can be challenging. But that's the point. This can only work when both parties are engaging in good faith. Arguing just to waste somebody's time, known online as "sea-lioning", not only makes you that guy or girl people avoid at parties, but we are intellectually, socially and politically worse off for it.

4. CHECK YOUR SOURCES

UN: It's more important than ever to know where your information is coming from. That sciencey-looking graph about the dangers of feral Dalmatian puppies might look very convincing, until you dig a little deeper and find it was commissioned by fur-coat-coveting Disney villain, Cruella de Vil. Be on the lookout for ulterior motives and vested interests. Becoming literate in the basics of scientific methodology, the use of data and the way it's presented are all weapons in your arsenal when it comes to critical thinking.

5. AVOID FALLACIES

UN: Whether engaging in online debates or arguing with Uncle Frank, it's very easy to lose our cool and resort to some less-than-sound tactics. One common tactic is what philosophers call "The Straw Man" fallacy. Instead of engaging with the actual belief, you engage with a caricature. For example, if I said, "I prefer hamsters to gerbils," you might respond: "Oh, so you want to drown all gerbils?" A viewpoint that's much easier to take down. Another fallacy is the "ad hominem fallacy", where you discount an argument because of your opinion of the person making it. This can lead to ad hominem attacks, which is basically Latin for name-calling. In that situation, it's fair to say that everybody loses. Engaging in critical thinking isn't as fun as picking up a pitchfork, or feeling like you're fundamentally right. But in the long run, it leads to a more curious, educated and harmonious society – which ultimately is the biggest win of all.

102. Five things ants can teach us about management

They may be tiny, but us humans could learn a thing or two from ants.

Made by Big Deal Films, 16 October 2018

CAPTION: Lesson 1: Ants are much more like us than you might think.

EDMUND R HUNT *Ant Behaviour Expert, University of Bristol*: Ants and human societies are similar in many ways. They live in communities numbering from just a

few individuals up to many millions. They can build vast empires that span the world. They conduct diplomacy with neighbouring settlements and they can even go to war with each other. All the ants have just one single intent on their mind. And that's the reproductive success of the colony. Everything that they do is directed towards that one aim.

CAPTION: Lesson 2: The boss and all the workers are female:

EH: Most ant colonies consist of just one reproductive individual, the queen and many non-reproductive workers. And the workers are actually all female. So they're a vast sisterhood who does all the work. Now, the title queen seems to imply some kind of political authority, that the queen is telling the workers what to do at any one moment in time. But in fact, it's completely self-organised

CAPTION: Lesson 3: Hierarchy is fluid.

NICK JANKEL *Author and Management Expert*: In a colony of ants, there are no fixed managers. There are no CEOs or presidents. Everyone is working towards the common goal. If one ant finds a trace of food that ant will become in that moment a leader and get everyone else to come into that food source. But the modern organisation is obsessed with hierarchy, obsessed with managers, and where you are up on the scale, which number of paygrade you are. And what happens is lots of people lower down, spend all that time trying to guess what their manager wants, what their manager's managers want, rather than what's going to work for the organisation and the people they serve.

CAPTION: Lesson 4: Listen to those at the coalface.

EH: When an ant encounters a food source, for example, what it can do on the way back to the colony is lay a trail using pheromones. And these are just chemicals that they can lay on the ground, so that when other ants come along and encounter that trail, they know to follow it all the way to the food. So this simple process of positive feedback is surprisingly effective at finding the shortest path.

SALLY ANN LAW *Personal Life Coach*: The idea, borrowing from the ant world of actually getting the data, making sure you're capturing it from the very people who are on the coalface, so to speak, makes tons of sense, because they're the ones with the rich qualitative data to be able to feed that back into the decision making.

CAPTION: Lesson 5: Adapt or die.

NJ: We have to be self-organised. We have to allow people to have their own intelligence and wisdom and organise around a problem or a project themselves while always waiting for someone else to tell them what to do, or for a three year business planning cycle to take effect. Just as ants respond immediately to changes in their environment, say the diminishing of a foraging patch, and adapt really quickly to that change, organisations must be able to do the same.

SAL: If by looking at ants, for instance, it stimulates our thinking about how we might try to do things differently, than that's worth it in and of itself. I just think

you'd probably want to start experimenting in a quite small and bounded way, but yeah, why not?

103. Five things we can learn from the past about sleep

Warm posset anyone? Historian Sasha Handley shares five top tips from the past, that could help you sleep better.

Filmed at the British Academy, 28 September 2018

Made in association with the British Academy

SASHA HANDLEY *University of Manchester*: Hello, my name is Sasha Handley, and I'm here to tell you five ways in which our ancestors can help us to sleep better. In the early modern periods, the 16th and 17th centuries, which I study, sleeping and waking habits were really crucial to people's long term physical, mental and spiritual well-being. They took they sleep very seriously and they spent a lot of time and energy trying to perfect it.

CAPTION: Tip 1: Regular bedtimes.

SH: Healthy sleeping and waking habits were part of a preventative health care culture in the 16th and 17th century. The idea being that keeping regular bedtimes and making sure that you slept as well as possible would keep your body, mind and soul in good long-term condition.

CAPTION: Tip 2: No midnight feasts

SH: Avoiding heavy food was really important. So rich feasts of meats were likely to disorder the stomach, as was the intake of excessive amounts of alcohol. One of the really beneficial things that you could take at bed time to help you sleep was something called 'posset', which was a hot milky drink. Again, quite similar to the milky bed time drinks that we often grew up with as children and still have today. So people believe that put a dairy seal on the stomach and it stopped food being regurgitated during the night.

CAPTION: Tip 3: Choose your sleep position.

SH: Perfecting digestion during sleep was also linked to advice about correct sleep posture in this period. So the first half of the night it was better to sleep on the right hand side of the body, which was believed to be the hotter sides, and it would help food to be heated up and broken down more quickly. And if you turned onto the left side of the body during the second half of the night, that would release the hot vapours that had been built up on the right hand side. And you would wake up feeling nice and refreshed. And that shift from left to right is quite possibly the root of the phrase, 'to get up on the wrong side of the bed', which we still have with us today.

CAPTION: Tip 4: Break your sleep in two.

SH: Most people, we think, slept in two separate phases or cycles during the night. You'd expect somebody to sleep in about three and a half, four hour cycle during their first sleep, which is what they called it themselves. They would wake up for one or two hours in the middle of nights and engage in all kinds of different tasks, depending on who they were and where they lived. That could range from saying prayers, finishing the household chores to reading a book. And then they would go back to sleep for their second sleep again for another three and a half to four hours before waking up again in the morning.

CAPTION: Tip 5: Be mindful before bed.

SH: For people in the 16th and 17th centuries, sleep was considered to be a very vulnerable period of danger, and the dangers that they anticipated were often very practical. Some of them were also supernatural. A really important thing that people worried about and prepared themselves for bedtime was the threat of the Devil's attack. A few things that they did to try and defend themselves against this danger included saying bedtime prayers each night. The effective bedtime prayer has some affinities with meditation and forms of mindfulness, which are widely recommended now as ways of bringing on a peaceful, easy sleep at night time. So we could really learn something from our ancestors in terms of how seriously we take sleep and how much time we give over to his preparation.

104. Five ways to be better with your money

Savvy money-saving experts share their realistic and easy-to-follow advice on how we can all help our bank balances.

Published on 19 February 2018

This video was made by BBC Woman's Hour

IOAN BAIN *Young Money Blog:* Even if you feel like this is an area that's a mystifying just by getting more knowledgeable, you can totally teach yourself how to be better with money.

CAPTION: #1 Confront your cashflow problems.

MARISA BATE *Journalist:* My experience of money is definitely a case of what not to do. I would receive text messages from my bank telling me my bank balance, but I wouldn't open the text messages each morning. It's going to be far more painful the longer you don't look your bank balance. So, number one, take your head out of the sand.

CAPTION: #2 Keep track of what you spend.

IB: When I first started writing about this, you'd have to get a spreadsheet and write it all out. It's so much easier than it used to be. Download a really smart app. There's actually no excuses for not knowing what's coming in and out of your account now.

CAPTION: #3 Save some for a rainy day.

OTEGA UWAGBA *Women Who*: It's really important for women everywhere to have a safety net, that means that you don't ever find yourself in a situation you can't get out of, whether it's a bad relationship, whether it's a job that you really don't like.

IB: Call it a freedom fund. And even if you can only put, you know, a fiver a week, use it in the future how you see fit.

OU: It's a little savings pot, there's a real kind of emotional balm.

CAPTION: #4 Make time to manage your cash.

STEPH HAYTER *The Money Charity*: We've all got busy lives. Often it can be something that we can forget about. But just like, you know, tidying your house every Saturday or something, spend some time on managing your money, insurance, your bank account, your mortgage could you be getting a better offer somewhere else? Are these products right for you?

CAPTION: #5 Stop wanting things you DON'T need.

MB: We live in a culture where we are told we need so many things, things for our skin, things for our hair, things for our desks. It's just not true. Step back and make a list of what you really, really want and you'll see that a lot of stuff you're spending money on is just not necessary.

105. Five ways to be more elastic in your thinking

Author Leonard Mlodinow explains how trying new things and talking to new people can help you be more creative in your thinking.

Published on 4 July 2018

LEONARD MLODINOW PHYSICIST, AUTHOR: The times are changing far faster than they ever were before and that requires a new kind of thinking - elastic thinking. Fortunately there are ways you can develop your elastic thinking. There's a ton of them. Here are five.

CAPTION: PICK AN IDEA YOU DON'T BELIEVE IN

LM: I call this 'the idea of the day'. Every day, pick an idea that you don't believe in, try to convince yourself that it's true. I don't mean just go through the motions I mean sincerely try to imagine how somebody who believes differently than you, but someone who you respect, could accept this idea and try to convince yourself of it.

CAPTION: DWELL ON YOUR WRONGS

LM: When we're wrong we often try to forget it well this exercise is dwell on when you were wrong. Remember a time when you were wrong and the wronger

you were and the more important it was the better and think about it hard, realise that you're not always right. One of the barriers to elastic thinking is our tendency to always think that we're correct and to keep moving in the same direction. This exercise will help free you of that.

CAPTION: TRY NEW FOOD

LM: Food - this is a fun one. Go to a restaurant that you pick at random or to a restaurant that you normally wouldn't go to and try something you normally wouldn't order. Don't order the most popular dish, ask for the least popular dish. Research shows that if you stretch yourself in a way as simple as that it helps increase your creativity and imagination.

CAPTION: TALK TO STRANGERS

LM: Your parents taught you "Don't talk to strangers". Well number four is do talk to strangers. In fact talk to people as different from you as possible, people who believe what's different, just random people and try to understand how they think. And the more you're exposed to the way other people think the broader your own thinking will be.

CAPTION GO SEE SOME ART

LM: Go see some art. I don't mean a Rembrandt, I mean art that's different even if you don't like it. Go see a Damien Hirst exhibit because exposing yourself to art that's different from the kind of art you normally see will help you think differently. Research shows that if you do exercises such as these five things you'll broaden your thinking. You'll have an easier time adapting to change. You might even be the one to create the change yourself.

106. Five ways to distraction-proof your mind

Why is it so hard to avoid distractions? And how can you get better at it? Here are five tips to help you focus from author Nir Eyal.

Made by Brendan Miller, 15 November 2019

NIR EYAL, Author, Indistractable: Do you ever find yourself... Do you ever find yourself trying to concentrate and you can't seem to focus? Why are we so distracted these days? And is technology the root cause of the problem, or is there something deeper going on? My name is Nir Eyal, and I've spent the last five years researching and writing about the deeper psychology of distraction. When I found myself struggling with distraction, I decided to what many people advise and got rid of the distracting technology. I got myself a flip-phone without any apps. All it did was phone calls and text messages. Then I got a word processor from the 1990s without any sort of internet connection. Unfortunately I found I still got distracted. I'd start reading a book from my bookshelf. I'd tidy up my desk. I'd take out the trash even - just to avoid the thing that I didn't want to do. I had only focused on the

external triggers - the pings and dings that were leading me towards distraction. What I hadn't focused on, and what turns out to be a much more common source of distraction, are the internal triggers - the uncomfortable emotional states that we seek to escape. When we're lonely, we check Facebook. When we're uncertain, we google. When we're bored, we check the news, stocks prices, sports scores - anything to not feel these uncomfortable sensations that we're not ready to experience. Here are a few techniques I discovered in my research that could help us stay on track. 1. PLAN YOUR DAY (BUT NOT WITH A TO-DO LIST) First what you want to do is to make sure you plan your day. Two-thirds of people don't keep any sort of calendar, any kind of schedule in their day. Well the fact of the matter is if you don't plan your day, somebody is going to plan it for you. Many of us believe in this myth of the to-do list. I used to think that just by writing things down they'd get done. But of course I'd go from day to day to day recycling the bottom half of my to-to list because I wasn't making time to do those tasks. So the best place to start is not with the output of what you want to get done every day, but with the input of how much time you have to devote to every task. 2. USE SOCIAL MEDIA AND EMAIL AT SET TIMES So distraction has many consequences. One of them is that we find that when someone is interrupted during a task, it can take up to 20 minutes for them to refocus on what they were doing. Many times we don't even realise how much worse our output is when we... So check email in one solid block. If you enjoy using social media that's great, but make time for it in your day so it's not something you're only using every time you feel bored or lonely. 3. SURF THE URGE Researchers have found that surfing the urge is an effective way to master our internal triggers. In a smoking cessation study, researchers found that when they taught smokers how to notice the sensation and be mindful of what they were experiencing, they became much more likely to stop smoking. By surfing the urge and noticing what it is that we're experiencing and allowing that sensation to crest and then subside - kind of like how a surfer might surf a wave - we allow that emotion, that uncomfortable internal trigger, to crest and then pass. 4. BEWARE OF "LIMINAL MOMENTS" The next thing that we want to do is be careful of liminal moments. Liminal moments are these periods of time when we are transitioning from one task to the other. So for example if you start checking your email on the way back from a meeting and you're finally at your desk and you keep checking your email instead of getting to the task at hand well now that liminal moment has turned into a distraction. So be careful of those times when you're transitioning from one task to the next. 5. REMEMBER YOU'RE NOT POWERLESS A study of alcoholics found that the number one determinant of whether someone would stay sober after a rehabilitation programme was not their level of physical dependency, it wasn't what was happening in their body, in fact it was what was happening in their minds. The people who were most likely to stay sober were those who believed they had the power to stop. So when we think that technology is hijacking our brains or it's addicting everyone, we are making it more likely that we won't be able to put technology distractions in their place. So don't believe this lie that there's nothing we can do. Clearly there's so much we can do to help make sure that we get the best out of these products without letting them get the best of us.

107. Forget ET - what would alien life actually look like?

Biologist Adam Hart and illustrator Memo Kosemen combine their skills to predict what life could look like on alien worlds.

Made by ClearStory, 17 October 2019

ADAM HART: We always seem to end up back to basically us, with something a little bit different. Spock, for example.

MEMO KOSEMEN: Did he always have a bowl cut?

AH: I think he always had a bit of a bowl. Leonard Nimoy's bowl.

MK: Yeah, yeah, yeah.

CAPTION: Alien life has long fascinated us earth-dwellers.

AH: Predator is a guy in a suit. Spock . . .

MK: He's a guy.

AH: Then, of course, we've got the archetypal alien.

MK: In every case, it's basically a humanoid body shape.

CAPTION: Memo Koseman is an artist and scientific illustrator.

AH: All of these seem to lack a bit of imagination to me, looking at them from an evolutionary perspective.

CAPTION: Adam Hart is Professor of Biology at the University of Gloucestershire. We challenged them to imagine what alien life could be like on three different worlds.

AH: There's going to be some rules. I think it's going to be carbon based. Microbes are going to be important. We're going to see natural selection and evolution.

MK: If I could make one bet about alien life, it would be on that. It would evolve. And I don't think I would lose this bet.

CAPTION: What would aliens really look like?

CAPTION: Europa. Moon of Jupiter, 630m km from Earth. Thick ice covers a dark ocean. Elliptic orbit creates volcanic activity. Nasa and Esa space probes are due to land on Europa in the 2030s.

AH: Very great thickness of ice, about 10 miles, I think, and underneath we've seemingly got good evidence that there is liquid water.

MK: I think it's all heated by these volcanic vents.

AH: Which is looking a little bit similar to the sorts of things that we find in the deep ocean here on Earth. We know there's going to be no sunlight getting down so, they're going to have to be chemosynthetic.

CAPTION: Chemosynthetic creatures get energy from chemical reactions.

MK: The bacteria would maybe at some point start to form symbiosis, larger cells, and then you would have maybe the beginnings of multicellular life. Because this is an unstable planet, any kind of life around these vents needs to have a mobile form.

AH: It needs to be able to abandon ship and find new vents to live on.

MK: Yeah, yeah. I mean, let's imagine we find something like this tadpole creature. It doesn't have eyes because it's dark.

AH: It's dark down there.

MK: But he does have some way of sensing heat. Let's imagine this guy is actually the first morph of a more complex organism. Maybe you would see metamorphosing. He is now turning into his real form, a kind of chemosynthetic, large worm. He takes root actually.

AH: So he's attaching just like the lava of a sea squirt that we find here on Earth.

MK: Yeah, yeah.

AH: These mobile forms that can go find new habitat and then start the whole thing all over again.

MK: He's using his tentacles as gardens to cultivate these bacteria and to charge his metabolism. But when this probe lands in 15 years, we might be proven right. Something like this might be down there.

CAPTION: Trappist 1E. Rocky planet 40 light years from Earth. 93% Earth gravity. 'Tidally locked' in orbit.

AH: When Trappist is orbiting its sun, it stays tidally locked, which means the same face is always facing the sun. One side is getting absolutely baked and whilst the other side gets no light at all and is very cold. And that line where sun meets shade, this terminator, as it's called, is the zone where life might just about be able to exist on Trappist. Like a long, thin island of life.

MK: One side is always sunny and one side is always dark. So that would imply constant winds flowing in one direction. What pass off as trees could be like weather vanes.

AH: You can see this effect on Earth, actually, if you go to the edges of cliffs. You know, with that strong wind blowing, it's going to be quite difficult for these animals to make themselves heard. I think . . .

MK: Yeah, yeah.

AH: . . . you could see animals displaying.

MK: Maybe amongst the trees you see something red, fluttering about like a kite. This kind of quasi birdlike animal with a very long kind of snout. And he uses it to hold onto the tree. What he then does is open up his cape-like wings.

AH: He's trying to attract a mate.

MK: Yeah, he's trying to impress his potential girlfriend here.

AH: A very colourful world.

MK: Yeah, yeah.

AH: But a very focussed and intense world.

MK: So, imagine a line of predators, that always stalk from the direction of the sun. Maybe he would have six limbs rather than four.

AH: Which gives you a huge advantage for hanging on and for clambering around. There's no reason at all why this animal couldn't have an extra joint, giving it a little bit more range of movement, more flexibility, because with that lower gravity, it's not taking such a strain. Raptorial legs.

MK: Yes, exactly.

AH: To grab and hold. It gives it a huge reach.

MK: Watch your back.

AH: Yes.

CAPTION: Kepler 452B. Hot 'Super Earth' 1,400 light years away. 200% Earth gravity. 6bn years old.

AH: Very high gravity is going to be a big issue.

MK: Everything is kind of flattened out. Maybe one form could be like this flattened slug creature.

AH: A flatworm sort of creature.

MK: Yeah. Yeah. You could have a huge variety of these guys.

AH: Given that the planet's been around for two billion years longer than Earth has. Might we find the evolution of intelligent life.

MK: Because of the size constraints, I think intelligent life would begin from a colonial perspective, just like a group of ants collaborating together. If you were to see these guys, they would look like very intelligently guided swarm of little shapes moving across the floor and coming towards you. Maybe they would form different shapes or letters trying to communicate.

AH: The idea of all these subunits, these little individual things coming together and creating not just a colony, but something that's got intelligence and can travel across space really appeals to me.

CAPTION: What would happen if alien life came to earth?

MK: Certainly, the whole issue of contamination by alien bacteria, I think it's the one thing we can't protect against.

AH: It's what we saw in the history of, the recent history of humans as we've gone across through the world spreading things like smallpox, so in a way that's a study, in miniature, of what would happen perhaps if an alien culture were to come here. We're going to need some sort of galactic quarantine.

MK: Yes. Or a galactic hospital.

108. Forget hygge: The laws that really rule in Scandinavia

Jante Law is a set of rules that underpin Scandinavian society. It seems to help create equality - but at what expense to the individual?

Made by Angel Sharp Media, 7 August 2018

UNNAMED BAND MEMBER (*Pointing to Scandinavia on a globe*) Jante Law right here. (*laughter from two other women*)

CAPTION: Forget hygge. This is the story of the hidden rules that really underpin Scandanavian society.

KIM ORLIN KANTARDJIEV *Advisor, Norwegian Higher Education:* Janteloven is a set of rules that supposedly dictates how you should behave.

CAPTION: The ten commandments of janteloven, or Jante Law, discourage individual superiority and ambition.

UBM: You're not to think you're anything special.

KIRSTEN-SHEPHERD BARR *Professor of Literature, University of Oxford:* You mustn't think you are good at anything.

MICHAEL BOOTH *Author, The Almost Nearly Perfect People:* Thou shalt not think you are better than me.

KSB: You're not to think you can teach us anything.

MB: Everyone knows what it is and they know what they should do if they want to fit in. And they also know what will happen if they don't fit in.

KOK: It's a way of socially stigmatising people that break the rules.

MB: And maybe there is something in that that has created these incredibly successful societies.

CAPTION: *UN World Happiness Report 2018* 1. Finland, 2. Norway, 3. Denmark. *EIU Democracy Index 2017*. 1. Norway, 2. Iceland, 3. Sweden. *WEF Global Gender Gap Index rankings 2017* 1. Iceland, 2. Norway, 3. Finland.

KIM ORLIN KANTARDJIEV *Advisor, Norwegian Higher Education.* I'm pretty sure there is no Scandinavian utopia. But to the extent that there is one, I'm sure that janteloven is a part of it, because what people often fail to realise is that you can't have it both ways. Complete individuality where everyone just ignores the rules and still have a harmonious, equal society. It doesn't work that way. So you get to choose.

CAPTION: Almost every Scandinavian child grows up wary of breaking the Jante Law.

UNNAMED WOMAN: I have felt it a lot of times.

IBEN SANDEMOSE: And I think most people do.

MICHAEL BOOTH *Author, The Almost Nearly Perfect People:* The cosmopolitan Scandinavians loved to say 'Jante Law, that's something for the people out in the provinces,' but it exists in every city as well. And that affects the choice of cars that people buy. It affects how they dress. It affects how they behave.

CAPTION: CEOs socialise with their workforce, royals are down to earth, the rich tend to live modestly and arrogance is frowned upon.

KOK: The British society has a class distinction where you can do a lot of things because you're rich or because you have a background whilst janteloven is trying to say, no, you can't because we're a lot of people here and we get to decide the rules, not you alone.

CAPTION: So where did Jante Law actually come from?

MB: Jante Law started off as a work of fiction.

KIRSTEN-SHEPHERD BARR *Professor of Literature, University of Oxford:* I think it's translated as, A Fugitive . . . (*book is slid towards her*) Thank you. A Fugitive Crosses His Tracks.

MB: As a satire on small-town Scandinavia in the 1930s is part of a novel by Aksel Sandemose.

IBEN SANDEMOSE: This is Aksel, this is my grandmother. And here is one of the mistresses.

CAPTION: Iben Sandemose has written and illustrated a biography of her family. He is my grandfather and he was an author. He was . . . he was drinking a lot, he was not very nice to his children and wives. And her is Aksel when he heard the name Jante.

KSB: He called the town Jante. But it was based on Nykobing. He thought about the mentality that he felt there was there and crystallised it in this concept of janteloven. Anything you do that seems out of the ordinary or ambitious or not conforming would be punished by the community looking down on that.

MB: Now, he meant as a satire over time of the decades. It's almost become like an informal Scandinavian Ten Commandments. The satire aspect has almost been forgotten and people kind of think it is how they should behave.

CAPTION: Not everyone likes that, however, and across Scandinavia there is a shift away from the Jante Law.

UNNAMED BAND MEMBER 2: I want to do my own stuff in my own way and not be, like, labelled as an outcast. You're not like any other girls. You're not like typical Norwegians. Like, no, we're not.

CAPTION: Sassy 009 are a Norwegian band who have spoken out against Jante Law.

UNNAMED BAND MEMBER 3: I think it can become sort of a prison because we don't encourage greatness.

KSB: How many people would want to belong to a vision like that?

CAPTION: In Norway they even made a grave for Jante Law and declared it dead. So is this the end for Scandinavia's ten commandments?

UBM1: Jante Law is something we're stuck with inside of us.

IS: I think it's always there.

KSB: That kind of way of thought may well simply be so deeply embedded, maybe it won't go away.

KOK: The interesting thing, I think, is that every society has those social stigmas.

KSB: The great thing about janteloven is it forces you to think about what those unspoken rules might be that govern your life. And so there's the first road to freedom and . . . and getting away from those rules.

KOK: What you should do is choose those that make the better society and those janteloven that we have, which is that you shouldn't think you're better than everyone else is probably the best way of organising a society.

INTERVIEW: If you could click your fingers right now and Jante Law would all go away, would you do it?

UBM1: No.

UBM2: No.

109. Four failed inventions that changed the world

The mouse, the pacemaker, VR, the synthetic fibre Kevlar... all these inventions started off as failures. So there's hope for us all!

Made by Objekt Films, 4 September 2019

A chocolate teapot. An ashtray on a motorbike. The underwater hair dryer. Some inventions are non-starters. Good ideas on the other hand, are a little harder to come by. But sometimes having a brilliant idea isn't enough. Just ask Douglas Engelbart. You've probably never heard of Douglas Engelbart, you're more likely to have heard of Steve Jobs, here's why. In 1960 at the Stanford Research Institute, Engelbart, a student of electrical engineering, noted that the way people were interacting with their new computers was inefficient. A combination of chunky keyboards and clunky joysticks, Engelbart thought he could do better. His solution to this was a device that controlled an on-screen cursor named the bug via two perpendicular wheels from afar, and it was a brilliant idea. In 1966, Nasa trialled Engelbart's invention and found it one of their more efficient pieces of technology. Two years later, alongside his fellow inventor Bill English, Douglas showcased something called the mouse to a 1,000 strong San Francisco crowd in what became known within industry circles as... THE MOTHER OF ALL DEMOS Engelbart and English had a smash hit on their hands. Their mouse was the next big thing. Only, it wasn't. Five years later, Engelbart lost his funding and many key members of his team, including Bill English, left Stanford to work for Xerox. And in 1979 a man you may have heard of offered Xerox shares in his company in exchange for eyes on their research centre. That man was Steve Jobs, the company was Apple and the research centre yielded the mouse. Jobs loved the idea so much that, legend has it, he had a team of engineers immediately stop what they were working on in order to rebuild, streamline and ultimately relaunch the mouse as an Apple product. The Stanford Research Institute owned the original patent, meaning Engelbart never saw any of the profit from future sales of these mice. Engelbart's thinking was ahead of his time, but sometimes a good idea just needs someone like Jobs with the force of personality to see it through. Somebody with the ability to see beyond what's directly in front of them - those who can dream a little. Take Stephanie Kwolek for example, here was a talented chemist with a passion for fabrics and textiles who through her research into synthetic fibres, discovered a solution stronger than steel but as light as fiberglass. We call her invention Kevlar and today it appears in tyres, oven gloves, bulletproof vests, space suits and spacecrafts. But when Stephanie first developed this crystallised cloudy liquid colleagues refused to spin it for her, fearing it would clog up their machines. It was 1965 when Kwolek was dreaming up her super strength fibres. A decade earlier, filmmaker Morton Heilig had dreamed of creating an immersive, sensorial experience for a cinema audience. And so in 1957, he created the Sensorama. A 3D video machine that let audiences experience riding a motorbike via vibrating seats and wind machines or watch a belly dancer perform with cheap perfume pumped into the auditorium. Heilig had grand ambitions and he pitched his Sensorama to Henry Ford as a revolutionary show tool. The future was there for the taking. Only, it wasn't. Because nobody, including Ford, wanted to buy it. The Sensorama ended up beneath a tarpaulin in Heilig's back garden. Morton was

undeterred, three years after the first Sensorama he patented the Telesphere Mask, a 3D video headset. Viewed from today, one can sketch a direct path from Heilig's mask to the Oculus Rift and the virtual reality industry that is expected to be worth $170 billion by the year 2022. Sadly though, Morton Heilig will not be a part of it. He died in 1997, before VR found an audience in its current form, no perfume required. Heilig, like Engelbart before him, had the right idea at the wrong time. Wilson Greatbatch on the other hand, was exactly where he needed to be and when. Wilson wanted to listen to and record the human heart. He failed spectacularly. When attempting to record the heart's electrical impulses Wilson chose the wrong size resistor. Instead of recording his machine started to give out an electrical pulse of its own. Greatbatch was not listening to the heart, he was speaking to it. Wilson Greatbatch had just accidently invented the pacemaker. His mistake would save millions of lives over the next 60 years and continues to do so. After he'd tested it out on a couple of dogs. Suffice to say, it worked. Greatbatch's company today still manufactures 90% of all pacemaker batteries made worldwide. The man himself lived to a ripe old age, his heart never missing a beat in 92 years. As Henry Ford himself once mused, "failure is simply the opportunity to begin again, this time more intelligently." Just a shame he never bought that Sensorama when he had the chance.

110. Four things bats can teach us about survival

Bats live extraordinarily long lives for their size. From being generous to keeping clean, here's a few tips we could learn from them.

Made by Big Deal Films, 7 August 2019

PROFESSOR KATE JONES *University College London*: Bats are more like us than you would think, because they live a really long time and that's really unusual for a mammal of that size. So, a mammal of that size usually lives, like, one to two years. Bats can live up to 40 years, which is amazing. They have a really interesting repair mechanism for their DNA, so they can repair all the DNA that's broken and they never get cancer.

CAPTION: What can bats teach us about resilience?

PROFESSOR GARETH JONES *University of Bristol*: Bats are very resilient animals. They also have a number of adaptations that make them very good at surviving in harsh environments.

CAPTION: Lesson 1: Use all your senses.

KJ: Bats use loads of different senses. So bats use their eyes so, they're not blind, but they also use sense of smell. So they have big, smell regions of their brains when they need to find food.

GJ: The primary sense that many bats use is echolocation or sonar, in human terms, although the bats have been using these signals for 50 million years, we've been using them for maybe 100 years.

JAMES DYER *Survivalist*: We also need to be operating on our senses, we have to operate on our gut feeling a lot of the time. Jungles are probably the best place for having to use your senses constantly, because they're hot, they're humid, dark. So you almost feel a bit like a bat. Very claustrophobic. And you have to be aware of the little changes. So when things go quiet, potentially there's a predator in the area.

CAPTION: Lesson 2: Use all your senses. (*sic? Same as the first caption*)

GJ: Bats very often live in very large colonies. Very often these colonies contain millions of individuals.

KJ: One of the largest aggregations of mammals on the planet is a bat roost in Texas, in Bracken Cave. We don't really know how many there are, but it's between 10 and 20 million bats that live there.

GJ: This colonial way of life has several advantages. So bats can sort of keep each other warm, reduce energy costs by huddling together. Another advantage of being in a group is it reduces your individual risk of being eaten by a predator.

JD: So bats living in large communities, they have to get on with lots of other people. And on expedition we can be in a large team. So, building relationships, sustaining those relationships, developing systems for living in a community generally away from normal society, a bit like the bats. And therefore we have to develop our own ways of supporting each other, looking after each other. Teamwork, using the collective mind. Stay aware of danger. All to enable us to actually do the tasks that we're going to do.

CAPTION: Lesson 3: Nurture your relationships.

SANJAY JOSHI *SoGive*: Bats don't just care about their own blood relatives. They care about other individuals in the wider community, too.

KJ: They form these buddy pairs. And if you don't find a meal for that night, you can ask your buddy to share what they have for that night and then the next night you can reciprocate. So it's called reciprocal altruism. One of the very few examples of reciprocal altruism in mammals in the entire world.

CAPTION: Lesson 4: Keep yourself clean.

GJ: So bats are often covered in quite large numbers of parasites. Bats get rid of parasites in part by grooming. Not only do they groom themselves, but very often, they do something called allogrooming, where individuals groom one another, proving sort of social bonds amongst individuals in colonies.

JD: Bats are well known for the personal hygiene, their levels of personal hygiene. The dark, dank bits need to be to be cleaned on a regular basis. And also you need to be aware of your cleanliness around, particularly around other people. It

can ruin relationships if you're sharing a tent with them for a period of time and your ability to continue doing the expedition.

111. Four things whales can teach us about life

From knowing your roots to singing your song, us humans can learn a thing or two from whale culture.

Made by Big Deal Films, 26 July 2019

CAPTION: What can whales teach us about belonging?

ALEXIS KIRKE, UNIVERSITY OF PLYMOUTH: Whales are definitely more like humans than we might think. They have quite an advanced culture, they have quite an advanced communication methodology and we can learn a lot about humans by looking at that culture.

CAPTION: Lesson 1: You are where you're from.

EMMA SERLIN, LONDON SPEECH WORKSHOP: Whales have their own dialects and they build communities which are centred around where they're from. So for whales, community and being connected to the community with which they were born and live their entire lives together, is so important. For us, being able to know your identity and hold it is so important as well.

CAPTION: Lesson 2: Learn from your roots.

EMMA SERLIN: Whales will pass down information from generation to generation through whale song. And similarly, we as humans, will share information through our stories - often folk tales and nursery rhymes and fairy stories.

ALEXIS KIRKE: The males express themselves through sound, but the females have a form of physical expression through slapping their tails on the surface of the ocean. It's just another way for them to communicate but physically.

CAPTION: Lesson 3: Share your greatest hits.

ALEXIS KIRKE: So we know that one group of humpback whales, they'll be singing their song that they all prefer, their number one hit, if you like, and it will change very slightly over time, as they sing it to each other, as the males sing during the breeding season, but just very small changes. Now there might be another group, say the other side of Australia, and that group is singing an entirely different song that's number one in their pop charts, if you like. And what happens is occasionally one or two of the whales from the other side of Australia will be heard by the first bunch of whales and something extraordinary occurs - that song that was number one for that first group of whales it changes very quickly and becomes exactly the same, practically, as the song that was the number one hit for the other bunch of whales on the other side of Australia. This is a revolutionary song change. You can think of it almost as a total remix done by one bunch of whales on the other.

CAPTION: Lesson 4: Always find time for fun.

ALEXIS KIRKE: During the summer months, they actually stay in the colder waters and they feed, that's their feeding ground. But then during the winter, they kind of go on holiday to these warmer tropical waters and that's their breeding ground, that's the breeding season for humpback whales - sort of like a holiday.

EMMA SERLIN: With all of the seriousness of what we can learn from these animals, it's so important to remember that actually, the pure joy of life is this wonderful added dimension that we can't forget. It's so important to have fun.

112. Four tips from elite sport you can use in everyday life

From talking to yourself to rehearsing in your mind, these tips from the world of sport psychology can help in your daily life.

Made by Preston Street Films, 29 July 2020

Made in partnership with The Open University

DR JOSEPHINE PERRY *Sports Psychologist, The Open University:* Top sports stars get there with a lot of coaching, not just physical, but also psychological. I work with sports people all the time. And here are a few secrets from the world of sports psychology. And it turns out these tricks are equally relevant in everyday life. One, being nervous is good. So next time you feel really nervous, try this. It might sound a bit strange, I promise you it works. Tell yourself, 'I am not nervous. I am excited.' Why does this work? Well, we all get anxious and nervous at times. Totally normal. The tendency, of course, is to tell yourself to calm down. Sounds like a good idea. But having butterflies in your stomach and that sense of anxiety is just so far removed from a state of calm. Your body just won't buy it. Reframing anxiety as excitement works because both are states of high arousal. But while anxiety is negative and will hamper your performance, you literally feel under threat, excitement is an emotion that will help you feel positive and look forward to the challenge. In the words of Britain's most decorated Olympian with six gold medals, track cyclist Sir Chris Hoy, 'Never used the words nervous or anxious, use the words exciting and adrenalized. Tip Two: don't do all the work yourself. All athletes learn how to take care of themselves. But as important as taking care of yourself is learning to let others support you along the way. In 2019, Kenyan long distance runner Eliud Kipchoge broke the two hour marathon record, but he didn't do it on his own. On the day of the event, he had help from 41 pacemakers and, of course, the support of thousands of people who came along to cheer, Kipchoge asked for the general public to be there because he knew he could run better with their support. Who can you ask to support you in your everyday life? There is no shame in getting help when you're trying to achieve something difficult, asking for support is a sign of strength and positive support is priceless. Tip Three: mentally rehearse. Many of the world's top athletes use visualisation techniques before a big event. They're mentally rehearsing it in their minds. This can increase motivation, build confidence

and improve your performance. The more realistic the specialisation and preparation is, the more successful it will be. Athletes will think about the sounds they might hear like the crowd. They might smell, like, freshly cut grass and imagine what they're going to see and how they might feel. Runners might visualise difficult parts of their race. Before becoming the fastest British woman in recorded history, Dina Asher-Smith had already raced and won multiple times in her mind. She said, 'I might visualise the final, I run through it as if I'm running it. It's quite fun and you kind of have to win or else there's no point.' So, next time you have something to prepare for a job interview or an exam, visualise exactly how you would like it to go. Think about what you expect to see, to smell, to hear and how it will make you feel. Identify any mental challenges and how you could overcome this so that when you come to do it for real, you are fully prepared. Tip four: talk to yourself. Negative thoughts reduce confidence. This happens to everyone, even the greatest athletes, but they have learnt techniques to overcome them. One technique is called self-talk actually talking to yourself. This can have a surprising effect on your performance. Top athletes will often be heard saying, 'You got this, I can do this.' It helps them to control anxiety, to build their confidence and provide focus. Muhammad Ali, often considered the greatest boxer of all time, was famous for saying, 'I am the greatest.' But interestingly, he admitted repeatedly saying this phrase to himself long before he became successful. You don't need to say much. You small phrases like, 'You are ready. You are good at this.' So next time your brain tells you can't do something, just think of Muhammad Ali and tell yourself, 'I can.'

113. Four ways AI can help tackle climate change.

Simon Redfern from the University of Cambridge explains how AI can help us understand, adapt to and even reduce climate change.

Published on 4 October 2019

Made in Association with the BBC Blue Room

SIMON REDFERN, UNIVERSITY OF CAMBRIDGE: So really we're on the brink, I think, of a transformation in the way science is done. Not only tackling the problem of climate change and trying to find solutions, but also actually trying to understand the system itself.

CAPTION: FOUR WAYS AI CAN HELP TACKLE CLIMATE CHANGE.

SR: So some of the technological advances that we might be able to use to combat climate change involve the ability to generate energy in sustainable ways.

CAPTION: 1: AI CAN HELP IS DEVELOP NEW WAYS TO GENERATE ENERGY.

SR: The question today is can we make solar panels or other materials that are capable of generating energy in useful ways? In the past, scientists and engineers have developed new materials, but in rather a haphazard way. Thomas Edison created the lightbulb but he developed the original filament by testing thousands of

materials to find eventually the one that worked. Today we can use machine learning and artificial intelligence in our search for new materials. The reason that we can do it better in the computer is that the computer allows millions of potential solutions to be searched in ways that you couldn't do in the lab.

CAPTION: 2: AI CAN ANALYSE HUGE NUMBERS OF DATA POINTS TO PREDICT HOW THE CLIMATE IS CHANGING.

SR: The reason that AI is important in the development of our understanding of the Earth's system is that we're getting more and more data about the Earth as time goes on. So today we collect satellite data, remote sensing observations allow us now to look at the patterns of landslides. As climate is changing, as weather patterns change, is the land being more destabilised by excess water? Or are the erosion patterns in the mountains changing as climate changes?

CAPTION: 3: AI CAN HELP INFORM DISASTER RESPONSE.

SR: Extreme weather events as a result of climate change do appear to be on the increase. But there's another aspect of this - cities are getting bigger, areas that have always been vulnerable to natural hazards. With so many people potentially at risk, it becomes important to understand the system very quickly. Examples include understanding the ways in which to respond to a situation. Where to send the first responders. Which hospital is put on high alert. Where to send relief supplies, who needs tents. So all of these sorts of disaster relief processes depend upon information.

CAPTION: 4: AI CAN HELP SAVE ENERGY BY MAKING DRIVING MORE EFFICIENT.

SR: And we know, as we travel around congested cities, that we spend a lot of time sitting in traffic, burning energy, getting nowhere. Autonomous vehicles provide routes to making transport systems more effective, more efficient, so that you don't have these waves of static traffic on a motorway. That everything is moving at the right speed and gets from one place to another in the most effective way, the most efficient way. That's not something that, as individuals, we're very good at planning for ourselves. So if we want to reduce, recycle, reuse, can AI help us? Well maybe. But it depends upon our motivation. AI is a tool, it's not a master, and so our responses ultimately will depend upon our own personal motivations, and those of the society that we're part of. But AI and machine learning can help us move in the right direction.

114. Freedom is... a pair of bionic hands

Thirteen-year-old Tilly lost both her hands after contracting meningitis, but her new bionic hands have brought her immense freedom.

Made by Tiger Lily Productions, 24 May 2019

TILLY: I wear makeup not because I feel like I need it to be pretty or whatever, I just

use it because I like to see what I can do with the hands. I just think it's a lot of fun just to experiment. Freedom to be creative and see what I can do. When I went out and about before these hands and I was just walking around with my arms, people would always stare at them. They would come over to me and ask what happened. And I had to repeat the same story like: "I got a really bad disease called meningitis septicaemia, nearly died." And it's just a really negative topic of conversation. Whereas now with these hands, when I go outside everyone who sees us are excited by them.

TILLY'S DAD: Feel free to play with her hands, Maureen.

MAUREEN: Can I?

TILLY: Yeah, yeah look!

MAUREEN: That's great, that really is. It's fabulous!

TILLY: It's more like, "Woah how did you get these hands? How do I get some? They're amazing. You're like a superhero."

MAUREEN: You can do thumbs up as well can't you?

TILLY: Yeah. TILLY: Everyone's really excited by them, rather than feeling sorry for me all the time. And I like that so much better. There are muscle sensors inside of the hands, so you can actually control them just by touching them. The sensors are connected to my muscles. I squeeze my muscles to close the hand. I flex to open. And then if I want to change the grip then I can flex again. They definitely help me to multitask so I am now able to like, pull a suitcase and hold a hot chocolate and drink it.

TILLY: Dad look I've been practicing with the hands and I can do a fist.

TILLY'S DAD: Very nice!

TILLY: Having these hands you have the freedom to have your independence, like you can do what you want without having to rely on other people. Look I've got... finger shadow.

TILLY'S DAD: Aww. Your own little shadow. That's cute.

TILLY: I really hope that these hands will be available on National Health Service. These hands are £10,000 a pair I believe. And that's a lot cheaper than what we used to have.

TILLY'S DAD: You know what, it's so heart-warming just watching her like, doing that. This is what I mean, the simple things that change your life. Simple stuff like holding her hand or... telling she's got little finger shadows. It's so cute.

TILLY: I feel like my determination has got me to where I am today.

TILLY'S DAD: Impressive!

TILLY: The main goal is like... ultimate independence just like anybody else with hands can have. Because obviously I don't want to live with you forever, no offence. But I want to move out and have my own house and I want to be able to do everything that anyone with hands can do. So that's the main goal in the long run and I think we're definitely not too far away from that. I think it will make everyone, not just amputees, feel better if everyone just stopped judging each other and just live your life without being judged.

115. From coppers to bitcoin… a brief history of money

Money makes the world go round but the way we access our cash changes all the time.

Published on 16 April 2018

This video was made by BBC Archive

CAPTION: When it came to money, cash was king for many years. But for a long time, getting access to your dough meant joining the queue. Then along came the Automatic Teller Machine. It offered customers the chance to dial in a number and withdraw a wad without human contact.

MR MONTGOMERY *Bank Manager, 1967*: This machine can dispense these notes at a much faster rate than a teller can. The customers don't have to wait so long. They're being provided with a service which is very advantageous too.

CAPTION: By the 1970s our attitude towards money changed again, with a huge boom in the use of credit cards.

THE MONEY PROGRAMME *1981*: One third of everything that's bought is on credit, not just with flexible friends, but with overdrafts, personal loans and that old faithful, hire purchase.

CAPTION: But some were wary of credit's lure and its surveillance capabilities.

HORIZON: Half-way to 1984, *1976*: A government wanting to monitor your movements could check computer readouts to discover where and when you travelled, where you hire cars, where you bought petrol, where you parked the car, where you bought your meals. The hotels at which you stayed. And perhaps with whom?

CAPTION: But convenience had a cachet and soon there was a new form of 'plastic money'.

TOMORROW'S WORLD, *1981*: The phonecard, a card like this could buy up to £10 worth of phone calls from a new design of public phone. Now, this may be difficult to forge, but you will, of course, have to take care of your card because anybody can use it.

CAPTION: Fraud was also a problem in the electronic banking world.

BBC NEWS, 1985: Andrew Matheson now treats cash dispensers with suspicion. £400 recently disappeared from his account in Oxford. The trouble is, on the dates in question, he was here, eight thousand miles from home, helping to build the new airport in the Falklands.

CAPTION: But despite the technical hitches, card use continued to grow. In 2003, the advent of chip and pin cards made it even easier not to carry cash. But some cities sought a cash injection of a different kind. In Bristol in 2012, special notes were introduced in order to keep money in the local economy and offer an alternative to the mainstream banking system. But not everyone in the city was convinced.

BBC NEWS, Bristol: I reckon it's stupid. There is a lot of people that live in Bristol and work other places outside Bristol. But imagine if they've only got this money. What are you going to do when they go to work?

CAPTION: When they were introduced in 2007, contactless cards made paying for goods and services even easier. And with mobile banking and services such as Apple Pay, cards aren't the only way to pay for goods anymore.

UNNAMED MAN: Anything that extends payments without having to carry cash in your pocket is absolutely amazing.

CAPTION: Although the government have dismissed the idea, there have been calls to scrap pennies and 2p coins. Surveys suggest 60% of coppers are only used once before being put away or discarded. And approximately one in every 12 coppers are thrown into a bin. Cryptocurrencies offer an alternative way to buy and sell goods and services, but their volatility and use by the criminal underworld makes them controversial. Perhaps in the future, the only thing you'll need is your fingerprint.

BBC NEWS LONDON, *2017*

UNNAMED MAN: It's asking me to scan my finger. So I put my finger in, scanning my finger. Takes about a second to scan the finger. Transaction's gone through. Payment successful.

CAPTION: But whatever form your currency comes in, and however you choose to spend it, here's hoping you have enough saved for a rainy day.

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116. Gaining confidence by playing the fool

How an 'improv' comedy class in Toronto has helped people with anxiety.

Published on 2 February 2018

This video was made by BBC World Hacks

CAPTION: You're about to go on stage. The audience is arriving expecting to laugh. But you've got no script. This is improv. Not great for anxious people or so you'd think. But all these people suffer from anxiety. And they hope learning improve can help them.

MAIREAD: Doing improv for an anxious person is facing your biggest fear and facing it over and over and over again.

CAPTION: The Second City Comedy Theatre – they've done improv classes for years. Former students include: Mike Myers, Tina Fey, Steve Carell. Improv for anxiety began at the US branch in Chicago. In Toronto, the class is run by Cameron Algie. He suffered from anxiety.

CAMERON ALGIE: My therapist recommended improve. And then it took me a lot to try it out. Improv seemed scary, daunting because what if you say something wrong in the moment? At least with a script, you know what you're going to say.

CAPTION: For some, just getting to the class is an achievement.

MAHA: Signing up was like a struggle itself. Like, 'Do I click the submit button?'

MAIREAD: I would get here three hours early and just try to will my body through the door.

CA: First and foremost, thank you so much for coming, especially to an anxiety workshop that will be filmed. By the way, heads up it's being filmed. (*in interview*) Anxiety lives up in here. When I'm up in here, there's things I can be anxious about. I can project into the future all the things that are going to go wrong, or I can regret all the things I've done in the past and all of that. But within improv, because you're playing off of someone else, I need to live out here. And so it forces living in the present moment onto you. (*scenes from improve group*) In the classes, it's a group of adults learning to play again. Maybe at its most basic improv, is finding a safe place to be kids again. If you're taking anything away from that to the real world, its mistakes are going to happen. You're in a meeting and your pen drops on the floor and you're aware, oh my God, this is the most embarrassing ever, everyone's going to look at me. If the next meeting you drop your pen, you'll remember, 'Oh, man, I was just going 'Bah! Bloop!' You think this is going to embarrass me? I have a new bar of what will embarrass me.'

CAPTION: So why do people go?

ABBY: I was talking to my boss in my last performance review, and he was saying that if I wanted to get a promotion, I have to get my confidence up. And I figured doing improv was a good way to just, like, go completely out of my comfort zone and do something crazy.

JOHN: Social anxiety and depression are hand in hand for me. And just learning to let things go to be present, to not listen to the voices in your head.

INTERVIEWER: Has it helped you overcome those issues?

J: That's a tall ask of seven weeks. But yes.

ISABLE: I think it definitely helped with my confidence and getting me not to overthink too much. Whenever I'm in a social situation.

CAPTION: A study found a reduction in social anxiety in 70% of students. ANd the area of the brain active when stressed slows down during improve. Mairead has gone from student to performer.

MAIREAD: I started Improv For Anxiety about three years ago now, and now I'm performing shows on stage in front of so many people and it's just been completely life changing.

117. Generation mute... no talking aloud

The people who prefer messaging to talking.

Made by The Connected Set, 16 February 2018

DARREN: I honestly can't remember the last time I made a phone call. I don't think I've ever done that in my life.

INTERVIEWER: Ever?

D: Never. I think it's ever come up.

CAPTION: Is the growth of messaging creating a 'generation mute'?

DR DIMITRIOS TSIVRIKOS *Consumer and business psychologist*: Generation mute is the phenomenon where we actually see young people prefer to text and use social media to communicate rather than pick up a phone or have a conversation with each other.

UNNAMED FEMALE I talk to my friends on WhatsApp, Twitter, sometimes, or Facebook Messenger, just anything that's typing. (*scrolling through phone*) days upon days of messages.

CAPTION: Instant messaging is the number ones means of communication for 16-24 year olds. *Ofcom Communications and Market Report.*

UF: Obviously, calling is the easier thing to do. But I just . . . I just don't like it.

CAPTION: One US study found 92% of teenagers don't use their mobile phones for voice calls at all. *Source: The App Generation.*

SIMBI: For me, phone calls are actually the worst. My sister lives in Dubai. She realised how awkward I was on the phone. And she asked me, 'I don't want to put you in a position where you're uncomfortable, is there a better way to contact you?'

And I said, 'Yes via email, please.' (*laughs*) I don't know how to handle that side of me very well.

ROLY: My friends, I still feel I find it a bit weird talking to them and hearing their voice and hearing them, you know, give real responses to things. I don't like it. But I know that it's an important part of making a connection with someone.

PROFESSOR SOPHIE SCOTT *Neuroscientist and speech expert*: Text-based interaction is hard because you lose everything that you have when there's somebody actually talking to you. So you don't only don't have a face, you don't have a voice, you haven't got emotion and intonation and all the other stuff you're hearing in somebody's voice when they're talking to you, because you just have words.

CAPTION: 1 in 3 job applicants don't have the oral and communication skills they need, according to a survey. *Source: Employer Skills Survey UK.*

DARREN: It took me five years to answer a phone call from my boss when I answered the phone to her she was like, 'Oh, Darren, you answered.' I'm like, 'Yeah, surprise.'

DAVID FREEDMAN *Confero Call Centre CEO*: The problem for employers is that this generation mute is very much a generation of people who are most comfortable typing and not talking. What we've noticed is there is a change. You used to bring someone in, you would automatically assume they'd know how to answer a phone. And now those basic skills are skills that we have to train. In a place of work, then, voice is . . . is king.

CAPTION: Half of all UK internet users say devices interrupt their face-to-face communications. *Source: Ofcom Communications and Market report*.

SS: How people deal with stressful situations is actually marked in how they use communication skills in an interaction. So couples who deal with a stressful situation with positive affect and laughter in a conversation feel better than couples where one person is laughing and the other person is not laughing. So we get more bang for our buck out of talking to each other than we do from anything else.

CAPTION: A quarter of people say they've been bumped into on the street because of someone being too busy on the phone to look where they're going. *Source: Ofcom Communications and Market report*. 49% of teenagers admit they text or instant message someone when they're in the same room. *Source: Ofcom Communications and Market Report, 2016*.

UF: It probably is like a generation thing. Obviously, our parents and grandparents did just have house phones and they never had mobiles or anything like that.

SS: What you're seeing is a generation who don't need to pick up the phone because they're able to use text-based interactions on their phones in a much more complex way.

CAPTION: There are definitely benefits. More than 80% of all UK internet users say new communication methods have made life easier. *Source: Ofcom Communications and Market Report.*

SS: People are marking their difference and they're allowed to. So young people are allowed to say, 'We're just not doing it like you. This is how *we* communicate. And we are not the same as you.' And that's a rolling pattern of change. You get it across fashion, you get it across all sorts of different aspects of music and cultural tastes, and you get it in how people choose to communicate.

118. Geocentrism: Why the world doesn't revolve around you

For centuries, people thought Earth was the centre of the universe. It's not. But the idea was hard to shift, says astrophysicist Jen Gupta.

Made by Somethin' Else, 4 September 2018

JEN GUPTA: The A to Z of isms... geocentrism. Until the 16th century, geocentrism was the prevailing theory of what the universe looked like, geocentrism is the belief that the earth, our home planet, is at the centre of the universe. Everything else revolves around us. This seemed obvious to ancient astronomers, after all, they observed the sun and the moon, the planets and the stars to move across the sky as we go forward through time, just like we do today. So this must mean that the earth is in the centre of it all, right? Wrong. The earliest geocentric models of ancient Greek philosophers/scientists/general all-rounders such as Plato and Aristotle in the 4th century B.C. placed a stationary earth at the centre, with the planets and the stars moving around us on circles or spheres. The thing is, the simple geocentric model cannot quite explain all that we see when we watch the skies. For a start, the planets change brightness, which shouldn't happen if they're always the same distance from the Earth. Second, the paths of Mars and Jupiter through the sky sometimes appear to go backwards for a time, which shouldn't happen if they're travelling around in these neat little circles. Despite this, the theory had such a hold and astronomers were so convinced by it, that they spent hundreds of years making all sorts of modifications to try and make the general theory fit. And as needlessly complicated as it now seems to modern astronomers, this version of the universe proposed by Ptolemy in the second century was almost universally accepted for hundreds of years. But not everyone was happy. As far back as a third century B.C., Aristarchus of Samos had suggested that the sun was in the centre of the universe. And in the years that followed Ptolemy's work, both European and Islamic scientists started to question aspects of his geocentric model. Finally, in the 16th century, Polish astronomer Copernicus published his model of the universe, which also put the sun, not the earth, at the centre of it all. This is known as heliocentrism, and for the first time, mainstream science took note. Today, we know that even heliocentrism doesn't tell the full story. While the sun may be at the centre of our solar system, it is just one of over 100 billion stars in our Milky Way galaxy, which is itself one of over 100 billion galaxies in the observable universe. Not only do we have to contend with being just one of probably countless planets out there, modern

cosmology tells us that the Earth and our solar system doesn't even occupy a special place in the universe. And in fact, it turns out that there is no centre to this universe at all. Rest in peace, geocentricism.

119. Girls or boys - should toys just be toys?

Sparkles for girls... Diggers for boys... Why do we still have so much gendered stuff? And what impact does this have on our children?

Made by Flock London, 4 December 2019

LAUREN BRAVO *Author of 'What would the Spice Girls do?'*: Toys for children are so, kind of, rigidly gendered these days.

LINDSEY CAMERON *Senior Lecturer in Psychology*: Toys that are marketed at girls may be less complex.

LB: Why sell one thing to a household when you can sell two. Baby dolls, homekeeping, sparkles, unicorns . . .

ZORIAN CLAYTON *Programmer, BFI Flare Film Festival:* Pink curvy pens.

LB: Anything focussed on aesthetics. Boys don't have to put up with it, do they?

BEN HURST *The Good Lad Institute:* Action men, goggles for X-ray vision, giant fist that you can put on your hand and punch stuff. Little work stations and stuff, which is, yeah, is super-weird.

LB: I mean, these are supposed to be enlightened times, right? Why do we still have so much gendered stuff?

ROBIN SHERWOOD *GQ, The Guardian, The Huffington Post*: Pink is just a theme with the youngest one in particular. I don't know why, she started shouting the word pink at me, 'Pink! Pink!' She'll . . . her little beaker's pink, so she'll go 'Pink'. I can't say I mind it. I think it's quite a natural thing for them to be into princesses and stuff. But I kind of . . . don't push them towards it. In fact, I probably push them the other way.

BH: I think the reality of it is that it starts like so, so early. That makes it really hard to differentiate between what is an innate desire and what's a learned behaviour.

LC: We kind of create that world where gender is important. The first thing we want to know when somebody gets pregnant or has a baby is, is it a girl or a boy.

PROFESSOR GINA RIPPON *Professor of Cognitive Neuroimaging, Aston University:* Despite the absence of pretty much all basic survival skills. Babies are very good at picking up social cues right from the moment of birth. And they're aware of the face and the sound of the person who might be the source of their food. So at less than a year old babies are picking up the fact that there are gendered differences in their

world. So they would respond with surprise to the vision of a man putting on lipstick, for example.

LC: Young children are trying to make sense of a really complicated world. We adults are used to having so many different stimuli around us. For young children, they need to kind of figure out what are the rules of the world, by knowing, 'That's a girl. That's a boy. So that tells me something about them.' It allows them to put their energy into other things. So then it just allows them to just organise it in a way that is efficient.

LB: It does feel really incongruous, I think, that in recent years we've made so much headway in the way that we talk about gender. And yet at the same time, we've still got this stubbornly binary gender marketing.

LC: If manufacturers make it so easy for children to see, 'This as a toy for me, or this is a toy not for me,' then they use that information and it funnels them into playing with particular toys that might influence their play behaviours, the kind of skills they develop and their career aspirations.

GR: One of the things we've learned is that the brain is mouldable from very early on, by all sorts of different experiences that we might have. For example, experiences with construction toys or video games is a much better predictor of how you're going to perform on spatial tasks than if you're male or female.

ZC: I think the view that we have of gender is problematic for everyone. So, in an ideal world, we would have more openness about gender. And I think that would be better for everyone in terms of women's opportunities and in terms of male progression in many, many ways.

BH: Boys know from very early on that they're not allowed to be vulnerable. They're not allowed to be weak. They're not allowed to show that, because if they do, then people will pick on them. And so I guess if we can teach boys that they're able to access those emotions, firstly, and teach them how to articulate them, then the outcomes for them would be completely different. The piece that's missing is often, like, the option to, like, do whatever you want.

ZC: To be yourself, you have to be able to see yourself either in the cinema or in books or in art.

CAPTION: There are twice as many male characters than female characters in the UK's most popular children's books (*source: The Observer*) And a scientist is three times more likely to be portrayed as male than female. (*source: Wilbraham & Caldwell, University of Cumbria*)

ZC: You people today are very astute and are throwing away a lot of the old ideas about gender norms. I think, you know, we're very much at the . . . at the beginning of a real sea change in terms of gender understanding and openness, I think.

LB: Frozen was a really great example. I know it was very exciting when that film came out and it was such a huge phenomenon that it had two girls as the

leads and the focus of the story was on their relationship as sisters and they saved each other. And that was something that was only a subtle difference. You were still looking at some very pretty animated girls, but actually the kernel of that story was something quite different. Writers are working within the traditional storytelling format, but actually trying to push the boundaries within that of the conventions that we're used to.

RS: And I'm definitely conscious to try and give them an option, and I secretly like it when they'll go to something that's maybe seen as opposite.

LC: What's interesting is we're happy to see female characters being presented in a more diverse way. But where are all the nurturing, caring, sensitive boy characters? There's still a bit of a way to go in terms of representing boys like that.

BH: Ultimately, I think the stories that we tell become the realities that we live. And it has been that way for thousands and thousands of years. If we change the stories that we're telling the . . . the lives that we live will look very different. We're at a point where we have the power to reimagine those things and completely change the script for a generation that's growing up.

120. Glenda Jackson: The glass ceiling is not yet smashed

Egos and sexism... Glenda Jackson says we're a long way from gender equality and reflects on her career in the world of acting and politics.

Made by BBC Studios, 24 January 2019

GLENDA JACKSON: Every woman who is successful, regardless of the field that she works in, opiated. Is deemed to be the exception that proves the rule. And every time a woman in whatever field fails. She is simply, 'Well, she's a woman, ain't she?'

CAPTION: At 82, Glenda Jackson has succeeded in two male-dominated fields: acting, winning Academy, Emmy and Tony awards. And politics as an MP for 23 years.

GJ: To quote, 'The glass ceiling may have been cracked, but it certainly hasn't been brought down yet.'

CAPTION: Glenda Jackson was born in Birkenhead near Liverpool in 1936.

GJ: The options that were available to my gender then were pretty much: you were a child and then you left school. The next big step for you was getting married, actually. I think that has dramatically changed over quite a few decades. But we are still a really long way away from genuine equality as far as gender is concerned.

CAPTION: She went to RADA in 1954 and embarked on her career on stage and screen.

GJ: The central driving dramatic engine of virtually every play was a male. Women were still the adjunct. It was virtually unheard of for there to be a woman director. But nobody ever commented on that, because that was the tradition, that was where . . . everybody had grown up in. It was not exclusive to the theatre, it was the whole of life. The primary voices were always male. I am still stunned at the way contemporary dramatists do not find women interesting.

CAPTION: In 1992, she moved away from acting to become an MP.

GJ: When I first entered parliament as a member, there was a strong sense, I think, that I was some kind of diva or that I was a complete airhead, I would fall flat on my face or I would expect special treatment. None of that was true. It was pretty much a white, middle-aged, male-dominated chamber. The egos that I saw marching up and down those corridors would not have been tolerated for 30 seconds in a professional theatre. I mean, somebody said to me, 'How are you going to manage in what is essentially a man's club?' And I said, 'But that's been my experience all my life.' So in one sense, I think every woman is well fitted.

She returned to the stage in 2016 to play King Lear.

GJ: The fact that it's a male didn't worry me. As we get older, those harsh definitions of our gender begin to fracture. They begin to slip. Part of it . . . they become a bit foggy. Things begin to change. I found that very useful. Every woman knows she's experienced it in something. Either she didn't get a job she's qualified for, or someone's tried to put her off whatever she wants to do. We read every year about these big guys in the City and their bonuses with more noughts after them than a doughnut shop. And still not enough women on boards and things of that nature. They are provable and definable. But we can't delude ourselves to think that what happens in a City boardroom doesn't happen in a little shop or, you know what I mean? It's simply endemic.

CAPTION: How do we change it?

GJ: You have to keep pushing away at it. I mean, you have to keep banging the same drum. You have to tediously say the same thing, over and over and over again. I mean, it's kind of . . . well, it's a cliché . . . but it isn't really . . . a rule of thumb in the theatre is that you have to say something three times before an audience hears it. But certainly changing the actual structure of societies and having it accepted as a norm that women actually can do anything, if they are afforded the same opportunities, the same inroads into learning that is an automatic given to the other gender, then we can achieve and we can work together and we can make, hopefully, a better world. But there are no silver bullets. It takes more than one campaign. It takes more than one argument. And it's hard. But it can be done. We have seen improvements made. We're by no means near the promised land, but we're quite a way up the hill.

121. Good cod! A bitesize history of fish and chips

Food historian Annie Gray tells the story of that beloved British dish, fish and chips, and how the two came together.

Made by Somethin' Else, 3 August 2018

NARRATOR: Eighty percent of the British population say they visit a fish and chip shop at least once a year. And we consume 382 million meals from the chippy per annum. That's pretty impressive for a combination that's only been with us for around 150 years, for the first fish *and* chip shop only appeared in around 1860. Separately, both fried fish and chips were enjoyed by the British well before they came together. Chips as a term for something edible was in use in the 18th century, often in relation, rather curiously, to oranges – orange chips were candied chunks of peel. It was in the same century that the potato was going from knobbly curiosity to staple food, especially for the poor. And given how well potatoes lend themselves to deep frying, it was inescapable that potato chips would soon be on the scene. By the Victorian era, chipped potatoes were everywhere from the delicate little straw potatoes which resembled, well, straw, eaten by the rich, to the French street food, which Dickens described as, 'husky chips of potatoes fried with some reluctant drops of oil.' The British preferred baked potatoes, but they ate them fried too. Fried fish, meanwhile, was also on the tables of the rich and the poor. Breadcrumbed fillets, delicately fried in butter and garnished with fried parsley were a staple of up-market meals. Whitebait fried in lard were considered a delicious delicacy. But there was another place fried fish could be bought, and that was the street, in the Jewish quarters of London and other big cities. There, Sephardic Jews sold cold fried fish intended for eating on the Sabbath when no cooking was allowed in Jewish homes. It quickly took off being cheap, filling and tasty and fried fish shops and market stalls hot and cold sprung up in cities across the UK. It was inevitable that these two street foods so popular with the masses would end up being sold in combination. It proved a winning formula and fish and chip shops took off immediately. Trawl fishing and the railway boom of the 1870s helped fish to reach inland areas quicker than ever before, and potatoes were already grown everywhere. By 1910, there were 25,000 fish and chip shops in the UK and by 1929 there were 10,000 more. Such was the hold of fish and chips and its genuine goodness, especially for its mainly working class consumers, that during the Second World War fish and chips remained off the ration, though the type of fish available was not always the most delicious or desirable of species. Across the UK, accompaniments vary, from the mushy peas of the north to curry sauce, ketchup, mayonnaise or the chip shop spice, which is on every counter in Hull, salt and vinegar remain the staples. In the 21st century chippies vegetable fats have often replaced beef dripping or lard for frying. Newspaper used to be the wrapping of choice, outlawed unless fresh from the printers and unsullied by readers hands in 1968. Now it's mainly plain paper and polystyrene, but the skilful wrapping and excitement of unwrapping remains. There are, however, fish and chips and *fish and chips*. Witness the disappointment on the faces of tourists lured by the promise of a great British delicacy, only to find they've happened upon the bad version – all grease and soggy batter. But then, when it's

good, well, it's crispy and fluffy with the hit of vinegar and a pinch of salt. It's unbeatable.

H

122. Has #MeToo helped or harmed women?

A year after the launch of #Metoo, we brought together two women with very different perspectives to discuss its impact face-to-face.

Published on 4 October 2018

CAPTION: Since it emerged, social media has been criticised for encouraging an aggressive public debate.

ASH SARKAR *Senior editor, Novaramedia*: Hello.

ELLA WHELAN *Journalist, Author of 'What Women Want: Fun Freedom and an end to* Feminism': Hi.

CAPTION: So we brought together two people who enjoy debating on social media for a face-to-face conversation.

EW: The following challenges are designed to increase understanding between opposing parties. Challenge one, no interrupting.

AS: Challenge two, you can only speak if you're asking a question or answering one put to you. Okay. Cool.

EW: I'm excited because we're not used to asking questions, we usually just get stuck in front of cameras and they're like, 'Go.' And then we're like, 'Right. Okay.' But actually . . .

AS: (*speaking over*) I really hate consensus. (*laughs*)

EW: (*laughs*)

CAPTION: Has #MeToo been good for women?

AS: So why do you think that #MeToo has been so bad for women?

EW: Well, it started out with an expose of Harvey Weinstein, who is now facing multiple rape charges. And everyone can agree, I hope, he's kind of a monstrous figure. It then very quickly spun out into a just general discussion about interpersonal relations between the sexes. Bad come-ons. What is that kind of politics of flirting? All this stuff, which is a massive grey area?

AS: When I was growing up, I thought that the rapist was someone who would jump out at you, like from the bushes. Whereas, actually, one in every five rapes is perpetuated by a current or former partner. So actually, that grey spectrum between what we think of as bad sex and what we think of as rape is really, really important. That's not to say that every, you know, incident of bad sex that we have is therefore lumped in with rape. But it's saying that it's within that grey space, a tremendous amount of sexual violence does happen.

EW: The thing I think I want to push you on is the fact that if we're telling young people that they need to be very conscious of this discussion about #MeToo and this discussion about not being touched and the dangers, essentially, rather than letting go.

AS: Not at all. I think it's doing the opposite, it's saying trust your instincts. So when your instincts are telling you something is right, go for it. As long as, you know, you're just checking in with the other person a bit. And then, on the other hand, when your instincts are telling you, Maybe this isn't right for me and I don't want to do that,' that you are able to make that clear in whatever way feels right for you.

EW: Do you think that, therefore, the #MeToo movement is saying that we have a society which raises boys who need to be taught not to rape, which is the kind of underlying argument of consent classes, and girls who need to be taught how to essentially defend their honour or be on guard from boys?

AS: When, in the UK, 20 per cent of women will be victims of sexual violence at some point in their lifetime, then we have to think about how our culture is reproducing sexual violence rather than doing the opposite. There was a really interesting study that was done in the United States across college campuses, which deducted rape from the wording of the questioning, because obviously, if I asked anyone on the street, 'Would you rape a woman?' they'd go, 'No, why are you asking me this? This is not what I came to KFC for,' whereas if you phrased it as, 'You've already been having sex with a girl and she's quite drunk, she's kind of fallen asleep, you know, is it okay to continue?' – things which are legally considered rape when someone is no longer able to give their active and informed consent? Frightening numbers of men, when the word rape was taken out, were like, 'Yeah, that's fine.'

CAPTION: The final challenge:

EW: Can you sum up the opposing points of view to the other person's satisfaction? I'll give it a go. Okay.

AS: Hit me.

EW: To the other person's satisfaction. That means I can't be mean. Right. No, I'm joking. Okay. It allows us to talk about sexual misconduct, violence, harassment, rape, all the different things, and has enabled women to talk more freely about this and that going forward it can be a tool with which people change their behaviour in relation to their sexual interactions and eventually, in the future, stop sexual misconduct, in whatever form it takes, from happening.

AS: Yeah, I'd say that's a fair assessment.

EW: Okay, your go.

AS: If I were to sum up your arguments, I'd say you are an enemy of progress . . .

EW: (*laughs*)

AS: Okay, so the sum of your arguments, you've got one frustration, which is that #MeToo has failed to distinguish between the most egregious forms of sexual violence, such as rape and things like awkward workplace encounters, and it's led to a culture of suspicion between the genders. And it means that we go into every single sexual encounter with our guard up in such a way that we're looking at each other as potential aggressors or victims and we're failing to enjoy that God-given pleasure of banging.

EW: Yes (*laughs*) I like that, that's better than I could have said it!

AS: Fair enough?

EW: Yeah. Very fair enough.

123. Have we got the idea of progress all wrong?

Should we be working to create artificial life if we can't protect the natural life we already have on the planet?

Filmed at Dezeen Day 2019, 14 January 2020, BBC Reel.

ALEXANDRA DAISY GINSBERG *Artist*: When I started researching the promise of better, I had to really sort of find different ways of looking at what does this little word mean? We often equate it with progress. But I would say they're not the same thing. Finding ways to think about ourselves as progressing or improving cannot be divorced from how we think about protecting and looking after the natural world.

CAPTION: Should we design a 'better' world? Alexandra Daisy Ginsberg is an artist who explores the human values shaping design, science, technology and nature. Her artwork examines the human impulse to 'better' the world.

ADG: Progress with a capital P is an idea that really came out of the Enlightenment, so in the last few hundred years, the idea that humans could emancipate themselves from the natural world through the improvement of knowledge, especially through science. But where does that leave us? Are we really becoming better animals? And I think there's sort of division of ourselves that has increased from the natural world, the way that we see ourselves as somehow separate and it's exacerbated by living in cities and distant from the natural world, from where our food comes from, from the impacts of a 24/7 lifestyle, means it's much harder to relate back to nature. And we need the natural world, which we're part of, to survive. We rely on its ecosystems to feed us and to allow us to breathe. So when we talk about making a better world or

progressing ourselves, we have to progress our environment. And to me, that means maintaining it and looking after it. In my work as an artist in a studio, we work with a lot of emerging technologies, but to think about our relationship to nature, which seems maybe a bit odd. But researching synthetic biology or genetic engineering or artificial intelligence is a way to actually think about what it means for humans to design living things and what it means to be a living thing. I'm not a scientist and I have this amazing opportunity to work with them and to ask them really basic questions about really complicated things, which we should all be doing, because that's how we learn about how this stuff works. One of the new works I've made in the last year is called The Substitute, and it explores the idea of bringing back a northern white rhino. So this subspecies is essentially on the verge of extinction since the last male died last year. But there's efforts to bring it back to using IVF and sperm from the last male. So we'll end up, if this works, with a technologically resurrected northern white rhino. But my question is, is it really a northern white rhino if it doesn't have a community of other northern white rhinos to learn its culture from? And when I started this project, I was really struck by this problem. I was actually on a panel at the Science Museum about artificial life. And it was called Could We, Should We, Would We? And we were all debating whether we could create consciousness and create fully intelligent artificial life and if so, what are the problems with how we'd look after it? And I sat there having this moment of total existential crisis, thinking, 'We can't even stop ourselves from killing rhinos, which are incredible living beings and examples of incredible intelligence. How are we going to look after and protect . . . or protect ourselves from these new intelligent artificial lifeforms? And that's really this paradox that the project explores is the human obsession with creating new life forms, so the interest . . . and there's a long history, going back even to the Jewish myth of the Golem, but yet completely failing to protect what already exists. And I'm fascinated by that paradox. I didn't have an answer for why we behave like that. And I'm always curious to find out if anyone does.

124. Have you been fooled by forensics on TV?

We all love to be amateur detectives, but how accurate is forensic evidence on TV? How much is fact – and how much is fiction?

Made by Angel Sharp Media, 26 July 2019

Made in partnership with The Open University

JOEY GIDDINGS *Former crime scene investigator*: Who doesn't know to wear gloves? Even criminals wear gloves.

DR JIM TURNER, *Senior Lecturer in Forensic Psychology, The Open University*: Zoom and enhance images. That's never going to happen. Please, if you make CSI-type programmes, stop doing it.

CARA HUNTER, *Crime Novelist*: I think, probably, a lot of what you think about what happens at a crime scene is determined by what you see on TV.

JOEY GIDDINGS: And oh my, the reality is so much different.

DR JIM TURNER: There's a phenomenon related to forensic science known as the CSI effect.

CAPTION: THE CSI EFFECT: WHEN EXAGGERATED FORENSIC SCIENCE IN TV CRIME DRAMA INFLUENCES HOW JURIES TREAT EVIDENCE.

DR JIM TURNER: Legal professionals, in particular, started getting concerned that that was affecting real people that were serving on juries in real cases.

CARA HUNTER: Because TV is so immediate, you're actually seeing it, it has an extremely powerful impact. Joey Giddings: Verging on the dangerous side.

DR JIM TURNER: They were concerned that if there wasn't the type of evidence in a case that you would see on the TV that the jurors would think, "Well, it's a weak case." They were also concerned that the presence of some evidence, even if it was fairly weak evidence, would be seen by jurors as being very strong evidence because it's got the word forensics in it, and forensics on TV means you've solved the case.

CAPTION: SO WHAT IS FORENSIC SCIENCE WHEN IT ISN'T ON TV..?

DR JIM TURNER: Forensic science is really any form of science that's applied to the civil, sometimes, but usually criminal justice systems. Physical forensics is physical items - blood, skin traces, hair, fibres... that sort of thing. Digital forensics is things like phone records, digital information as well, which will tell you, for example, when the recording was made.

CAPTION: BUT THAT'S IF FORENSICS IS BEING USED AT ALL...

JOEY GIDDINGS: It's not used all the time. It is still slow. There aren't always the resources that we need. And it's not always appropriate. But there are still some things that we just cannot do.

EMESE VEGH, FORENSIC ANTHROPOLOGY RESEARCHER: Facial reconstruction is most of the time fiction, you can't say, "Oh this is the person," just from the skull. This is just so much like... chunky bits. Bite mark analysis, er, that's probably fiction.

CAPTION: AND EVEN FINGERPRINTS ARE SOMETIMES UNRELIABLE.

DR JIM TURNER: You're comparing part of a print...

JOEY GIDDINGS: … which is usually quite a rubbish smudge mark ...

DR JIM TURNER: … to a whole set of fingerprints and trying to make a match.

CAPTION: THAT MEANS IT'S POSSIBLE FOR YOUR FINGERPRINT TO MATCH WITH OTHER PEOPLE.

EMESE VEGH: Eight million people just in central London. That's so many other people who can be prosecuted.

DR JIM TURNER: It's also worth bearing in mind, forensic evidence is circumstantial evidence.

JOEY GIDDINGS: Forensic science has said, "Yes, this person is present," does not necessarily mean that that person has committed the offence.

CAPTION: AND THERE HAVE BEEN FAMOUS CASES WHERE FORENSICS HAVE LED INVESTIGATORS DOWN THE TOTALLY WRONG PATH...

DR JIM TURNER: The Phantom of Heilbronn.

JOEY GIDDINGS: The Phantom of Heilbronn, it's a very interesting case.

DR JIM TURNER: I'll simplify this massively. The police were finding DNA traces from an unknown person at a huge number of different crime scenes.

JOEY GIDDINGS: So many across Europe panicked law enforcement. Dr Jim Turner: And they started to think, "Have we got a serial killer on our hands here?"

CAPTION: BUT IT TURNED OUT THERE WAS NO SERIAL KILLER... THE DNA SWABS HAD ALL BEEN ACCIDENTALLY CONTAMINATED BY A WORKER IN THE FACTORY WHERE THEY WERE MADE.

CARA HUNTER: DNA can only tell you what you ask it to tell you.

DR JIM TURNER: The data are what the data are. But what the data mean is always a matter of judgement.

PEOPLE OFTEN LOOK TO SCIENCE TO PROVIDE CERTAINTY... BUT IT'S NOT ALWAYS THAT SIMPLE.

DR JIM TURNER: I think there is possibly a tendency for people to want science to have the answers.

EMESE VEGH: Caution should be part of the craft, which is not really the case on TV shows. RIGOROUS SCIENCE IS NOT ABOUT CERTAINTY, BUT TRYING TO DISPROVE HYPOTHESES...

EMESE VEGH: It is important to establish both the certainty and the uncertainty.

SO WHERE DOES THAT LEAVE TV FORENSICS?

DR JIM TURNER: Is forensics fact or fiction? That's... This is going to sound rude... Joey Giddings: I can kind of forgive the fast-forwarding of how long it takes to actually do forensics.

CARA HUNTER: I think human beings are hardwired to find out what happened. We all love secrets. We all love mysteries, we all want to work it out.

JOEY GIDDINGS: So are you happy for my answer to be, "It's both."

DR JIM TURNER: So, where science can come in and say, “Hey, you’ve got that wrong. Let’s put it right.” That’s a tremendous advantage. And of course, if it can come in in the first place and go, “Hey, don’t get that wrong,” that’s even better.

125. Have you been getting a phrase wrong all your life?

Have you found out you’ve been getting a phrase wrong all your life? It’s OK! You’re contributing to the evolution of the English language.

Animated by Ana Stefaniak, 17 May 2019

Made in association with the Oxford English Dictionary

NARRATOR: Growth sprout. Biting my time. Duck tape. Two peas in a pond. Escape goat. You know that mortifying moment when you use a common phrase in front of everyone, only to find out you’ve been saying it wrong for years? Well, the good news is you can stop that shame spiral in its tracks because, according to the nice folks at the Oxford English Dictionary, we’ve all done it. Mishearing popular idioms, metaphors and sayings is much more common than you’d think and actually if enough people make the same mistake it can come to take root in our collective consciousness. Sometimes even replacing the original phrasing entirely. For example, if someone were wildly mistaken, would you say they had another thing coming or another think coming? Believe it or not, according to Oxford’s language monitoring databases the original phrase was another think coming, which to lots of you probably sounds all kinds of wrong. If someone strips down to their birthday suit, would you say they were butt naked or buck naked? While buck naked is the earlier form, nobody would bat an eyelid or, to misuse a common phrase, an eyelash, if you were to say ‘butt naked’. These are the sort of changes that keep lexicographers busy updating their dictionaries so that they reflect how language is really being used by people, rather than instruct on how language should be used. So tell that to the next pedant who tries to correct you. In fact, many common turns of phrase have had fascinating journeys evolving into the popular sayings we all know and love today. To curry favour, meaning to ingratiate yourself with someone, has nothing to do with buttering them up by buying them a vindaloo. Its original form was actually to curry Favel, which will make absolutely no sense to you unless you’ve brushed up on your medieval French literature. Favel, or Fauvel, was the name of a horse in an early 14th Century poem who was renowned for his cunning and duplicity. To curry Favel meant to groom him with a special comb, still called a curry comb today. Favel was commonly misheard as favour and the rest, as they say, is history. Basically the term ‘to curry favour’ has lived such a rich life it would probably have a much better Tinder bio than you. Social media in general has proved the perfect place to mercilessly take the mickey out of some of the more amusing mishearings. Linguist Geoffrey Pullum coined the term eggcorn to describe these idiosyncratic substitutions after a woman famously said “eggcorn” when she meant “acorn”. This name stuck, and has since spawned many a listicle of people’s favourite examples, from the fairly logical damp squid for damp squib - quib being now a little-known

word for a firework - to the cringeworthy all intensive purposes for all intents and purposes. While eggcorns can be great fun, nothing brings people together like a misheard line or lyric. Since the 1950s these have been known as mondegreens after American writer Sylvia Wright described mishearing a line from a poem “Laid him on the green” as “Lady Mondegreen”. Even Taylor Swift isn’t immune to a mondegreen, with listeners widely hearing, “Long list of ex-lovers” in Blank Space as, “Lonely Starbucks lovers”. Another lol-worthy linguistic muddle up is the malaphor - a blend of malapropism the mistaken use of a word in place of a similar-sounding one, and metaphor. A malaphor is a mixed up idiom. For example, “It’s not rocket surgery” or “It’ll be a walk in the cake.” So next time you’re at a party and you say “We’ll burn that bridge when we get to it,” “The cows came home to roost,” or “Every cloud has a silver spoon in its mouth,” remember, you’re not making a mistake you’re contributing to the evolution of the English language. You’re basically Shakespeare, and one of these days your mistake might just end up in the English dictionary. What’s your most embarrassing malaphor or eggcorn?

126. Hedonism: How to live a hedonistic life

What is hedonism? Is life all about having fun? Writer and broadcaster Natalie Haynes looks at what it really means.

This video was made by Somethin’ Else. 31 January 2018

NATALIE HAYNES: The A to Z of isms... hedonism. Hedonism is the philosophy of living your life to experience pleasure and avoid pain. So if you’re watching this while lying on a chaise longue and eating sweets, you’re probably a hedonist. Oh, unless you hate sugar, in which case you’re probably a masochist and that is another film. The word hedonism comes from the ancient Greek hēdonē, meaning pleasure. And some of the earliest recorded hedonists were Greek. Democritus, Aristopus and, most famously, the fourth century BCE philosopher Epicurus. Although Epicurus was less of a thrill seeker than his hedonism implies. For Epicurus, the best human condition was a state which he called Ataraxia, meaning tranquillity. Epicurus believed that small pleasures were more likely to bring us tranquillity than earth shattering pleasures. And it’s easy to see his point. If you find pleasure in a glass of wine with friends at the end of a day, that will be relatively easy to achieve. Crucially for the epicurean thinker, that means it will also be easy to avoid the pain of not being able to have something you desire, a pain which would upset your state of ataraxia. But if you are only satisfied with vintage champagne, that might not be so easily found. You might not be able to afford it. Or the bar where your friends are meeting might not serve it, or the vintage might have run out because you have drunk it all on previous hedonistic nights out. Your likelihood of experiencing pain goes up as you become more exacting in your standards of what you need to bring you pleasure. So although hedonism assumes that we seek out pleasure and avoid pain at all times, it might be worth remembering that more modest pleasures can be easier to find. And that might bring you less pain in the long term – the true hedonist’s goal. And while we might not always think of ourselves as pleasure

seekers, every time we sit on a comfy chair rather than a bed of nails, we are making a hedonistic choice. Now, if you'll excuse me, I must get back to my sweets.

127. Homelessness: Is it time for a radical re-think?

"Why don't we just give them a house?" A powerful report on homelessness from children at a primary school in Bristol.

Made by Quintessence Films, 26 October 2018

NED: Being under 1.05 meters means I'm close to the ground and notice homeless people more. I feel bad. I see adults giving homeless people money and all I think is, 'Why don't we just give them a house.'

VOICEOVER: Homelessness, scene 24, take two.

CAPTION: Portrait of a homeless person, by Poppy.

POPPY: I am homeless. I go hungry a lot. I do eat but occasionally, to save my money. I can remember my house being warm and safe. I also liked the time when I wouuld come back from school to warm a welcoming house. But it's not like that. My bed is hard and not the one I would have imagined. I'm also afraid of everyone on the streets. They're taller than me, stronger than me. And they stare. As I said, I'm homeless. And it's not something I wish to be.

AVA: We wanted to meet someone who had experienced being homeless.

ROB: Good morning guys, welcome to our site on Malago Road. I'm Rob.

P: How did you become homeless in the first place?

R: I was ill and they took my home away from me. It happens to a lot of people.

A: Since being homes, how have people treated you differently?

R: Well, some people can treat you quite badly, because they don't get to know you as a person. All they see is what they see in front of them.

A: How does that affect you?

R: You want to just hide away from people. You don't like yourself very much. And you think, 'Well, if I don't like myself, nobody else is going to be like me.'

P: Thanks to the charity Help Bristol's Homeless, a new door has opened for Rob.

R: There we are. If you'd like to go inside.

P: And he now helps other homes people to convert shipping containers into homes.

R: Great size, isn't it? And we cut these windows out. And then we put the flooring down. It's all going to look really smart and really exciting, I think, for everybody that comes along.

P: Then Rob took us to the most important container of all.

R: Come inside, this is my home now. There we go. Sit down. I try to make it my home and what it means to me. I've got my animals behind you there and I've got my TV and my DVDs there. This is the first home I've had for five years. So it's really special to me.

A: What does it mean to you to have a front door you can shut and, like, have some privacy?

R: It means everything to me. I know that when I come home at the end of the day, this is always going to be here. And I can walk in and shut my door. And it does give me a great sense of security and safety. I feel really safe here. You feel like a person again, because when you're homeless, you . . . you don't exist, but when you have a home, you feel like you exist or you're part of something. For the first time in a long time, I'm really happy. And I feel that I have a future. I can now talk to my children, and I don't feel ashamed anymore.

P: Time to ask questions of someone with the power to change things – Bristol's Mayor, Marvin Rees.

N: When you see a homeless person on the street, what do you do and how do you feel?

MARVIN REES: As a citizen, as it were, it's heart-breaking to see people on the street. And often I've wondered what their childhood was like when they were . . . one, two years old, they would have been a ball of potential. And how did it come to this? As a Mayor, I feel responsible. It just gives you that determination to give people options and make sure we're offering them the services they need and the pathways they need to . . . to begin to rebuild life. How do you perceive homelessness and understand it and what do you think we should be doing about it?

N: Well, our film is all about our opinion, how homes should come first, and that if we give someone a home, they will have more confidence to try and get a job and stuff like that.

MR: Yeah. Allthat's true. The idea home should come first, I think it's a powerful idea, one we're pursuing in the city. But we shouldn't think that is the only thing we need to do. This is about friendship. And I think sometimes just let people know that they exist and their life still matters and that they have a name and you recognise their name. That's important.

N: I realise there is no easy way to fix the situation.

P: Everybody has a name that also goes for homeless people.

A: No matter what you give them, a home should always be top priority, as if you have a home, you can have a safe place to sort your life out.

ALL THREE CHILDREN: Home is where the heart is.

128. House, techno, grime: Did they start with these women?

Daphne Oram and Delia Derbyshire's experiments paved the way for electronic music - and inspired everyone from The Beatles to Aphex Twin.

Published on 10 January 2018

This video was made by BBC Archive

DAPHNE ORAM: In 1957, I was asked to do some incidental music for a television play.

CAPTION: 60 years ago, an electronic music studio was established in Maida Vale in London. Few at the BBC understood why it was there. But their early experiments in sound changed how music was composed for TV.

DO: And I did this in Broadcasting House, by getting together, in the middle of the night, all the tape recorders that I could find in the studio, collecting them together in one studio and working until they had to be put back the next morning.

CAPTION: The Radiophonic Workshop would become the BBC's in-house music and sound effects department. It was cofounded by Daphne Oram. Oram had declined a place at the Royal College of Music to become a 'musical balancer' at the BBC. Her interest in sound that couldn't be created with traditional instruments led to hours of experimentation with the equipment.

DO: I want machines, rather like computers, to be an extension of the arm of the composer.

CAPTION: Using oscillators and tape splicing techniques, she produced sounds that had never before been heard on the BBC. Or by BBC reporters. Oram would later confide that she faced similar scepticism from BBC management of whom she said: 'They wanted my ideas but not me.' Oram left the BBC soon after and set up her own studio to pursue her vision of creating a device that would create pure electronic sound. The 'Oramics' machine enabled the composer to 'draw' lines, squiggles and dots onto film, which would then be converted into music. It's an idea that still hasn't been fully realised to this day. Meanwhile, back at the workshop, a second wave of recruits was busy.

DELIA DERBYSHIRE: We can build up any sound we can possibly imagine.

CAPTION: Delia Derbyshire was a mathematician and a musician. Before joining the BBC, she had been turned down for a job with Decca, because they 'didn't employ female studio engineers.' Derbyshire made music by synchronising tape

machines playing back audio recordings at different speeds. It was an everyday example of the ingenuity that she and the workshop employed to realise their creative ideas. Derbyshire, like Oram, was an unsung heroine of British electronic music. And both paved the way for a number of other women in the workshop. Music made in the workshop became synonymous with popular BBC programming of the 60s and 70s. [*Dr Who theme, Bleep and Booster theme, Out of the Unknown theme, Tomorrow's World theme, Newsround them.*] The workshop also provided jingles to the newly-formed local radio stations. [Themes from local stations] In 1970, things changed at the workshop with the arrival of the EMS Synthi 100 modular, an instrument that brought with it amazing sonic possibilities. And the lengths that Oram, Derbyshire and their colleagues went to, to achieve strange noises could now be replicated much faster with the new equipment. The legacy of the workshop lives on though. The Radiophonic Workshop band is still touring. And a future generation of electronic musicians was inspired. After 11 years and nearly 200 programmes, Derbyshire left the workshop to work in a Cumbrian art gallery and later a bookshop. Oram spent the rest of her life in relative obscurity making music for adverts to fund her continuing development of the Oramics machine. Rumour has it that The Beatles and the Rolling Stones visited her studio and were interested in recording with her. What might that have sounded like?

129. How 'social physics' can improve your neighbourhood

MIT's Alex 'Sandy' Pentland explains 'social physics' - the analysis of human interactions to improve communities.

Published on 18 July 2019

Made in collaboration with BBC World Service

ALEX 'SANDY' PENTLAND: 'Social physics' is actually a very old phrase. It came up as an idea about the time that alchemy was turning into chemistry and natural science was turning into physics. And it was this idea that we could use statistics to understand culture.

CAPTION: How can social physics improve society?

AP: What social physics lets us do now is use the sort of data that we have in all of our systems and government and transportation. Also in banking and in cell phone systems, to be able to count people to look at mixing between different parts of society, to look at quality of life in various ways. One of the key things that we learnt by looking at social physics is that you can look at neighbourhoods, not individual people, neighbourhoods, and figure out how rich the people are. And it has to do with their social connections with the rest of society. You can also figure out things like crime potential, because places with high crime rates look very different than places that don't. It's not about individuals. It's about the social fabric. What that does is it brings a sort of level of instant accountability to government. If you can measure the potential for crime everywhere, every day, you can ask how are the

new policies working? How is this new situation changing things? And you can have a really fact-based discussion. So the first reaction people have is, 'Well, that's interesting to be able to hold government accountable.' And the second reaction is, 'Oh, my God, what about privacy?' And what's happening is there's more and more data, which means it's easier and easier to tell how well society is doing, how well the neighbourhoods are doing. But then we also have to put in a very different framework for handling data to preserve privacy, to make things safe. And that's a major part of what my work is, trying to make sure that we're not copying data everywhere, which just increases the danger. And so we have a framework we call 'open algorithms for open society.' That means that different people agree to answer questions in aggregate. In other words, how many transactions happened in your neighbourhood? So that doesn't have anything about individuals, but it lets us assess the financial health of the neighbourhood. We could rebalance society and come up with much better policies if we acknowledged the importance of the social fabric as a first rate thing in making decisions and in preserving the power of society to embrace change, to make the correct decisions. So as we get more and more data, we get a better insight into human nature. What is human nature like? Are we more like bees or are we more like solitary predators? And I think the data is very clear. We're much more like bees, but we're not entirely like bees. We also have our logical facilities which . . . which are much more individualistic. And what we need is we need to blend the two because actually the two together are much more powerful than either alone. And that's not just something you say. We've actually been able to show, for instance, in financial decision making that you can make much better decisions if you use the social together with the logical, than if you just use just the logical alone. And, of course, much better than if you just use the social by itself.

130. How I deal with microaggressions at work

Tired of stereotyping and sweeping generalisations based on your race? Here are a few top tips for managing microagressions at work.

Made by Team SASS Productions, 29 October 2019

[*scene of people in office, singing happy birthday*]

MALE COLLEAGUE: Take it away, Amanda. (*as in, sing the song alone*)

AMANDA WRIGHT: No, I'm fine thanks.

MALE: Oh, come on, it's Sarah's birthday. Let's here you *sing* girl. (*rest of group chant, 'Sing, sing, sing'*) Come on, Beyonce.

AW: (*weakly sings the final line, 'Happy birthday to you', applause from the group*)

FEMALE COLLEAGUE: That was so beautiful. Anyway, who wants some cake?

AMANDA WRIGHT *Writer and Actor*: It's not easy being the minority in any situation, but in the workplace as the only black woman, it can be a very frustrating and stressful environment.

MALE COLLEAGUE: Okay, Yonce – let's get in formation for dis cake.

AW: I'm just in the middle or something. I'll be there in a sec.

MALE COLLEAGUE 2: Oh-kurrr!

AW: And that, my friends, is an example of a microaggression. So, what is a microaggression? Brief, commonplace daily verbal, behavioural or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory or negative prejudicial slights and insults towards any group, particularly culturally marginalised groups. That's right. I've read up on this. It felt so good to be able to label that behaviour, to give a name to the underlying stress and discomfort that comes from being confronted by microaggressions. He means well, but that's what makes these aggressions, well, micro. Intent is not the same as impact, and a throwaway comment or joke can have a huge impact on the rest of someone's day. I spoke to some friends about their experiences in the workplace. How does it make you feel? So we talked a lot about, like, these microaggressions, out and out racism in the workplace. How does that make you feel?

ESSI TURKSON: I know that I definitely feel . . . kind of 'other' very separate, to an extent that I don't talk about any kind of black experiences I have outside of work.

DEBBIE CHARLES: One of the things I don't like are those sweeping statements: 'Has anybody got an umbrella? Debbie will have one because black people don't like to get their hair wet.

WORD SUPERVISOR: And here is the kitchen, where we really get things cooking, but seriously, guys, this space is used by everyone. So just be mindful about strong smelling foods (*looks pointedly at AW*). Right, up next the photocopiers.

ET: I'm always like super polite, super kind, super cordial, everyone's like, 'Oh, Essi's super-friendly,' but . . . sometimes I do just want to, like, snap back at somebody or get annoyed and I feel like I can't.

KATHERINE SALMON: I feel like the second I display passion for doing a good job. People are like, 'whoa, whoa, whoa, whoa, whoa.'

MALE COLLEAGUE 2: That was great. Amanda, I'm not sure the figures are quite accurate, though.

AW: Actually, I double checked them with finance to make sure and they're spot on.

MC2: Woah, girlfriend, maybe dial down the sass a little.

AW (*in group of black female friends*) for a lot of my white colleagues, they're quite happy to just have all these discussions about racism, but because it doesn't affect

them emotionally. Whereas for me, it's quite difficult to hear those conversations because it's like, I've lived through a lot of that and I . . . I'm just trying to do my work and you're bringing up these really difficult issues for me.

FEMALE COLLEAGUE: Oh, Amanda, thank God. Explain to Sarah what the Black Lives Matter movement is.

AW: All jokes aside, it can be very difficult when you find yourself on the receiving end of this kind of behaviour. So what can you do about it? Well, I have a few ideas. Firstly, set out the situation.

Kate, you know, when you took us on that tour the other day . . .

Next, objectively describe the behaviour and get clarification.

. . . you asked me to explain the Black Lives Matter movement. Why did you ask me?

Next – and this is the most important bit – explain the impact. If you want the behaviour to stop, people need to know why.

John, when you use phrases like 'Whoa, girlfriend' or describe me as 'sassy', it feels like you're accusing me of being aggressive and makes me worry about sharing my opinions. I haven't seen you do this to any other members of the team.

Final step. Do differently. Work together to come up with solutions to ensure that you do things differently in future.

To be completely honest, I hate singing on my own and I don't think it's fair to put someone on the spot like that. Self-selected solos from now on? (*The team agrees*)

It's not always going to be that easy, but hopefully these tips will provide some helpful navigation through difficult situations. And if things don't improve or if you don't feel comfortable confronting a colleague, talk to your boss, HR or union rep. Racial discrimination at work is illegal. It's everyone's responsibility to think about the impact that their words might have on someone else. Now, if you don't mind, I've got a party to get back to.

131. How Peru is solving its height problem

In Peru, the Juntos programme is paying mothers to feed their children a better diet in order to help tackle the country's height problem.

Published on 31 January 2017

CAPTION: This is Linsey and her 4 year old son Denco. At birth Denco was smaller than average, but he is catching up.

TITLE: Giving poor children a chance to grow.

LINSEY: I live here in this rented house with my son and my husband. Welcome to my house!

CAPTION: Linsey and her family live in a remote village in Peru. This region is one of the poorest in the country and until recently had a big problem of child malnutrition. Millions of poor children around the world are stunted because of poor nutrition. Kids here were shorter than the average. But they found a suprising solution. They pay mums to take better care of their kids.

L: The harvest this year was pretty bad. Thanks to the Juntos programme I have been able to afford to put my kid in school.

CAPTION: The Juntos programme is a cash incentive scheme run by the government and directed to poor families in Peru. Since 2005, Peru has been trying this *conditional cash transfer* which provides aid to more than half a million families. Juntos is part of a bigger plan that has reduced malnutrition in Peru by half. Tarma, Peru. Pay Day. Today the cash incentive is being delivered to the women who have complied with the health and education requirements. They have come to local bank to receive the 200 Soles ($60) that they get every other month.

VOX POP FEMALE: Today I came to get the money for my children.

VOX POP FEMALE 2: I basically spend it on my children, their medicines and clothes.

VOX POP FEMALE 3: Vegetables, fruits. Sometimes due to bad weather we don't produce potatoes or other food in our village, so this helps us a bit.

CAPTION: Even though they can spend the money on whatever they want most women use it to buy food and clothes for their kids. Tapo, Linsey's village. This is how it works: in order to participate in the programme mothers must regularly take their kids to health checks and to school.

DR EFRAIN: I need to find out about their homes, their lifestyle, what they eat, so we can assess what's going on with the family and if they are well or not.

CAPTION: Dr Efrain has noticed a difference between younger and older kids.

DE: Since the scheme was implemented, I've noticed that the kids have an average weight and height. Before it was not like that, families were less aware of how to look after their kids.

CAPTION: Tapo's primary school.

TEACHER: It is a real benefit for them. Maybe before they couldn't afford some things, but with the scheme parents made an effort to buy school supplies.

L: I have a notebook where I write what I need the money for. At the end of the day, the money is for him.

CAPTION: Denco's height and weight are now almost average. Linsey hopes he keeps growing normally.

132. How a kingfisher helped reshape Japan's bullet train

Japan's bullet train used to BOOM when travelling through tunnels. But an engineer fixed the problem after being inspired by a kingfisher.

Published on 22 March 2019

This video was made by BBC World Service

NARRATOR: Thirty years ago, Japan's famous bullet train had a problem: when it travelled through tunnels it made a loud boom. It was disturbing to wildlife passengers and people who live nearby. So why was it happened? Air was building in front of the train as it entered a tunnel. The compressed air created a sound wave. And as this left the tunnel, boom - a sound like a gunshot came out. This air was also slowing the train down. Like wading through water. The Kingfisher bird's long, sharp, pointed, billed, is perfectly shaped for plunging into water. Long, narrow and streamlined, it steadily increases in diameter from the tip to the head. This reduces the impact when the bird hits the water. It slides in, the water flowing past the beak rather than being pushed in front of it. Exactly what the bullet train was failing to do. The train team studied the beak, which resembled two triangles with rounded edges together, forming a squashed diamond shape. And so a Kingfisher's bill helped them design the train hose. When it was tested, the kingfisher bullet train is faster, quieter and more powerful, with 30 percent less air resistance than before.

133. How a kiss on Star Trek made history

In the 1960s a black woman kissing a white man in a TV drama was groundbreaking - actress Nichelle Nichols explains the significance of it.

From Utopia series, made by Clear Story, 8 August 2017.

Original programme made for BBC Four

CAPTION: In the 1960s, the world was obsessed with space exploration. On television, writers set stories in space allowing them to imagine daring and subversive futures before an audience of millions.

[*clip from Star Trek*]

LIEUTENANT UHURA: A signal, captain. It's very weak, it's Balok. It's a distress signal to the Fearius.

NARRATOR: We might smile today at the cardboard sets and primitive special effects. But in *Star Trek*, we see a coming together of so many utopian elements.

CAPTAIN KIRK: Any reply?

NU: Negative, the signal is growing weak. Sir, I doubt if the mothership could have heard it.

N: There's a crew in which men and women are equal and they strive for peace in a galactic commons.

CK: This is the captain speaking. A first federation vessel is in distress, preparing to board it. There are lives at stake. By our standards, alien life, but lives nevertheless. Captain out.

CAPTION: Nichelle Nichols played Lieutenant Uhura in Star Trek. Her role on the USS Enterprise was to communicate in hundreds of alien languages.

NICHELLE NICHOLS *Actor*: This one, I like the most. They caught the essence of who I am in this picture, Lieutenant Uhura.

N: These are original publicity shots?

NN: Yes.

N: Star Trek's creator, Gene Roddenberry, was making a statement on the struggle for civil rights in America by writing a black officer onto the Bridge of the Enterprise.

NN: He was one of the most brilliant men on the planet. And if somebody came up and said, 'That doesn't make sense,' he'd hold conference with them. And he said, 'That comes from your limited point of view. I'm talking about the *big* picture.'

N: What were his ideals like?

NN: In a word, 'We are one'.

N: Your performances are so strong, partly because you really feel the message . . .

NN: Exactly.

N: . . . that Gene Roddenberry's sharing.

NN: Absolutely. Because we were doing something that we really believed in. And you had something to hold on to, to hold up. This is where I'm coming from. Nichelle considered quitting the show early on because she worried Uhuru didn't have enough to do, but she was convinced to continue by Dr Martin Luther King, who saw the significance of a black female role model being beamed into American living rooms. In an episode called *Plato's Stepchildren*, the series boldly went where American television had so far feared to go: with the first interracial kiss on screen.

[*Clip from show*]

LU: I'm so frightened, Captain. I'm so very frightened.

CK: That's the way they want you to feel. Makes them think that they're alive.

N: Kirk and Uhura's dialogue, ostensibly about telekinetic aliens, can be interpreted as a commentary on white supremacists.

NN: Kirk, as I recall, he's like, you know, like this, and he said, 'I told you I'd get you sooner or later.'

N: Did you realise when you shot that kiss how long it would be remembered for, this enormously important historical TV kiss?

NN: Oh yeah. Yes. Yeah. And interracial.

N: Yeah, exactly.

NN: And they said, when the kiss went on, you know, this was an interracial thing. And I simply said. Yeah, cause that's what my whole family is. They wrote my life.

[*Clip from Star Trek*]

ABRAHAM LINCOLN: Do I gather that you recognise me?

CK: I recognise what you appear to be.

N: Martin Luther King's utopian dream shines through a Star Trek episode in which the crew may bring Abraham Lincoln onto the ship. And there's a telling exchange with the Uhura.

LU: Excuse me, Captain Kirk.

CK: Yes Lieutenant.

LU: Mr Scott . . .

AL: What a charming Negress. Oh, forgive me, my dear. I know that in my time, some use that term as a description of property.

LU: But why should I object to that term, sir? See, in our century, we've learnt not to fear words.

CK: May I present our communications officer Lieutenant Uhura.

AL: The foolishness of my century had me apologising where no offence was given.

CK: We've each learnt to be delighted with what we are.

N: Dr King was a man who preached that we should not see differences between races.

NN: That's right.

N: And that we should love one another.

NN: Yes.

N: Do you feel that Dr King's message was really quite like Star Trek's message?

NN: Yes, very much. That's why he was a Trekker. (*laughs*) He was, you know, and he made no bones about it. He was. So pleased that we were getting what he meant.

134. How a mythical soldier may have started chauvinism

Chauvinism used to have a rather different meaning to sexism or misogyny. Here's the story of the word - and the man behind it.

Made by Dayglow Media & Pencil & Pepper, 15 July 2019

NARRATOR: Chauvinism. Where does the word come from? The term chauvinisme is French and dates back to the 1830s. There was a man named Nicolas Chauvin, so the story goes, who was the most loyal soldier in Napoleon's Grande Armee. It was said that he was born in Rochefort around 1780 and enlisted at the age of 18. He served with such dedication that Napoleon himself to Chauvin with a military award, the Sabre of Honour. Chauvin was badly wounded in the war, but remained a fanatical Bonapartist even after Napoleon's exile in 1815 and the restoration of the monarchy. His loud and unfashionable obsession with 'the good old days of empire' made him into an object of mockery, and his name was given to a ridiculous character in a popular play of 1831. The word crossed the channel and began to be used in English around 1870. Then, chauvinism meant belligerent patriotism. Just as it did in France, rather like the English word jingoism. By the 1930s, its meaning had evolved and referred to a fanatical devotion to any cause and hostility towards outsiders. It began to be used in journalism and plays, particularly when the unequal position of women in society was being discussed. But it was in the 1960s and 70s that the use of the word chauvinism really took off amongst feminists. The term 'male chauvinist pig' became popular, turning up in films and magazines, including Playboy. Use of the word chauvinist peaked in the 1980s. Other terms, like sexist and misogynist, have risen in use more recently. But it is President Trump's slogan America First that really harks back to the original meaning of chauvinism, one that the apocryphal Nicholas Chauvin might even recognise if he ever really existed that is.

135. How a secret language hit the mainstream

Once upon a time, being a gay man could land you in prison in the UK - leading some to adopt a secret slang as a safe way of communicating.

Published on 8 February 2018

This video was made by BBC Archive

CAPTION: The 1960s saw big changes in UK society but gay life was often still conducted in secret. Homosexual acts between men were illegal, despite a 1957 government report calling for the decriminalisation.

SIR JOHN WOLFENDEN *1957*: We do not see why this particular form of sexual behaviour, which we regard as, most of us, as morally repugnant. Why that and that only should be a criminal offence.

CAPTION: It was a dangerous time to be 'out', as gay men were often victimised. But some used a safer way to communicate with each other. [*slide showing dictionary definition of Polari*] Polari had roots in many different cultures. It was peppered with camp, irony, innuendo and sarcasm. [*Slides showing various Polari translations*] Some fabulous phrases could also be found in the Polari parlance. [*slide 'bona to vada your dolly old eek' – 'good to see your nice face.' 'Lau your luppers on the strillers bona' – 'play something nice on the piano', 'Can I have a troll around your latty?' – 'Can I have a look round your house.'* '*Bona lallies on the omi' – 'He's got nice legs.'*] Unbeknownst to many of its listeners, the BBC was also introducing Polari into the popular lexicon. 'Round the Horne' was a radio comedy show which used Polari to get away with some very lewd innuendo.

KENNETH WILLIAMS: Yes, we're from the Daily Polari, yes. He's the one you follow around and I'm the one you can't gag. How bona to vada your dolly old eek. Oh, what brings you trolling in here?

UNKNOWN: Can you help me, I've erred.

KW: Yeah, we've all 'eard, duckie, yeah. It's common knowledge isn't it, Jules. A miracle of dexterity at the cottage upright.

CAPTION: At its peak, the show was drawing in audiences of 20 million. In 1967, the law on homosexuality was reformed in England and Wales. [*Slide of Sexual Offences Act 1967*] And by the 1970s, it [*presumably meaning Polari*] had gradually fallen out of use. But some Polari words had already crossed over into the mainstream. [*slides showing words: Bevvy, Khazi, Scarper, Naff, Butch*] Polari can now be found throughout the dictionary and is probably part of your everyday language. Fantabulosa! (Wonderful)

136. How ads manipulate our emotions - and how to resist

Robert Heath from the University of Bath explains how advertisers use emotions to influence our subconscious minds.

Published on 30 July 2019

Made with the help of BBC Radio 3

ROBERT HEATH, UNIVERSITY OF BATH: Advertising is particularly good at attaching emotions to brands. A terrific example from years back is a car called the Renault

Clio. Years ago they launched with an advertising campaign featuring a couple of daft French people, Papa and Nicole. The whole idea of that ad was supposed to be that the Renault Clio is a terrifically easy car to drive. However, when you look at that ad what you're looking at is two people flirting, being terrifically sexy. And of course what that does, is result in you thinking the Renault Clio is a terrifically sexy little car, and lots of people want to be sexy. The result? The most successful car launch ever in the UK.

CAPTION: GETTING META

RH: Meta-communication are all the twiddly bits - the music, the characters, the setting, the storyline... Anything that's not actually to do with what you're telling people. The interesting thing about meta-communication is that we are programmed not to be able to unprocess it. Once it's exposed to us, we've got it. Here's a good example: the famous Apple 1984 ad was shown once on midnight in 1983, and once in the Superbowl in 1984. And yet that ad is known practically all around the world. The ad is the girl running down this aisle with all these zombie-like people, and she hurls the mallet through the screen. And of course the message in that ad is very simple - the world is being dominated in that era by IBM and Apple is going to break out of that era. That idea of Apple being the defender of the people, and the defender of freedom of course reflected into Steve Jobs, who became the epitome of the defender of the people. Which means people who buy Apple computers and in most cases, astonishingly, even though that ad would never have actually been seen by them on air, they know about this ad. And they feel Apple is a terrific company. And in that respect, once you get a reputation like that established, it's there forever. There's a company called Huawei who've recently launched an ad featuring a little creature called a Gnu being photographed. And the guy who's photographing the Gnu looks at his photograph and he imagines what's going to happen to the little Gnu. It's going to be captured, it's going to be put in a zoo, it's going to have things thrown at it... So, he decides not to take the photograph. And the message is, with Huawei you can be your own judge of morality. What absolute nonsense! I mean Huawei's a phone, it doesn't allow you to do anything. But, emotionally, very appealing.

CAPTION: HOW DO WE RESIST?

RH: How do you stop your emotions being influenced by advertising? Well, in my book, there's only two ways to do it. One is just don't watch any advertising. The other way, curiously enough, is to watch the ad very carefully, is to look at it and to say: What are you trying to do? "What are you trying to influence?" "What's really behind this ad?" If I see this little furry animal in the woods, what's it there for? Is it there to make me feel good about this brand? Yeah, of course it is. And by doing that, you can do something called counter-arguing. We're not used to counter-arguing the emotion in advertising, but if you look at the ads, if you look at the emotive content in the ads, if you listen to the music you can say, "Ah! I know what you're trying to do." So emotionally you can counter-argue that ad. Of course, it probably won't work but at least you can feel you're slightly more in control of your life than the advertisers are.

137. How bloomers became a feminist fashion statement

The story of Amelia Jenks Bloomer, the woman who helped make it acceptable for women to wear trousers.

Made by Dayglow Media & Pencil & Pepper, 4 July 2019

NARRATOR: The story of bloomers and how this humble garment became a feminist fashion statement. Women's clothing in the mid-19th century was cumbersome and heavy, sometimes weighing as much as eleven kilos. That's the same weight as a large watermelon. Imagine carrying that around all day. Outfits included crinolines, hoop skirts, bustles, bodices and tightly-laced corsets. These tight, uncomfy clothes caused all kinds of health problems, including fainting, squashed organs and deformities. In 1851, US activist Elizabeth Smith Miller started wearing loose light trousers gathered at the ankles. These were similar to Turkish trousers and were known as Turkish dresses. Her suffragist friend, Elizabeth Cady Stanton, decided to wear some when she visited Amelia Jenks Bloomer, the publisher of the first American newspaper for women in the US, The Lily. Amelia Bloomer loved the idea of this new liberating garment so much that she began to wear the trousers herself and promote them in her magazine, even publishing instructions on how to make them. The press ended up calling this new outfit the Bloomer Dress. Later, this was abbreviated to simply 'bloomers.' The idea of women wearing trousers caused outrage at the time. They were considered strictly menswear. Some women were even arrested when wearing them. Amelia Bloomer said, 'I stood amazed at the furore I had unwittingly caused, some praised and some blamed. Some commented and some ridiculed and condemned. Bloomers became a symbol for the women's rights movement, leading to the Bloomer dress, also called the Freedom Dress, and Amelia herself becoming a prominent figure in the US suffragette movement. There were many styles of bloomers, often combined with dresses, and they eventually became shorter and tighter before falling out of favour, only to reappear in the early 20th century worn by women taking part in sports, including the craze for cycling. You'd think a woman wearing trousers would be no big deal these days. But look at how much chatter and debate there was around Hillary Clinton and a famous pantsuit when she was running for US president. Amelia Jenk's bloomers two-legged legacy strides on into the 21st century.

138. How buying cocaine helps the government

When it comes to our main measure for the economy, GDP, even the illegal drugs trade is included.

Published on 8 August 2018

This video was made by BBC Radio 4

MALE NARRATOR: When buying cocaine actually helps the governments out.

FEMALE NARRATOR: One day, the National Crime Agency received information that a tugboat sailing off the coast of Scotland might be carrying drugs.

MN: They sent out a low flying plane to find it. Then a Royal Navy warship and a large border force ship to intercept it.

FN: Below deck, hidden in a tank, they found 3.2 tons of cocaine worth £512 million. It was the biggest ever seizure of Class A drugs in UK history.

MN: Good news for the government, you might think. But in terms of how we measure the economy, this is actually bad news.

FN: Sales of illegal drugs like cocaine are counted towards our GDP, or Gross Domestic Product - the main way the government measures how well the economy is doing.

MN: So that tugboat getting intercepted meant lower GDP. But governments want GDP to go up, what they call economic growth.

FN: To calculate GDP, we count everything that's made in the UK minus what we put into making it.

MN: So if a coffee shop sells £100 worth of cups of coffee but spent £10 on buying the coffee beans to make it, their contribution to GDP would be £90.

FN: And just like buying coffee, buying cocaine technically helps our economy look bigger.

MN: Critics say GDP shouldn't include things that have a negative impact on society and also point out it doesn't take into account our impact on the environment.

139. How can we use social media more safely?

Five tips on how we can use social media more safely.

Published on 26 January 2018

This video was made by BBC Future

SOPHIA SMITH GALER *Journalist, BBC Future*: Social media has the power to make us feel fantastic. For example, we know that a teenager's brain responds to getting a lot of likes on a post in the same way it would respond to seeing loved ones or winning lots of money. But we also know that social media use can be linked to anxiety and depression. So how can we use social media more safely? One: keep your phone out of your bedroom. No one feels good after a bad night's sleep. And the blue light on your phone, as well as the temptation to check notifications, can really damage your sleeping pattern. You can stay healthy and alert by always

charging your phone outside of your bedroom and buying an alarm clock. Two: adjust what you can see on your feed. Your feed is a gateway into other people's lives, and comparing your life like that has been linked to low self-esteem and body image issues. Sites like Facebook have introduced ways to give you more control over your feed. You can ask to not see certain adverts, for example, or you could use a feature like Take a Break, which lets you limit what you see on your feed from your exes. Three: set aside daily periods of self-imposed non screen time. You wouldn't expect a smoker to suddenly go cold turkey. Start by checking your phone a couple of times a day rather than a couple of times an hour. Four: tell people you're detoxing. If your friends don't know that you're taking a break from social media, they're going to keep trying to contact you on social networking sites. So let them know that you're having a detox. Make sure that they know to contact you, maybe by your mobile number beforehand or arrange meet ups. Five: fill the void. You can't get FOMO if you're replacing the sort of enjoyment that you're having from social media with something like a dinner party or heading to the cinema. And also, there are those awkward ten minute breaks that we have during the day where we automatically check our phones and you can fill those sort of gaps with reading a book, a to-do list, mindfulness or a little bit of doodling. What are your tips for having a healthy life online on social media? Let us know with the hashtag #LikeMinded.

140. How can you tell if someone is lying?

We're not actually very good at telling if someone is lying to us. Here's why you should use your ears, not your eyes, to spot a lie.

Published on 10 December 2019

WOMAN PRETENDING TO BE DR CHRIS STREET: I'm Dr Chris Street, I'm a reader in cognitive psychology at the University of Huddersfield. I've always had an interest in how people deceive others. For example, if I were lying to you right now, how would you know? Would you look at my eyes, at my body language? Would you look me up online?

CHRIS STREET *The Real One*: I'm Chris Street. I'm a reader in psychology at the University of Huddersfield. If we want to detect deception, we need to stop looking for those visual behaviours that we think relate to deception, like eye contact or fidgeting. Instead, we need to start thinking about the pieces of information we can find in the world that match or mismatch with the statement being offered.

PAUL SEAGER *Author, Would I lie to you?:* If you want to be able to accurately detect somebody . . . somebody's lies or truths, what you need to do is you need to listen to what they're saying and the way that they say it, not how they're acting. Think about when you are talking to somebody, you meet them for the first time. Now, any good poker player will tell you that it is very easy to control your face. Therefore, it's . . . facial cues really aren't good cues of whether or not somebody is lying or telling the truth. What you should be doing is you should be listening to what people say. The verbal cues and the way in which they say it, the vocal cues.

CAPTION: Research shows that people telling the truth tend to use a wider vocabulary than liars.

PS: A lie teller, because they're trying to think very hard, they will use probably the same word over and over again over a very short period of time.

CAPTION: Another verbal cue to look out for is the amount of detail in an answer. A truth teller is more likely to provide a lot of information, whereas a liar is more likely to give a vague account. How good are we at spotting lies?

PS: There's some general research that suggests we're about 54 percent accurate when it comes to detecting lies and truths. And as I always say, if that's the case, you might as well flip a coin. You'll be just as accurate.

CS: There are some people who think they are lie detection wizards, that they can read subtle clues that we give off. The research suggests that this isn't the case, that there aren't lie detection experts. Liars just don't give themselves away in any obvious fashion. There aren't good clues to deception. We don't avoid eye contact. We don't scratch our face when we're lying or telling the truth. These just aren't reliable indicators. And so expert or not. We have no good information on which to make that decision.

PS: We have this idea that if somebody is lying to us, they can't keep our eye contact. Now, of course, liars know this, and what they will do is they will keep your eye contact ever so slightly longer than normal, just enough to make you feel uncomfortable. Number two, misconception tends to be when people lie, they . . . they move about a lot. They kind of get very nervous. In fact, the opposite is true. When we lie, we have to think really hard. So imagine you've got a limited amount of energy. You will channel all of that energy into telling a lie. And as a consequence, you will become ever so slightly stiller than you normally are. A third misconception is the idea that if we look up to the right or we look up to the left, it determines the type of lie or truth that we're telling. A recent piece of research has, in fact, debunked the idea that looking up that way or looking up that way is a good way to detect deception. It's not.

CAPTION: What's the best way to spot if we're being lied to?

PS: My top tip for accurately determining whether somebody is lying or telling the truth is using something that we call the honest baseline. Now, the honest baseline is understanding how people act and speak when they're not stressed and when they're being truthful. So when we ask them a question, now, if we find a pretty even match between the way they normally act and the way that they're acting now, we will be fairly happy that they're probably telling us the truth. If we find a mismatch, it might indicate that there is something going on here that we need to follow up with in a bit more detail.

CS: So, ALIED theory or the adaptive lie detector theory argues that when we tried to decide if someone's lying or telling the truth, what we're doing is actually quite functional and informed with our past experience and with the information available in the world. For instance, if I claim to have gone to France last week and I

have a selfie of me in France, that's a great piece of information that I was actually there. But often we don't have that sort of information. So what do we do? ALIED theory claims that we, rather than simply guess, rely on our past experience of the world to make an informed judgement. People tend to be truth biased, they tend to believe people are telling the truth. And that may be something we want to get rid of. The best thing to do is just try to keep an open mind and engage with the situation in a sceptical manner.

WOMAN PRETENDING TO BE DR CHRIS STREET: I'm Dr Chris Street . . . nope! Do I have to say it exactly how you've done it, or can I just kind of say it how it comes out? I'm Dr Chris Street, I'm a reader in cognitive psychology at the University of Huddersfield. I'm like moving my hands here, but you can't see. (*laughs*)

141. How could aliens find us?

We've been sending signals into the universe for decades but what if we stopped - could aliens still find us?

Published on 14 March 2019

Made in association with Nesta

CLARA SOUSA-SILVA *Quantum Astrochemist*: Imagine an alien civilisation is looking up at the night sky, scanning the heavens, trying to detect signs of life. We as a species have been sending out radio signals for about 100 years and we have followed that up with television signals. Those signals have gone into space and travelled the speed of light and by now have reached hundreds of stars and hundreds of planets around them. So if there was an alien civilisation in that distance and they were pointing their detectors roughly in our direction, they would have heard the first BBC broadcasts. And by now they would have seen many, many years of Coronation Street and have a rough idea of how our humanity works. Some very prominent scientists think it's quite silly that we're sharing quite so much about ourselves to the galaxy. Aliens may not be very kind. And maybe we shouldn't be giving away our position and our entertainment choices. Maybe we should all just collectively stop advertising ourselves to the galaxy. So let's say we do go quiet. Could aliens still find us? So imagine that same alien civilisation looking at the night sky. But now there are no radio signals, no television signals. Just 300 billion beautiful white lights quietly shining away. But it is the white light, seemingly so fundamental and pure that holds the key to unlocking the secrets of all those planets around all those stars. White light is only pure until you crack it open with a prism or a drop of water, white light shows what really is within it: the rainbow. And the rainbow isn't just made up of seven colours. With a powerful enough prism, you can get all of the reds and all of the violets, all of the infinite colours between them beyond them in the infra-red and the ultraviolet. So if that alien civilisation pointed their very expensive prism at our sun, they'll be able to see our sun's rainbow. And if they were very patient and looked carefully, they would notice that every year a few new shadows would appear and then disappear and they would appear and

disappear. And those shadows are caused by the molecules in our atmosphere. And they'll be able to look at the shadows in the rainbow and know that we have an extremely lively planet, that we have vast inhabited oceans that we're oxygen-reliant lifeforms, that we have at least one technological species, and also that we pollute a lot. The Earth has a living atmosphere. We call that a biosphere. And that biosphere is a planet-sized unintentional message to any aliens out there that care to listen. It tells the story of who lives on this planet and what we do with it. So we could stop sending messages into space. But even if we do go quiet, they can still tell we're here. It's the galactic equivalent of thinking (*puts hands over eyes*) 'I'm invisible now.' And can we do the same to them? Could we detect aliens, even if they have no radio or television? Well, we can already look at some alien atmospheres, although we can't quite look at a full terrestrial atmosphere yet. But we're very close. At M.I.T. I developed the tools to try to decipher these potential alien biospheres. Those tools are how I will be listening in to alien messages. And of course, I would love to receive the alien version of The Simpsons coming down from the heavens. Until then, I'll be looking for the signs of life that the aliens didn't even mean to create.

142. How curry conquered Britain

Food historian Annie Gray reveals the story of that very British dish – curry.

Made by Somethin' Else, 20 July 2018

ANNIE GRAY: Going for an Indian' or 'having a curry' is almost as stereotypically British as roast dinners or fish and chips. There are around 12,000 curry houses in Britain. The word came from the Tamil 'kari', which meant a spiced sauce. But gradually the term was adapted and used as a generic term for any stew-like food from the Indian subcontinent rather ignoring such subtleties as, regional differences and completely different flavours, textures, cooking methods and ingredients. The first definite mention of 'curry' in English is in 1598. But the first recipe for curry published in Britain wasn't until 1747, by which time Brits, long-time traders with India, were slowly taking over the country. Thousands of British men and women spent time in India. They had Indian cooks and servants, and while some tried to maintain Western eating habits, most quickly embraced the tastes of their new home. When they returned to Britain, they brought their new love of Indian food back with them. Those who had lived in India knew very well that not all Indian dishes were curry, and when the first, albeit short-lived Indian restaurant in Britain opened in London in 1810, its menu contained...khichdi, chutney, pulao - dishes later known by the anglicised names, kedgeree, chutney and pilaf. Manuscript books, kept by those in the know, also differentiated between dishes. But they were very much a minority, and in Britain, curry became a catch-all term for almost anything with Indian spices. Slowly certain dishes, especially chicken curry which used an elderly fowl, which had stopped laying eggs entered the mainstream repertoire. Ready-made curry powders were widely sold. British palates were not used to Indian spices, and the early recipes are more like gently flavoured meaty stews, laden with turmeric, ginger and galangale, with cayenne for a hit. By the 19th Century, curry

was in every cookbook, mainly as a leftover dish. The Anglo-Indian cuisine of this era was a hybrid, using pickled cucumbers to replace mango, apple instead of tamarind, and ready-made spice blends galore. It was great, but had very little in common with its Eastern roots. Queen Victoria took a different approach, regularly eating 'Indian dishes' prepared by the cook to her Indian attendants, who'd joined the royal staff at her Golden Jubilee in 1887. There were a few eating houses run by Indians, mainly for other Indians, in port towns, but it took until the 1920s for high profile restaurants to open, catering for a British market. By 1946 there were around 20 Indian restaurants in London. Boomtime for curry came after the Second World War, when the partition of India brought migrants from Punjab and Sylhet to Britain. In the 1970s, civil war in Bangladesh saw many Bangladeshis flee to Britain, and even today many apparently generic Indian restaurants are really Bangladeshi. Curry, in its 1970s form, was cheap and cheerful, adapted for British tastes. In 2001 the then foreign secretary, Robin Cook declared boldly that... 'Britain's national dish is chicken tikka masala' a classic example of an Indian dish - buttered chicken meeting British tastes, in this case with the addition of cream and, allegedly, cream of tomato soup. In the last decade or so, the British relationship to Indian food has changed. Most of us have grown out of wanting something so hot it'll hospitalise us. Leading Indian chefs are teaching us that there is so much more to Indian food than the comforting predictability of the average restaurant menu. Maybe after 250 years, we've simply come full circle.

143. How do doctors and nurses cope when a patient dies?

Doctors and nurses describe their personal experiences of dealing with the death of their patients.

Published on 5 April 2019

Made in association with Being Human festival

I'm an anaesthetist and I've worked in acute specialities for my whole career. And so I've come across death quite a lot.

CAPTION: In 2016, almost half of all deaths in England occurred in hospital. *Public Health England.*

ANUSHKA AUBEELACK *Anaethetist*: For the sake of confidentiality, I'm going to call him Bob. Bob was on intensive care. He was on the ventilator, so he had a breathing tube in. He had failed previous attempts to get off the ventilator. We had been working really hard with physio and we'd finally got him to a point where he was going to get off that breathing machine. So the morning came and he was excited. He wanted to have a cup of tea. I wanted to hear what his voice sounded like. So we got everything ready. And we pulled the tube out and he was happy and he was croaky and he did really well for the first few hours. And then his breathing worsened to the point where he just couldn't do it anymore. So we had to make the decision to put the tube back in. I went to see him the next morning and

understandably for the first time he wasn't smiling. He took my hand firmly and mouthed, 'I want to stop now.' He was taking back control and we were going to stop. The decision was made. So we got everything ready. Medications in case he became distressed. Medications and equipment in case he changed his mind. And then for the last time, we pulled the tube out and he was so happy again. He looked soul soothed happy. He was surrounded by his loved ones. They were holding hands and smiling at him. And he was able to converse with them freely. And he just got more and more sleepy, smiling the entire time. And so he slipped into a coma and he died. I'm so grateful to have been part of that experience. I'm so grateful to Bob for letting me be there, because what he taught me was that a death can be beautiful, it doesn't have to be something distressing. And it makes me a better doctor, because now that's what I try to do for my patients. I try to make sure where it's suitable, that I can give them a beautiful death too.

SIMON FLEMING *Trainee orthopaedic surgeon*: When I think about dealing with things at work or loss or death, what I've realised is I, I compartmentalise. I deal with what's in front of me. And then if something happens, I kind of say, 'It is what it is' and I tend to put it in a box of something I've dealt with or something I can't. Something I . . . I can fix or something I can't. And actually, my desire to fix things has always been really prominent, it's why I became a doctor, because I wanted to fix sick people. That's why I became an orthopaedic surgeon. And what I've realised is once I can't fix you anymore, once you're . . . you're dead and I can't help you any more, I put you in this box in my head marked, 'I can't fix you anymore.' And I move on. So . . . so when people ask me about my first memories of death, I say, 'I don't know. They're all in a box marked, 'I can't fix you anymore.'

PROFESSOR DAME ELIZABETH ANIONWU *Emeritus Professor of Nursing*: I was a very naive 18 year old and had come to London to study nursing. On my first ward, I was with a friend, equally new to nursing, and we were asked to lay out a deceased gentleman. This was our first sight of somebody who had died. Both I and my friend were extremely short. We went either side of the bed. When it came to having to turn the gentleman over, we wondered how we were going to do it. I rolled him over to my friend. And as this happened a sigh emanated from the body. We were absolutely petrified. Unfortunately, our reaction was hysterical laughing. And we knew this was totally inappropriate. Suddenly the screen wished aside and there stood the ward sister glaring at us. She frogmarched us into her office. We both sat down and burst into tears. But to our amazement, the ward sister told us about how difficult it was coping with the experience of the death of a patient. I could not believe how gentle she was with us. And it remained with me every time I had the experience of a dying patient. I'm so grateful to that ward sister.

144. How do you cope with knowing how you might die?

Writer Jean Hannah Edelstein on what it's like to live with an inherited syndrome that increases your chances of cancer.

Published on 24 September 2018

JEAN HANNAH EDELSTEIN: You have to laugh about death because it's ridiculous. People saying to me about my dad, 'Well, he's in a better place now.' And I just thought, 'Well, actually, like, he was pretty happy here. I don't think it's necessarily better.'

CAPTION: Jean's father died of lung cancer at the age of 69. He also had Lynch syndrome, a genetic condition that increases the risk of certain cancers.

JHE: So Lynch syndrome is actually not uncommon. I think approximately one in 400 people are carriers of it. However, it is very uncommon to be diagnosed with it before you're diagnosed with cancer. I believe it's sort of around 70 to 80 percent increase in risk of colon cancer and uterine cancer.

CAPTION: Jean found out she'd inherited Lynch syndrome six months after her father died.

JHE: At first, you know, I'll admit that I felt quite suicidal for a brief time because I just thought, 'What's the point?' Grieving the openness about the future that you feel when you're young and you're healthy. I remember walking around New York sort of going to these doctor's appointments and feeling sometimes really just kind of like prodded like a piece of meat. And then leaving the appointments and walking down the street and sort of under my breath chanting to myself, 'My life has value', because I had felt like it had been very devalued by the diagnosis. Then I thought to myself, 'I'm just going believe that I'm going to live.' And so instead of seeing myself as walking under this cloud of doom that I was just going continue to live my life, believe that like my future is, you know, as I'd like it to be, as long as it is. And that's it. So I'm on team life. When I met my husband, we knew probably within two months that we . . . we thought we'd get married. My diagnose of the Lynch syndrome had made me feel like I wasn't going to equivocate or, you know, I didn't want to waste time anymore. And so I felt a lot more confident about that decision than I'd felt about a lot of decisions. And obviously, I would have much preferred not to get the Lynch diagnosis. But I think it has shifted my perspective in terms of feeling like, 'Okay . . . it's okay to stick with things or feel sure of myself,' because my life isn't an endless piece of string like it felt prior to the diagnosis. So I think a key change in my perspective through this experience has been realising that in some cases death shouldn't be sort of fought at all costs. Many people end up with cancer and dying of cancer. It is, of course, an invasive disease. We've come to sort of see it as something which it's easier to talk about it as if it can be vanquished than to acknowledge that it's not that unusual, that it basically touches everyone. Seeing it as always this terrifying invader that must be conquered through aggression and metaphors of violence is not necessarily helpful in the way that talking about it as part of life could be more helpful.

145. How do you define a decade?

Do we misremember what life was really like when we look back on the past? And how will we remember the 2010s?

Published on 20 December 2019

This video was made by BBC Archive

CAPTION: Whether it was the roaring 20s, the swinging 60s or nostalgia for the 90s, we love defining the past in decades.

TOM JONES *Singer, 2017*: Someone apparently said that if you remember the 60s, you weren't really there.

CAPTION: But do we misremember what life was really like? And fall into lazy stereotypes and truisms? (*Footage of Donald Trump shaking hands with Barack Obama*) And what will we say about the 2010s? (*Footage of Sunderland Brexit vote result*)

TITLE: How do you define a decade?

CAPTION: Using decades as a demarcation of time only really began in the 1920s. Before then, reigns of monarchs were used to mark the passage of time.

W.H. AUDEN *Poet, 1973:* Constructs from Edwardian times . . .

MARGARET MEAD *Anthropologist, 1964*: Back in the Victorian era . . .

CAPTION: But after the horror of World War One, each decade began to be defined by a few key images and events. From the roaring 20s with its new dress code and fashionable dance crazes to the 'threadbare 30s' with the Great Depression and the rise of authoritarianism.

RAMSAY MACDONALD *Prime Minister, 1934*: The year that has gone has been one of great difficulty.

CAPTION: The 1940s are remembered primarily for World War Two – rationing, death and destruction, but also the 'Blitz Spirit'. Despite the fact that the war almost bankrupted Britain, it wasn't long before the lives of many were transformed by the formation of the NHS and the expansion of the welfare state.

VIEWFINDER *1954*: Every patient is getting things he couldn't possibly have afforded before. And he can get anything he likes now.

CAPTION: The 1960 has become synonymous with 'the London set' and 'hippies' of San Francisco.

BBC NEWS *1967:* Why are you wearing those feathers?

UNNAMED MAN: Why are you wearing that suit?

CAPTION: Hindsight has helped shape the image of a youthful counter-culture that reached every corner of the globe. But the reality was that the swinging 60s were happening somewhere else for most people. Lives for most were more ordinary, not revolutionary.

SHELAGH DELANEY *1960*: We always used to pass the market on our way to the pictures on a Saturday afternoon and we'd buy two ounces of jelly babies or a toffee apple or whatever it was to take and suck at the pictures.

CAPTION: Likewise, while the 1970s might be best remembered for bell-bottoms, disco and glamour, the reality was often quite different.

NATIONWIDE *1974*: Two weeks ago, the row escalated into a strike by the council's 34 dust cart drivers. These dust carts haven't been out of the garage since, but the dustmen are adamant that the rubbish piling high on the streets will stay there until they are paid in full.

CAPTION: Financial crises, strikes and blackouts were part of everyday life in the UK. Time and again, imagery used for signposting becomes shorthand for an entire era, like big hair and 'loadsamoney' was for the 1980s.

HARRY ENFIELD *Wogan, 1988*: Loadsamoney. In the modern society, you are what you buy.

CAPTION: The disconnect between a decade's iconic figures and reality only becomes more heighted with hindsight. (*footage of the Spice Girls*) And repeat viewings reinforce era-defining images. When two cultural worlds collide, it can further cement the symbolism.

BBC NEWS 1997: Noel Gallagher of Oasis was among the showbiz stars invited to Downing Street tonight.

CAPTION: Any era is always more complex than supposed era-defining images. The 200s saw a 'war on terror', a global financial meltdown, America's first black president and so much more. And yet it's tempting to remember it simply as the era when the smartphone took over our lives. So how ill the 2010s be remembered (*footage of Trump, the burning of Notre Dame*) The age of mass migration? Of environmental emergency?

DAVID ATTENBOROUGH: I think the world is waking up to what we've done for the planet.

CAPTION: The age of disinformation? It may take another decade of distance to define with ease. With the pace of change accelerating, perhaps more than every you might not remember what it was really like, unless you were actually there.

146. How do you find direction in life?

When an astronaut needed help knowing where he was, scientists and scholars were on hand to advise him on a very human problem.

Published on 1 November 2017

This video was made by BBC Radio 4

NARRATOR: Not long ago, an astronaut found himself in need of help. He had food for his journey. He had water. He had heat and light. He didn't know where he was in space, of course, but that's hardly enough. To know really where you are, you need to know where you stand right now in relation to what matters most. A baby doesn't care what town it's in - it just needs know where its mother is. An adult needs to be able to locate and pursue their heart's desire. The astronaut was a Muslim and he needed to find the holy city of Mecca from orbit so that he could face in its direction when he prayed. If he'd been living in Istanbul 400 years ago, he might well have used a flat circular box made of ivory and gold. It's 11 centimetres in diameter. You open the lid. You see it's essentially a compass and a sundial rolled into one. Painted in the middle of the dial is a black cube, ringed with a red fence. This is the great granite cover that stands at the centre of Islam's sacred mosque in Mecca. And the compass points you towards it. And while the compass tells you where, the sundial tells you when. It shows you the time for daily prayers. But for the Muslim astronaut, all busy in space, a compass like this doesn't work. So 150 Islamic scientists and scholars came together to advise him that if he ended up at prayer time on the wrong side of the planet where he couldn't see Mecca, he should pray instead to make his projection far above the Earth. From the time when this compass was made to the age of the space shuttle and the supercomputer, our basic challenge as human beings hasn't changed. How to find direction in life amidst all the passing noise and how to align our bodies and minds with that direction as fully as we can.

147. How fireflies inspired energy-efficient lights

Around 5% of greenhouse gas emissions are from electricity. How can we make it more efficient? The answer could lie in a firefly's abdomen.

Published on 3 May 2019

This video was made by BBC World Service

NARRATOR: Electricity for lighting accounts for around five percent of greenhouse gas emissions. So how can we make it more efficient? It seems fireflies could hold the answer. These light-emitting insects capture the interest of Belgian physicist Jean-Pol Vigneron while he was on a field trip in Central America. Intrigued by their display, he brought some back to his lab. The firefly has a special light organ under its abdomen. From here, the light shines through a layer of the insect's exoskeleton called the cuticle. Vigneron and his team found that this cuticle is made up of scale-like structures, some of which stick out at different angles. And it's these jagged misfit scales that let out the most light. The tips of the scales protrude and have a tilted slope like a factory roof. The team wondered if they could emulate this to make LED lights shine brighter. They created a jagged overlay on top of a standard LED by depositing a layer of light sensitive material on top of the LEDs and then used a laser to create the triangular factory roof profile. And guess what? It increased light extraction by more than 50 percent. All that extra light, just by adding a few new shapes.

148. How half a degree could change the world forever.

In this viewpoint, activist and author Mark Lynas explores how our planet could be impacted by 1.5C of global warming - and by 2C.

Animated by Aslan Livingstone-Ra, 16 September 2019

Made in collaboration with BBC Briefing.

A VISION BY MARK LYNAS, ACTIVIST AND AUTHOR: If the temperature outside changes by half a degree, you won't even feel it. Such a small change is almost imperceptible to human senses. But half a degree of global temperature change could be little short of the end of the world we recognise. Or at least the world humanity has inhabited for the last few millennia. In 2015, governments agreed a deal in Paris to stop global warming rising past 2 degrees and to try to keep it below 1.5 degrees. So what's in half a degree? At 1.5 degrees, there would still be some precious rainforests, polar bears and coral reefs on planet Earth, albeit seriously diminished. Sea levels would rise, but relatively slowly, so major cities like London, Jakarta and Mumbai have a better chance of continuing life as normal. Drought and flooding would be at a level where food production can keep up with population growth. Millions of extra climate refugees could stay at home and others could avoid starvation. Getting to this world isn't impossible, it means cutting greenhouse gas emissions by half within a decade And then being carbon neutral by mid-century. So we'd be closing coal power stations instead of building new ones and every car would be electric. We'd be restoring forests instead of cutting them down, and even aircraft would be carbon neutral. It's not impossible, but it is unlikely. The fossil fuels lobby is powerful. Some heads of state even deny the reality of climate change. Transforming the global energy system will take time, and trillions of dollars of investment. But it's also an opportunity. So if we're too slow and instead of 1.5, we get the extra half degree - what then? According to the latest IPCC report, in a world two degrees warmer, you'd go diving in the tropical seas but the flourishing coral reefs are gone. Instead, you would likely see a graveyard of rubble and algae. Back on land, heatwaves are becoming increasingly deadly, with approximately 65 million extra people exposed to exceptional heatwaves each year. Imagine yourself at the North Pole, but all you see is open water. The polar bears are gone along with the sea ice that used to be their home. You take a boat to the edge of Greenland, but that frozen wasteland is thawing. Huge meltwater rivers thunder into the ocean, where they add to the rising sea levels that are beginning to flood the world's coastlines. Take a trip to Miami, Mumbai or Melbourne and you'll probably need a boat. Faced with the rising seas, 10 million people could be forced to pack up and move. Global harvests would also suffer, and in developing countries especially the number of people experiencing water scarcity doubles. This would be a world of increasing poverty and human misery. All for what? For half a degree. And for a few more years of coal smoke stacks and oil industry profits. The choice is ours, but not for long. Every bit of warming, every year, every choice matters. But like a desert mirage, the 1.5 degree world is receding into the distance with every year we delay.

If carbon emissions keep growing for decades to come, then even two degrees looks hopeful. That's a world - a darker world - of flood, fire and conflict that we can barely even imagine. We can still choose that half a degree window between unsettling dream and full-blown nightmare. But it's closing fast.

149. How limits can boost your creativity

Constraints can feel very... limiting. But experts believe they can actually be helpful for creativity - up to a point.

Made by Angel Sharp Media, 4 September 2020

DR VOLKER PATENT *Chartered Psychologist, The Open Universityi:* Newton came up with the theory of calculus in quarantine. "But out of limitations comes creativity."

PROF CATRINEL TROMP, *cognitive psychologist, specialist in limitations*: Dr Seuss wrote using no more than 50 different words. "Not in a house. Not with a mouse…"

Shakespeare wrote King Lear in quarantine. "Necessity is the mother of invention." COMFORT IS THE ENEMY OF PROGRESS. I love that.

CAPTION: We tend to think of creativity and freedom as going together. but can limits actually boost creativity?

CT: It's a nice myth to think of creativity as an endless open field of possibilities. But the reality is, when people face such a wonderful open field they might become paralysed. Constraints are the anchors of creativity.

BARONESS SUSAN GREENFIELD, *neuroscientist, specialist in creativity*: The growth of the human brain is by growing branches. By growing branches you can make more connections and it's by having connections that you can say "aha". Now there's an interesting issue over whether constraints are actually beneficial or problematic for creativity. And I think the answer to both is yes, both cases happen to be the case.

CAPTION: Research suggests there is a u-shaped creativity curve. with no constraints we feel bored and understimulated. but with too many, we feel stressed and overwhelmed. the sweet spot is in the middle. what do we mean by creativity?

CT: There's still disagreement, at least in psychology, about what creativity really is.

VP: It's people making things that haven't existed before.

SG: Everyday elements but putting them together in a way not that is just novel but that actually has a meaning for people, that actually changes the way they see the world.

VP: Most people tend to think that creativity is something that happens to people who have a particular talent. This is a misconception.

SG: BARONESS SUSAN GREENFIELD: There is no such thing as a single gene for creativity.

CAPTION: So can you teach creativity?

VP: We can distinguish between two different types of constraints the intentional constraints and the unintentional constraints.

QUILLA CONSTANCE, artist: These external forces of limitation and they can be political, socio-economic. Being a biracial, black, female artist coming from a working-class background could be seen as a limitation within the art world, which historically has been a very patriarchal, white, middle-class space.

BARONESS SUSAN GREENFIELD: Resilience comes when you have problems and challenges and that in turn gives you ideas.

QC: An artist who I very much admire, called Faith Ringgold, wanted to make these huge, huge canvases, in the same way that a lot of men were making huge modernist works of art. But she didn't actually have the space at home to do that. And so she started to make these huge quilts - roll it up and take it to various galleries. She's a great example of how an artist can flourish under limitation.

CAPTION: You can also choose to set yourself limits. here are some practical tools for creativity.

CT: Avoid familiarity and embrace novelty. Be it using different materials or a different method or a different process. If you always write poetry, try prose.

VP: Schedule a particular time when you are going to do nothing else but engage in the creative task. And that's one of the ways in which people with very little time can write books - by telling everybody in your family that that's what you're going to be doing, you're actually protecting a space for yourself for something creative to happen.

QC: Start drawing and give yourself five minutes. Do another drawing. Give yourself 10 seconds to do the drawing. When we are given less time to do something, usually the most important information comes across.

VP: If you're playing in a band and you're getting really, really stuck, swap instruments. That can create new ideas in your songs as well.

CT: Or paint a red dot or a blue line in the upper left corner of your blank canvas and then challenge yourself to incorporate those constraints into the composition. And even though you may not end up using those particular constraints in the final product, they can be beneficial for creativity as long as you play around with them willingly. What might happen is that the mere experience with playing around with different limitations stretches your imagination and improves creativity.

150. How medieval monks are revealing our universe's secrets

How analysis of texts from the early medieval period can help us understand comets - and our universe.

Published on 2 August 2019

Made in association with the British Academy

MARILINA CESARIO *Medievalist*: People have got so many, you know, misconceptions about the Middle Ages, starting with the idea of being called the Dark Ages, where we don't even know where that comes from. And also this idea that in terms of astronomy, the medieval people thought that the earth was flat. They never did. We have no evidence of that.

CAPTION: Astronomer Pedro Lacerda and medievalist Marilina Cesario are working on a project that challenges our assumptions about early medieval science.

PEDRO LACERDA *Astronomer*: Comets are these strange objects which are very unpredictable in the way they behave. They can explode. They can split. All . . . all sorts of strange things can happen. So we need observations. We need a record of that, of what was seen when. And usually I only work with observations that are done in the last maybe 50 years. And this project uses observations of people that lived a thousand years ago. It's almost like I can pick up the phone and call one of these monks a thousand years ago and ask him, 'Hey, my computer tells me there should have been a comet in the sky on this date. Did you see it?'

CAPTION: Anglo Saxon England was a highly religious society – but there is clear evidence people were also very interested in science.

MC: The Anglo-Saxons really tried to understand the cosmos. If Anglo-Saxons saw a comet as an omen or a portent, which also was the case, fortelling and predicting, I don't know, the death of an important king, a war, famine. This doesn't mean that they were not interested in understanding how that comet worked.

CAPTION: There were no universities in the early medieval period in England, so much of the learning and teaching was done in monasteries.

MC: Venerable Bede is . . . was *one* of the most influential and important intellectual scholars from the Middle Ages. He was a monk from Northumbria and he lived to between the end of the 7th, beginning of the 8th centuries.

CAPTION: in 729AD he wrote a book about the stars and the planets – but it took about 13 centuries for the text to be translated from Latin into English.

MC: And I guess some of the myths that we have about the Middle Ages as well comes from this difficulty of accessing the language, which can be either Latin or old English or any other medieval vernacular language. And accessing these material isn't . . . isn't easy.

CAPTION: Marilina and Pedro are particularly fascinated by sightings of comets in the medieval period that can be linked to currently known comets.

PL: So we tried to work with comets that have periods of orbits around the sun that mean that they came back maybe 10 times since . . . since the Middle Ages. But there are comets that come from much larger distances from a region called the Oort Cloud. And those come back once every million years. So if one of those comets was seen by the monks, I will not be able to reproduce that observation. But it will be important to know that . . . that things were seen in the sky because it gives us an idea of how many of these comets were visiting the earth as a function of time.

MC: Mediaeval monks have described comets in quite detail and sometimes they gave month the date, sometimes even the hour on which the comet was . . . was seen and occurred. So we get lots of information that is useful.

CAPTION: In 729AD the Venerable Bede saw two comets in the sky, and recorded the sighting in his book Ecclesiastical History. '…two comets appeared around the sun,' he wrote, 'striking terror into all who saw them.'

PL: What I was very surprised about is how much there is still to look for in these in these texts, I thought, well, this stuff has been written a thousand years ago, we . . . we probably know everything there is to know about it, but it's not true. Since I started working on this project, I've been learning that we're still discovering manuscripts, they're still being translated. So there is still material that is not known. So there's a lot of things to discover.

151. How music can free your mind

Writer Adam Gopnik explains why rock music played such a key role in bringing about change in autocratic states.

Published on 4 April 2018

ADAM GOPNIK: I'm Adam Gopnik and I'm a writer at The New Yorker magazine. You know, one of the really striking things, if you look at what happened in Eastern Europe in the 1970s and 1980s, is that every Eastern European descendent will tell you that Frank Zappa was far more important than Thomas Jefferson. That it was through the people in the Czech Republic and Slovia and throughout Eastern Europe who loved Frank Zappa and loved all of the unorthodox things that Zappa or the Beatles or rock music generally represented, that those people were free before the country was free. Their minds were free from their own passionate affiliation to dissent, to dissenting music, to the sheer fun that was possible in life, that self-liberation preceded national liberation. And that, I think, is a general rule and a general principle that we can turn to with hope. One of the comforting truths about the experience of totalitarian governments in the 20th century is that, in fact, they did a very poor job of persuading their people. Everyone in the old Soviet Union knew just how impoverished a state it actually was, no matter what they were told. Everyone in China under Mao knew just how tyrannical

a figure Mao and the Red Guard and the Cultural Revolution were, despite what they were being told. Everyone in South America, under the military juntas and regimes that ruled there so brutally were fully aware of what was going on. In truth, when we look at the historical record, people are very badly or very poorly fooled by big government. They're easily terrified by big government. And our job always has to be to reduce the terror and make them feel proud of articulating the truth. George Orwell, in his introduction to the original edition of Animal Farm, wrote once that, 'If liberty means anything at all, it means the freedom to tell people what they don't want to hear.' The difference in the autocratic mind and the liberal mind, it seems to me, is that liberals, in the broad sense – that includes everyone who believes in liberal democracy – have trained their minds with great difficulty to accept teeth grinding, the necessity of hearing uncomfortable and even obnoxious truths.

152. How one country dramatically cut teenage drinking

In 20 years, Iceland has cut its teenage drinking, smoking and drug problem from 42% to 5%. Here's how.

Published on 13 November 2017

This video was made by BBC World Hacks

CAPTION: Teenagers in Iceland in the 80s and 90s were out of control.

DAGUR EGGERTSSON *Mayor of Reykjavik*

It was a huge problem 20 years ago. A huge problem.

CAPTION: In 1998, 42% of 15-16 year olds said they'd got drunk. Now it's only 5%

DE: In 20 years, Reykjavik went from being worse in Europe when it came to youth drinking, smoking and use of drugs to being the best. And that's kind of incredible, isn't it?

CAPTION: Here's how they did it. 5 Ways Iceland Created a Teenage Revolution. 1. Bring in a curfew. Kids under 16 must be indoors by 10pm. In some places parents patrol the streets.

MARTA SIGURJONSDOTTIR: We are getting ready for a walk around the neighbourhood to see if we have some kids wandering about that should be home already because it's after 10 o'clock. They are under age to be out after 10. And we told them. If you find kids usually it's like that, they will just go home. But these were not drinking. They were just out. That's the difference from the old days.

CAPTION: 2. Parents sign a pledge. Groups of parents agree rules for their children's behaviour. Such as… don't let kids drink alcohol and have more family time.

ALEKSANDRA *Parent*: We try to be at home around 4:00, 5:00, the latest, and we try to be together until they go to bed at around 8:00. We are more, I think, today, protective of childhood than we were.

HEIDAR *Parent*: And I think also in the old days there was more liberty. And people were not as aware of the risks and dangerous as people tend to be today.

A: But we are a boring country.

CAPTION: 3. Keep kids occupied. Every year they get a $500 voucher for after-school activities.

VOX POP YOUTH: We train about five or six times a week just after school, usually around 5:30.

VOX POP YOUTH 2: We like to go swimming. We try to do that every day.

VOX POP YOUTH 3: I often go with my brother to play volleyball.

VPY: The girls also play football. And also horse riding is very popular.

CAPTION: 4. Base it all on science. Teenagers fill in a survey every year.

INGA DORA SIGFUSDOTTIR *Youth in Iceland*: We measure different aspects of their lives. You know, their relations to peers and family, substance use and how they feel.

CAPTION: The Youth in Iceland survey has been key to lowering teen substance use.

IDS: We create a report for each community. And within two months of the survey, each school has the findings so that they can figure, 'What do we need to do in order to create the best circumstances for the kids in our community?'

5. Get the politicians onside. Reykjavik spends over $100m a year on youth activities.

DE: First, you have to decide to build what you do on evidence and research. Secondly, you have to fund it and get people out there talking to the parents, talking to the school, talking to the youth clubs and everyone that has to be involved.

IDS: Let's keep in mind kids, they don't want to use drugs. They want to be able to lead happy, healthy lives.

CAPTION: The Youth in Iceland model now runs in 35 cities across Europe. At home it's credited with bringing musical and sporting success.

DE: We probably beat England and the European final speech because of this programme. (*laughs*)

153. How one girl's illness changed what a nation eats

This is the story of a girl called Eveline, and how her case of MRSA stopped Dutch farmers from overusing antibiotics to keep pigs healthy.

Published on 4 September 2017

This video was made by BBC World Hacks

CAPTION: All over the world, farmers are feeding antibiotics to animals. On a huge scale. It's done to keep animals healthy and reduce meat prices. But overuse of antibiotics is causing a massive public health crisis.

DAVID CAMERON *Conservative Party:* We are in danger of going back to the dark ages of medicine.

CAPTION: This is the story of how one country dramatically reversed the trend. All because of the plight of one little girl.

ERIC VAN DEN HEUVAL: When she wasn't operated . . . yes, she can die. It was very dangerous in that moment.

CAPTION: The Dutch Antibiotic Revolution. Eric Van Den Heuval is a Dutch pig farmer. His daughter Eveline was born with a heart defect. And in 2003 she needed an urgent operation.

EVDH: We go to hospital. And the doctor he said, 'There she is, MRSA positive, she cannot come.' When she's sick and she can't be operated on, that is very much impact to a father.

CAPTION: MRSA is a superbug, resistant to antibiotics. Across the world by 2050, 10 million people could die every year from drug resistant infections. And Eric had another shock. The MRSA had come from the pigs on his farm.

EVDH: This moment changed the life for me, for the total family. And then we make a total change in hygiene in the farm.

CAPTION: And Eveline's story inspired change across the Netherlands.

PROFESSOR JAAP WAGENAAR *Antibiotics Expert:* When we reduce the use of antimicrobials in animals, we see a reduction of resistance in animals and that will definitely have an effect also on the public health of the health of people.

GERBERT OOSTERLAKEN: The story with Eric and his daughter that couldn't be operated well, that's killing you. And that's when you feel you have to do something.

CAPTION: Gerbert led a grassroots movement. He got a group of farmers and vets together. They worked out the best ways to keep the pigs healthy without antibiotics. He now separates pigs into four hygienic zones to stop bacteria spreading.

GO: You can tell by the way that they look, the way they shine, looking out of her eyes. My pigs stay more healthy so I have less mortality. I have a better production and it's easier.

CAPTION: His techniques are now promoted by the Dutch government. And antibiotic use in animals is down by 65%

GO: Yes, of course, we are proud of what we've achieved as a little group. What we managed to do is get a movement in the Dutch way of animal farming.

JW: Eric and Gerbert are extremely important because they started as one of the first ones with examples, 'How can you reduce the antimicrobial use on your farm?'

CAPTION: And for Eric there's a happy ending.

EVDH: This is Evelene, she's now 16 years old at this moment. You see she is very healthy at this moment.

INTERVIEWER: And MRSA-free?

EVDH: And MRSA-free, yes, that's right.

154. How one office hack makes two thirds of us happier

Entrepreneur Rohan Silva explores how we can feel happier and more productive at work.

Published on 16 July 2019

ROHAN SILVA *Entrepreneur and co-founder of Second Home*: We spend over a third of our lives in the office. And the demands of modern working life can often leave us feeling stressed and depleted. So what can we do to create a happy workspace? The natural world is full of curves, colour and complexity. And bringing all this into the workplace can have a big impact on our behaviour and our mood. There are plenty of psychological studies that reveal changes in the body and brain when people view certain colours. These changes can influence our productivity, our creativity, stress levels and much more.

CAPTION: Companies such as Colgate, Virgin and KFC use red to entice customers, because it creates a feeling or urgency. Blue is said to evoke trust. Pink has been found to have calming effects on people and has been used in prison and healthcare settings.

RS: A recent report by Human Spaces showed that two thirds of people say they feel happier when they walk into bright office environments with yellow and blue and green colours. And think about what energy you want to inject into your workspace and use colour to change the atmosphere. Biophilia. It's a fancy word with a simple meaning. It's all about the connection we feel with the natural world and helps explain why being around plants and trees and natural light can help us

feel a bit better in our daily lives. Plants can fill and frame a space, making them feel wide and generous. Studies show that bringing in a plant to work can boost your productivity by 15 percent.

LAURA LEED *Chief Executive, Maggie's Centres*: Maggie's Centres were set up to give people who were going through cancer, whether or not it was a person with cancer themselves or their family and friends, a place to come to, to get help with the challenges that cancer brings to their lives. Psychological, emotional and practical help. From the beginning at Maggie's, we always knew the importance of views, connections to nature, to be able to allow the distraction that being able to see life and energy outside a building was really very important. And we also knew that from the experience that people have within hospital, where often they're under strip lights there's no distraction. I mean, biophilia isn't a term that I think people who come into the centre would . . . would we talk about and sort of perhaps know, but what we do know is when they come in the door, they're immediately . . . there's a feeling that they . . . that they talk about, that this is a place that they feel that they want to be in, that they feel safe. And . . . and that feeling is . . . is in response to the fact that they can see different views into different sort of windows of nature, trees moving, there's grapes growing. There's . . . there's a pot outside where people can go and pick mint to make their own tea. So it's . . . it offers an element of control within the environment, a sense of . . . of peacefulness. And every time they come in, they talk about it being slightly different. So there's a sort of distraction and a . . . and an energy that comes from something that's not static.

RS: Researchers looked at two large commercial offices in the UK and the Netherlands. They found that plants significantly increased workplace satisfaction and self-reported levels of focus. So why not get down to the garden centre and that some greenery to your desk? Encouraging innovation isn't easy. And when it comes to buildings, it means doing things very differently. Here at the Francis Crick Institute in London, they've mixed up teams from different disciplines right throughout the building. The idea is that by bringing together people with different specialities, amazing things can happen.

CAPTION: Research groups from different disciplines are located right next to each other, with no walls in between.

RS: And this is not the only building that's recognised the value of mixing up employees and organisations with different disciplines. Building 20 in M.I.T. was known as the magical incubator. Built near Boston in 1942, it housed a whole load of different laboratories, research groups and academic fields. And out of that collision came some of the most groundbreaking developments in science and technology. Like the Atomic Clock, Video Games and Noam Chomsky's Universal Grammar. So if you're struggling to get through the working day, it might be worth redesigning your office with well-being in mind, because a happy and harmonious workspace isn't something that just happens by accident.

155. How one woman transformed Alzheimer's research

The story of Carol Jennings and how her family's uncommon form of Alzheimer's led scientists to a breakthrough in understanding the disease.

Music by Conor Walsh. Video published on 2 February 2018

STUART JENNINGS *Carol's Husband:* The quest for medical treatments and cures isn't just about slides and microscopes and . . . and what can you do about the symptoms? It's about families. It's about individuals. It's about stories of people who . . . who suddenly begin to lose themselves in a way that's frightening for them and terribly painful for those who love them.

CAPTION: There are estimated to be 46.8 million people living with dementia globally. Alzheimer's disease is the most common cause. Symptoms include memory loss and difficulties with thinking, problem-solving or language, which may become more severe over time. Unless a treatment is discovered to prevent, cure or significantly slow its progression, this number is expected to more than double by 2050.

PROFESSOR JOHN HARDY *UCL:* You know, I think that a lot of people would say the Alzheimer's disease research to some extent started with Carol's family.

CAPTION: In the 1980s, Carol Jennings was a schoolteacher living in Nottingham, UK when her father Walter was diagnosed with Alzheimer's. Within a short pace of time, four of her aunts and uncles were also diagnosed with the disease.

SJ: All of them were between the ages of 54 and 58, and it was at that stage that our life changed really because Carol, in her own initiative, thought 'There's something strange going on here. Once as an unfortunate incident, twice is a bit worrying. But four times there's something going on here. '

JH: We put an advert in 1985, 1986, in the Alzheimer's Society newsletter, because we were interested in studying the genetics of Alzheimer's disease. And the very first letter I got was from Carol Jennings. And she had drawn her family tree, described her family tree. Dr Martin Russell wrote back to her and we started to organise clinical exams of the patients and we collected blood samples. At that time, I think most people did not realise Alzheimer's disease could be genetic, that was the conventional wisdom.

SJ: The breakthrough itself came in 1991. We got a letter in January telling us that they had identified a gene that they believed causes Alzheimer's disease.

JH: When we found the mutations in amyloid in Carol's family, we knew that that is where the disease started. I think even though I realised it was a big deal at the time, it was an even bigger deal than I realised then. It's been a dominant feature of all work on Alzheimer's disease. Knowing where the disease starts gives you a clue as to how you might stop the disease later.

CAPTION: Carol spent the next 25 years helping other families with Alzheimer's disease and participating in research at University College London.

SJ: In three years, we used to joke, she did all the B's. I think she meant to Bern in Switzerland. She went to Barcelona. She went to Brussels. She went to Buenos Aries in Argentina to speak at conferences of medical research and at drug conferences to really put the personal face or the personal story to the illness, they were trying to find treatments or cures for.

JH: Carol's family has what's called autosomal dominance Alzheimer's disease, so that means that if your father or mother has the disease, you have a 50 percent chance of inheriting the gene. And if you get the gene, you're going to get the disease at a very similar age, probably, to your parent. And then if that happens, your children are also then at 50 percent risk. If you escape the disease because you have not got the gene, your children also will escape the disease.

CAPTION: It's estimated that at least 600 families worldwide have this rare familial form of Alzheimer's disease. Carol decided against finding out whether or not she carried the gene. In a 1991 radio interview she spoke about her fear of carrying it.

CAROL JENNINGS *BBC Radio 1991:* It is frightening when you you think, you know, I mean, even now, if I think about it, I suppose . . . things worry you, for example, it worries me that I may not know my grandchildren. [*interacts with grandchildren*]

CAPTION: 21 years later, Carol was diagnosed with the disease at the age of 58.

SJ: She was a shell of the woman she once was. But she's still my wife. And so she's still part of who I am. So we keep her at home and we do the best we can. Alzheimer's is particularly difficult, because I'm neither married or widowed. And I think many carers find himself in that position. You know, you don't have a partner in terms of, you know, a companion, but you do have a partner in terms of care and looking after them. So Carol said, 'If . . . if I'm going to go down with it, we're going to fight it all the way and we'll fight it together.' And that was a commitment we both made and we have done. I mean, since 2012, it really has been a case of raging and screaming, you know, fighting the illness. And the illness isn't going to have the last word. Somebody somewhere has got to plant trees today for future generations to get the benefit of them. And it's the same with medical research.

JH: Everybody in the lab. Their lives changed because it was such an important finding. And, you know, we all moved on to do other things. But we've all, you know, really built on the finding that we made in Carol's family. There have been some really remarkable developments very recently in both Alzheimer's disease and in related diseases, which lead me to think that now we are getting close indeed to treatments which deal with these underlying disease mechanisms.

CAPTION: In 2015 Professor John Hardy was awarded the $3 million Breakthrough Prize in Life Sciences for his research into the genetic causes of Alzheimer's disease.

SJ: We may not be able to change the cards that life deals us, but we can change the game, we play with the cards we've got. We can't change the fact that Carol had the gene, but we can change the fact and we can play the game where we challenge so that future generations don't have to carry the same pain.

156. How one woman's 'immortal' cells changed the world

Our ability to treat and prevent many diseases would not be the same without cells taken from a young woman called Henrietta Lacks.

Published on 29 October 2020

Made by BBC Reel

REBECCA SKLOOT *Author 'The Immortal Life of Henrietta Lacks':* Henrietta Lacks was a poor black tobacco farmer who grew up in southern Virginia, and in 1951 she was diagnosed with cervical cancer. At that point she had moved up to Baltimore and she went to Johns Hopkins for treatment because it was the only place anywhere near her that treated black patients. So this was the era of segregation. And the hospitals had the, quote unquote, 'coloured wards', which was the only place that black patients or poor patients could be seen. And without telling her before treating her tumour, her doctor just cut a little piece and put it in a dish. And he sent that down the hall to George Guy, who was the head of tissue culture research at Hopkins. And George Guy had been trying to grow human cells outside of the body for decades and it had never worked. And for reasons that remain a mystery, Henrietta's cells just never died. So they started doubling their numbers every 24 hours. They went from, like, one dish to two to four, eight, 16, and then just sort of pretty quickly took over the lab. And George Guy started calling his colleagues and saying, 'I think I have the first immortal human cell line,' which is what they're called, which means they'll just grow and divide forever. And in response, his colleagues all said, 'Great, can we have some?' Because there have been this enormous effort to grow cells outside the body for a hundred years because we just really didn't know a lot about cells at that point. And in response to all of his colleagues asking for them, George Guy sent them to anyone who wanted to use them for research. And they spread around the world this way really fast. And they were one of the most important things that happened to medicine. They were used to help create the polio vaccine. They went up in the first space missions to see what would happen to human cells in zero gravity. They were used to create our most important cancer medications like Vincristine and Tamoxifen. Her cells were the first ever cloned, her genes, some of the first ever mapped. They were used to help develop in vitro fertilisation. Basically, almost all of the vaccines we take today can be traced back to research with their cells. There isn't a person out there who hasn't benefited from research on her cells.

NARRATOR: The surprising tenacity of her cancer cells, which made them so important to medical research, also ultimately took her life. Henrietta Lacks died in October 1951 at the age of 31. As her cells were taken without her knowledge, in an

era before the concept of informed consent existed, Henrietta died never knowing how important her cells would be. Even her family didn't learn of the true extent of her legacy until science writer Rebecca Skloot began working with Henrietta's daughter Deborah to uncover the truth almost five decades later.

ALFRED LACKS CARTER *Grandson of Henrietta Lacks:* Rebecca, she worked hand in hand with my mother, Deborah Lacks. They went on journeys to Clover, Virginia, to talk to family members. They did a lot of work together. They hit the road a lot, they put a lot of miles on their cars. My mom was two years old when Henrietta passed away, so she never knew her mother.

RS: As Deborah learned about these things, she was there so much . . . there's so much mixed emotion in it because on the one hand, 'Look at all this incredible stuff my mother did for science and for the world', that . . . that gave her a level of peace with her mother's death, that she had wanted her entire life. At the same time, there was a lot of anger about the fact that everyone has benefited from these cells except her family.

JERI LACKS-WHYE: This information was out there for so many years and the family was not even aware of Henrietta's. . . . that they had taken cells from Henrietta Lacks and these cells have been used all over the world by scientists, labs, researchers and millions, millions of dollars have been made. And you still have the family struggling with basic health care. You know, we got to recognise the past, but kind of like move forward and, and move in a positive direction to . . . to make sure that this doesn't happen again to our family or anybody else's family. And the Lacks family is making sure that we continue to move forward to honour and preserve her, her . . . her legacy and speak about her life.

RS: So, they collaborated with the NIH and formed what's known as the HeLa Genome Committee, where a few members of the Lacks family and a group of scientists sit on this committee. And anyone who wants to do research with Henrietta's genome have to put in an application that is reviewed by members of the family and the NIH scientists. It was unprecedented. There's never been a moment, a moment like that where researcher . . . quote unquote, 'research subjects' were a part of the decision-making mechanism of science.

JLW: The family now has a seat at the table. So instead of us being the last to know, we will be the first to know.

RS The Immortal life of Henrietta Lacks is about so many different things, it's about science and communication and how important it is for scientists to be able to communicate with the public. It's a story about journalism. What happens when people tell your story? It's . . . and it's very much a story about race and science and recent medicine. So much of the history of science and medicine was built on the backs of black people without their knowledge. And so it's so important that Henrietta's story be told as part of that history. And that's . . . that's the concept behind Black Lives Matter, is saying how this black life mattered. And it matters that we talk about it and it matters that we tell black stories and look at what can happen when we try to squash those stories, it has generations of impact.

N: This year marks the 100th anniversary of Henrietta's birth and her incredible immortal cells continue to be more important than ever with the outbreak of the Covid-19 pandemic. The HeLa cells were at the forefront of the early research, which helped to shape our understanding of the virus.

RS: Within the first few days of when we really realised, wow, this is a pandemic, this is terrifying. I started getting texts from members of the Lacks family saying, 'Tell me Henrietta's got this, like, Henrietta . . . HeLa cells are working on this, right? And, you know, and I do think that it says a lot about the Lacks family, that their first response to the pandemic from so many of them was, 'Okay, how is HeLa dealing with this? You know, we know she's got this.' (*laughs*)

JLW: It just makes me proud because she's not only helping a specific group of people, but she's helping everybody worldwide. She's saving lives. She's given life. So, I mean, with these, I say, magical cells.

ALC: When I do speaking engagements, people come up to me and they say, 'I have children because of your grandmother.' That's a heart-warming feeling when, you know, your grandmother has died, but yet she's still providing life, so for her to know that she is saving and impacting so many lives, she will be . . . she'll be smiling from ear to ear, that beautiful smile, that beautiful Henrietta smile, it'd light up a room.

157. How racial stereotypes shape how we see the world

How do racial stereotypes affect the way we see ourselves, and others? A viewpoint by Cherry Stewart-Czerkas.

Published on 13 October 2020

CHERRY STEWART-CZERKAS: All over the world, in every country and every culture, storytelling has significant power. The stories that we are told by books, our screens and advertising build identities, common behaviours and forge our dreams. American researchers found that stories repeated in our minds actually interact with our biology. Our brains need shortcuts to simplify and organise information and data constantly coming at us. They impact how we view the world and make meaning from what we perceive. The narrative we tell and are told has the potential to create and continue prejudiced beliefs by those few who dominate the storytelling sphere.S o what dangerous ways has this materialised itself in the media and advertising? The British Film Institute found that between 2006 and 2016 of around 45,000 roles credited to actors in the UK, 0.5% were paid by black British actors. Not seeing yourself represented often leads to self-imposed limitations on what you can achieve and allows for negative perceptions to go unchallenged. And when black people are represented, there are many reoccurring racialised tropes, most of which can be traced back to colonialism, historic anti-blackness and the legacy of slavery. 64 percent of UK crime films have featured roles for black actors and 15 percent of all films featuring black actors between 2006 and 2016 focussed on crime narratives.

You've probably come across a few other stereotypes within a range of films, TV shows and adverts. The Mammy, the Jezebel, the angry, sassy black woman, the stoic, the gangster, the angry black man and the black best friend. These notions of who black people are were created by white storytellers throughout history, carefully crafted to dehumanise and erase the multiplicity of black people's existence. Take, for example, one of the most historical tropes, the mammy. Academy Award winning Hattie McDaniel famously played this role in Gone with the Wind in 1939. Her performance as a loyal, subservient caregiver had been created by white American storytellers to distance themselves from the harsh reality of race relations in a post-slavery society. In light of the 2020 Black Lives Matter protests, a streaming platform, Biomax removed the film due to the racist depictions, later republishing it with disclaimers about the historical context and warnings about racial stereotypes in the film. In current pop culture, we are often shown racist caricatures, the angry black women we see on reality TV, and the hyper-violent black man in gritty documentaries. These depictions are in part informed by colorism, a phrase coined by the author and activist Alice Walker, which means the prejudice treatment of those within the black community who have darker skin. In on screen storytelling is an easy way to tick the boxes of so-called diversity without having to critically engage with anti-black bias. Often this is done by the use of mixed race or light skinned characters. Usually a character's proximities whiteness, whether that be through them having fairer skin, a white parent, partner or friend often increases their social standing, presumed likeability and success, further constructing and upholding racist perceptions. As of 2018, the average American spends over 11 hours a day watching, listening, reading and interacting with media. Therefore, mass media has the power to challenge and change perceptions. The next time you see an ad, watch a film or TV show, ask yourself whose voice is telling the story and who is it trying to represent. And for the storytellers amongst you, strive to give the same platform and voice for people to tell their own stories and shape their own identities, so that in the future we can show endless possibilities of who black people can be and what we can dream.

158. How safe is it to 'hack' the ageing process?

Trying to slow down the ageing process through 'biohacking' is a growing trend. But is it safe? Are there more natural ways to stay young?

Made by BBC Reel

NARRATOR: The idea of slowing down the ageing process and living healthier, more productive lives is hugely appealing. It's led to a growing trend for people looking to take control of their own biology, optimising their bodies and minds through 'biohacking'. But how safe and ethical is this pursuit of longevity? And are there more natural ways of boosting your biology? Dave Asprey is an American entrepreneur and the self-described 'father of biohacking'.

DAVE ASPREY: I fully expect, and this is not a made up number, to live to at least 180 years old, unless something like a tree falling on me takes me out. A lot of people

ask: ‘Can we really hack the ageing process?’ And we are now on the cusp, with literally about 50 different innovations to control the biology of ageing coming online all at the same time. And I have one hundred percent certainty that, within a few years, our new innovations that come in will happen faster than our ageing.

NARRATOR: It’s certainly true that the scientific understanding of ageing has progressed rapidly in recent decades. Why is that?

PROF LINDA PARTRIDGE: I think one of the really big surprises that’s come along about ageing is how malleable it is, especially in animals. And I think what’s come as a huge surprise is that sometimes the same thing will extend the healthy lifespan of a fly, but also of a mouse. And what that’s telling us, of course, is that some of the underlying mechanisms of ageing are in common between these animals. So I think that’s why ageing’s opened up really to research in recent years, it’s the discovery that we can use these short-lived things where we can get the answers more quickly, to understand what’s going on in the creatures that we really care about, particularly ourselves.

DR DAVID SINCLAIR: As the science of ageing and longevity becomes more advanced, we’re learning how to not just slow down gradually the effects of ageing, but truly reverse many aspects of ageing. We believe the cells in our bodies have youthful information when we’re born and, over time, they lose that information. We’ve discovered that there’s information in the cell to reset the system, in the way that you could reboot a computer with fresh software. For example, we’ve recently reprogrammed the eye of an old mouse to be young again, and those old mice get their vision back. And that’s just the beginning, I believe, of being able to turn the clock back literally to make younger tissues in the body.

NARRATOR: There are several companies within the growing longevity industry who are working on developing regenerative therapies to combat the diseases of ageing. One such company is Elevian, who are investigating how a protein found in young blood might have surprising regenerative capabilities.

MARK ALLEN: Our co-founders were part of a team that really made some important discoveries, that young blood can rejuvenate aged animals and vice versa, aged blood can accelerate ageing in young animals. They identified this little-known factor called GDF11 that decreases with age. And what we and other labs have now found is that a very similar dose range of GDF11 can be used to treat and prevent dozens of age-related diseases.

NARRATOR: This research, which originally began on mice, is still in its early preclinical stage, and any drug development process that arises from it has to be thorough, which can take years. Elevian estimate they are at least a year and a half away from even beginning human clinical trials. For those impatient to slow down their ageing process – and not keen to take part in experimental trials, there are steps that people can take in their daily lives.

LINDA PARTRIDGE: In many ways our fate in old age is in our own hands already. I mean, it's really clear that you should take as much exercise as is healthy and also eat a healthy diet and not eat too much.

NARRATOR: Dr David Sinclair believes certain stresses on the body can actually be good for longevity.

DR DAVID SINCLAIR: If you do the things that trick the body into thinking, times could be tough - short bouts of skipping meals or hunger, fasting; also losing your breath - so running on a treadmill, doing a lot of heavy weightlifting - we also think that these are another way to promote the body's defences. And the combination of all of those things actually is known to extend lifespan by keeping people healthy for longer.

NARRATOR: Some biohackers are determined to go further, and are willing to trial experimental therapies on their own bodies

DAVE ASPREY: I decided that I wanted to try every extreme intervention I could, the stuff the billionaires are doing so that I could write about it and so that I could benefit from it. I've had my bone marrow taken out, spun down to get stem cells and reintroduce the stem cells throughout my body. There's 150 supplements a day that are part of my regimen, but no one really needs to do that. I am a guinea pig to see which ones work and I'm constantly experimenting.

DR DAVID SINCLAIR: There are different degrees of how far people want to go to slow down their ageing process. The most advanced I've ever seen, if you want to call it advanced, was there are a few people that have tried reprogramming their body with gene therapy and giving themselves hormones that are delivered by DNA. To me, that's a risk. I definitely wouldn't go there because these effects are irreversible. And if there was, you know, a cancer-causing issue, then then really you're not going to live longer, right?

NARRATOR: There's scepticism among many in the mainstream scientific community around the role that biohackers can play in better understanding our biology. Do the risks of this self-experimentation outweigh the potential rewards? Or is there a middle ground that could help to push the boundaries of optimising our health?

MARK ALLEN: The idea of allowing more use of experimental therapy, under informed consent, in a way that all data must be shared, so that we as a community can learn from it, I think that is a really exciting idea.

DAVE ASPREY: Biohacking has become a global movement and we are out there asking the hard questions and doing the things that a lot of scientists would like to do, but they're not allowed to do, because we still have autonomy over our own bodies. And when we talk about our results, when we share them online, scientists see them and go: 'Interesting.' And then that provides fuel for studies.

LINDA PARTRIDGE: The problem becomes when people start doing things which are not evidence-based. For which the information really just isn't out there. Then I think, obviously, as with anything else, it can get dangerous. If you don't have the

information on which to base a decision to do something but you go ahead and do it, that's risky by definition.

DAVID SINCLAIR: I think somewhere in between there is a happy intermediate. I'm a scientist, so I like to see what happens to my body when I do X, Y or Z. But of course, I'm very careful. I measure what happens and make sure that I'm hopefully not doing myself any harm.

159. How should we define civilisation?

Harvard's Maya Jasanoff explains how European colonialists moved from 'smugness' to 'humility' as they started to redefine civilisation.

Published on 20 March 2018

This video was made by BBC Ideas

MAYA JASANOFF *Coolidge Professor of History, Harvard:* One of the things that we should bear in mind when we think about civilisation as a concept is that when Europeans were using that concept in the 19th century and into the 20th century, they were themselves, of course, drawing on an idea of civilisation that they had formed in relation to the classical era. And they had an understanding of civilisation as something that stood in contrast with barbarism. Barbarism might take many forms. It might be non-Christian. It might be non-white. It might be involved in different kinds of practices, vis a vis things people ate or the treatment of women or the different kinds of clothes that they wore. It could take many, many forms. But it was always in opposition to civilisation. And on the one hand, that gave Europeans, I think, a real sense of smugness for a long time, a real sense of self-satisfaction and a real sense that history was moving forward, that the arrival of Europeans in different parts of the world, the bringing of certain kinds of technologies, of certain kinds of education, of certain kinds of humanitarian values, was a step in the right direction, was bringing the world toward progress. Moving towards civilisation was progress. We were suppressing barbarism. But there was another twist to this, which I think is really interesting, which is that when Europeans were using this idea of civilisation in the 19th century and into the 20th century, drawing on a classical precedent, they were also aware of what had happened to the Romans and what had happened to the Greeks. And they were aware that those empires fell. And in contrast to this idea of a march towards civilisation and progress and history, moving in one direction forward, they also had an idea of history as a cycle, of history as a cycle of a rise on a fall of every empire, having the possibility of falling as well as rising. And when they encountered other civilisations, particularly ancient civilisations, they brought with them this idea, or they brought home from it the idea, that maybe their civilisation could fall as well. And I think that this dimension of civilisation could be seen to add a little humility, maybe, to the concept and could be seen to add a humility that maybe could allow for a type of tolerance and a type of appreciation of what other civilisations could bring, that they could see that Incas and Aztecs were remarkable goldsmiths, that the bronze casting of Benin was far and away superior to anything

that Europeans were capable of producing, that the silk weaving skills and of course, the porcelain making skills of the Chinese were vastly superior and more desirable to anything that Europeans could do. And once you open up the possibility for civilisation to be something that can rise and something that can fall, as opposed to simply something that's counterposed to barbarism, you open up the possibility that there can be other civilisations, of every empire having the possibility of falling as well as rising.

160. How stories shape our minds

Stories are just stories, right? Not really. They are also incredibly powerful - and can both reduce prejudice, and help persuade.

Made by Angel Sharp Media, 19 July 2019, Made in partnership with the Open University

DR ZOE WALKINGTON, *Psychologist, The Open University*: There's a Native American proverb that says, "The one who tells the story rules the world." Stories have the potential to be incredibly powerful. They're able to change how we relate to each other, to change prejudice, so the potential for stories to persuade is staggering.

CAPTION: Why stories are more powerful than you think

ZW: I read this really, really good research paper about these two books which basically suggested, that if you get people to read a couple of chapters of Harry Potter, they'll rate themselves higher than other people in their ability to potentially move something, just using the power of their mind. The people who read about the vampires, they'll actually believe that their teeth are slightly longer than other people in the population, just as a result of having read a chapter or two of this book.

CAPTION: Psychologists call this assimilation - where the reader takes on the qualities of a fictional group.

ZW: In terms of psychology, there's a few things that stories actually do to us.

CAPTION: 1. TRANSPORTATION: WHEN THE READER LOSES THEMSELVES IN THE STORY WORLD.

ZW: We get this sense that we're fully immersed in the world that we're reading about.

CAPTION: 2. IDENTIFICATION: WHERE A READER TAKES ON THE PERSPECTIVE AND IDENTITY OF A STORY CHARACTER.

ZW: We start to almost feel as if the things that are happening to them, are happening to us.

CAPTION: Research suggests that transportation and identification may be related to the ability to empathise with others.

ANTHONY HOROWITZ, *Author and screenwriter*: Reading is not a relaxation, you are building worlds, you are populating those worlds with cities and those cities you are populating with people. So although television, film, theatre all have their place in the storytelling world, to me that moment of contact with a book, when you read a story and unlock its secrets... nothing quite comes close.

CAPTION: But what is actually happening in our brains? neuroscientists at the University of Cambridge are looking at specific parts of the brain when we read.

DR OLAF HAUK, COGNITIVE NEUROSCIENTIST, UNIVERSITY OF CAMBRIDGE: Our research has been on the meaning of individual words, if you read the word "jump" for example, you activate those areas that you also activate when you do actually perform the action of jumping, so it would be about here somewhere. The interesting question in this case of course is, I mean if you read about somebody else jumping, why should you activate brain areas related to jumping? One theory is to do with mirror neurons. These are neurons that are triggered inside our brains when we watch the actions of others. Some scientists think mirror neurons help create empathy... ...and that might also be what's happening when we read. The proponents of the theory would say that immersing yourself into a story is based on the mirror neuron system.

CAPTION: We might feel sadness when we read about someone who is sad, or smile when we read about people who are happy.

OH: I am convinced that mirror neurons are part of this process, but it can't be the whole story.

ZW: It's been found that, when we connect with people who aren't real but are fictional characters, it forms a sort of social surrogate for us - it's almost like they're a real person when they're not. And psychologists sometimes call it… forming a parasocial relationship. And what's interesting about that is it kind of makes us feel less lonely and it can also buffer self-esteem and improve our mood. We know that having a lot of friendships with other people when you're in a couple is a really positive thing for the outcomes of that relationship. But what's really interesting is they don't have to be real people. If you're trying to change people's opinions about controversial topics such as same sex marriage or immigration for example, stories have actually been found to be a lot more effective in producing political change.

CAPTION: Research led by psychologist Loris Vezzali in Italy showed that children who read Harry Potter reduced their prejudice towards immigrants. Attitudes towards stigmatised groups could be improved by reading Harry Potter, but only if the person identified with Harry.

GEERTHI AHILAN, TEACHER: Children love stories, they always have a story to tell whether it's about the weekend or what happened in the playground. And it's such an important part of understanding the world around them, and understanding themselves.

CAPTION: So stories can increase empathy, reduce prejudice and loneliness, and be very persuasive... that means...

DR ZOE WALKINGTON: You should definitely turn this off right now and go and pick up a book.

161. How the & sign got its name

Everything you might want to know about the & sign - aka the ampersand.

Made by Dayglow Media & Pencil & Pepper, 23 January 2018

CAPTION: The & symbol has been around nearly 2,000 years. It fuses the letters e and t the Latin word for 'and' into a single character, speeding up the act of writing. Handy for graffiti artists! No one knows who invented it, but one was scrawled on a wall in Pompeii before Mount Vesuvius erupted in AD 79. Amerpsands are either Roman or italic, but within these two groups there's an almost endless variety of forms. Roman cursive script developed from the time of Augustus Caesar to the Middle Ages. Recognisable modern ampersands are found in manuscripts from the 8th century. This shape was cut into wood or metal for the movable type used in Gutenberg's printing press, which was invented in the 15th century. The italic typeface was designed to be informal and is said to be based on the handwriting of Renaissance copyist and collector of manuscripts, Niccolo De Niccoli. With flamboyant exuberance, the italic ampersand displays its Latin origin. In 19th century Britain, pupils reciting the alphabet would include ampersand as the 27th letter, pronouncing it 'and'. To differentiate it from letters they would use the Latin phrase *per se* meaning 'by itself'. So the recitation would end 'x, y, z *and per se* and' Daydreaming pupils would race over the final phrases, slurring the words into 'ampersand'.

162. How the river Ganges came to London

Former British museum director Neil MacGregor on an extraordinary journey that was made possible by the largest silver objects ever made.

Published on 24 October 2017

This video was made by BBC Radio 4

NEIL MACGREGOR: Every minute, over a million plastic bottles are bought around the world. Inside the overwhelming majority of them is the simplest, most freely available liquid on the planet: water. From the US to the UK to China, more and more of us these days want to have our choice of water whenever we want it and wherever we are. Back at the beginning of the 20th century, the Maharajah of Jaipur took this idea to a lavish extreme. He was invited to make a journey from north west India to London for the coronation of King Edward VII. And he made some

remarkable travel arrangements. He filled enormous sterling silver urns with thousands of litres of water. Each urn and was made by melting down 14,000 silver coins. And each one could hold over 4000 litres. Once full, the urns had to be pushed along on specially made wheels. And at over one and a half metres tall, their contents could only be reached with ladders and ladles. But this was more than a matter of sheer extravagance. In the beginning, the Hindu goddess Ganga was a river flowing through heaven. She came crushing and tumbling into our world as the life-saving river Ganges, running from the Himalayas south and east into the Bay of Bengal. And not only does the Ganges come *from* the heavens, she offers a way back by drinking her and bathing in her, Hindus are sustained, cleansed and given a spiritual recharge. So, with his urns of precious Ganges water, the Hindu maharajah set off for London, one of the best equipped travellers of his day, carrying with him the water to drink and to wash his body and to protect and to nourish his soul.

163. How this baby is tackling bullying at school

An initiative is setting out to teach children about empathy, and how to be good citizens – with the help of a baby called Naomi.

Published on 22 January 2018

CAPTION: Getting ready for work. This is Naomi. She's seven months old and she's got a job teaching 9 & 10 year olds. She may be cute, but it's serious work.

MARY GORDON: Our long-term goal is building a more caring, peaceful and civil society where everybody feels a sense of belonging.

TITLE: What Babies Can Teach Us.

CAPTION: Market Lane School, Toronto Canada

(*Children singing, 'Hello baby Naomi, and how are you?'*)

CAPTION: Grade 4 get a visit from baby Naomi and her mum every few weeks. It's part of a programme called 'Roots of Empathy.'

KATHY KATHY *Roots of Empathy Instructor:* One little girl said, 'You just can't help yourself but love her.' But we're learning that she communicates how she's feeling, not with words as we do, but through her body, through her emotions, through her facial expressions, her tone of voice. (*in class*) Did you notice what she did? Now she's got two. (*to camera*) They compared that she could not pick up the ball before she did today. So they're learning about infant development. She's vulnerable. She's more vulnerable than they are. And we have many vulnerable children in our classrooms. And so it elicits this care for her.

FEMALE CHILD: She's adorable and she loves to play with us.

FEMALE CHILD 2: Babies at first are very delicate. So you have to handle them, like, very gently.

MALE CHILD: One thing I like learning about at Roots of Empathy is learning about a newborn human body.

MALE CHILD 2: She can get, like, happy when you do this, or like something fun. But then if you like to do stuff like taking stuff from her, she'll get angry really easy.

CAPTION: Roots of Empathy was founded by Mary Gordon. She wanted to help children become good citizens.

MARY GORDON: If children just had the capacity to own their feelings, to understand them, to know how to talk about how they feel, they would not be islands.

KK: Roots of Empathy is a bit of a trick. We use a baby as a vehicle to help children find the vulnerability and humanity in this little baby so that then you can flip it back to their own experiences. (*to class*) Do you think she's persistent or do you think she easily gives up?

FEMALE CHILD 3: She's persistent.

KK: She's persistent. Put your hand up if you're persistent when you're trying to do something really hard. And put your hand up, if sometimes it's frustrating to try and do something new, you think it's frustrating.

MG: They realise this sudden universe of everybody in the world feels the same as me. We're not so disconnected. It's very hard to hate someone if you realise they feel like you, it's very hard to be bullying someone if you realise that.

CAPTION: Roots of Empathy classes are now run across Canada and seven other countries. Studies show it reduces bullying and aggression over the school year.

FEMALE CHILD 4: Empathy helps with teaching kids not to, like, fight.

INTERVIEWER: How do you feel when she's sad?

MALE CHILD 2: I feel like I want to cheer her up.

FEMALE CHILD: Sad as well. I think, 'What happened? What's wrong?'

MG: If we are educating children who can read well and compute well but can't relate well, we will have a failed society. Learning how to relate to one another requires empathy. You have to understand how the other fellow feels.

(*singing soon,* 'Bye, baby. Naomi we'll see you soon. See you very soon')

164. How this frog can tell if you're pregnant

Before home tests were available, pregnancy tests involved frogs. Yes frogs!

Made by The Derek Jarman Lab, 8 February 2019

MAUREEN SYMONS: You assume at the time that's how it is, that if anybody did have a pregnancy test, it had to involve toads.

CAPTION: FROM THE 1930s to the 1960s, pregnancy testing involved Xenopus Laevis frogs.

JESSE OLSZYNKO-GRYN *University of Strathclyde:* The thing about the Xenopus tests, although the test itself seems really weird, like, you know, how can a frog or toad tell you if you're pregnant? In fact, the underlying principle of the Xenopus test is identical to that of a home test. The toad effectively detects the same pregnancy hormone.

ISABEL DAVID *Birkbeck, University of London:* They were injecting frogs, Xenopus Laevis frogs that came from South Africa, with the urine of the person they wanted to do the test on. If the test was positive, the frog would emit eggs. And these were very, very accurate tests.

CAPTION: At the peak of the Xenopus test, there were four diagnostic centres in the UK, including NHS facilities in Edinburgh, Sheffield, and the lab pictured here, in Watford.

AUDREY PEATTIE *Former Xenopus Lab Technician*: In the very early 50s, shortly after I left school, I got a job in the laboratory at Shrodells Hospital in Watford. A sample of urine came through the post in glass jars. And that sample was then what we injected into the toad. Next day we would have to look at all the jars to see who had laid eggs and send the result back to the hospital.

CAPTION: Xenopus tests were not available to the general public. They were only performed under certain medical circumstances. Maureen Symons remembers getting the results of a Xenopus pregnancy tests in the mid-1960s.

MS: I have a picture my head that at least twice a white coated doctor coming along to say, with satisfaction. You have been pregnant. The toads have laid the eggs. I know you're bleeding heavily, but you were pregnant. The attitude of medics was totally different. I mean, I realise now I was quite privileged to have all these tests.

JOG: The first home test was marketed to women in 1971, but it only really catches on in the 90s, more recently than most people think. Transport yourself back to the 30s, pregnancy was unmentionable, like, you didn't print the word pregnancy in a newspaper. It was too biological and kind of rude. I think it's one of the fascinating things about the story, that pregnancy testing is definitely part of the creation of this new culture that we live in today that really has made pregnancy and childbirth and reproduction so publicly visible.

CAPTION: And it all began with this frog.

165. How to avoid emotional burnout

Dr Radha Modgil shares her top tips for making sure you don't feel overwhelmed and burnt out.

Published on 18 September 2020

DR RADHA MODGIL, *Doctor and Broadcaster*: How many times have you had that feeling of impending doom as you watch your mobile phone battery drain away knowing full well you don't have a charger? Well I had a moment like that on a train and it got me thinking about my own emotional battery and the fact that it needs attention. I started to think, how do I recharge myself and stop myself from being overwhelmed and tipping into emotional burnout?

CAPTION: How to avoid emotional burnout

RM: So what exactly is emotional burnout? The term was first used by Herbert Freudenberger in a research paper in 1974. He himself had many major life challenges including fleeing persecution in Germany, setting up a whole new life in the US, learning a new language and studying for his degree in night classes whilst working in a factory. He described emotional burnout as a state of mental and physical exhaustion caused by one's professional life. And he described many different phases, including a compulsion to prove oneself. These days we describe emotional burnout as excessive and prolonged stress leaving us feeling unable to cope with life's challenges. And crucially these stressors come from many different areas of our lives. It could be financial, our relationships, moving home, losing our job, or exams. Any major life change or event. So how do we keep an eye on our emotional battery and prevent ourselves from getting overwhelmed and tipping into emotional burnout? Be a compassionate listener to yourself. When someone experiences a physical knock, we tell them to take it easy and we fully expect them to take time to recover. Well it's the same for emotional knocks. So start checking in with yourself daily. How are you feeling? Agitated? Tired? Stressed? Run down? We very rarely take the time to really check in with how we're feeling. And when we do, we often get stuck in our heads and analyse things. But it's really important to listen to what US philosopher and psychologist Eugene Gendlin called our felt senses. Having butterflies in our tummy when we're feeling nervous is an example of this. We very rarely stop, reflect and really tune in to how we're feeling. Think about a time when someone you know well really listened to you. How did that feel? Be a good and compassionate listener to yourself. Set aside time, about 20 minutes, to really stop, tune in and listen to how you're feeling without judgement. Are you the type of person who can usually cope with stressful and challenging situations at work but are struggling at this time? Well that might be a clue that one of your emotional buckets is low on reserve. Think of your reserves like this you have a work bucket and a home bucket. If one of those gets low but the other one is well supplied, you'll probably be able to cope. But if they're both low, and you have no reserves to draw on, that's when problems can occur. When one area of our lives is undergoing a battering, other areas can help recharge. Focusing on an area that's going really well and squeezing as much good feeling out of that as possible can really help. Strong

relationships are really important for building resilience. So is exercise and doing things that you enjoy. So you can think of these as chargers. Don't be like I used to and look for a charger when you're already in the red zone. Build habits and routine into your daily life. It might be going for a coffee with a friend, listening to a podcast, watching your favourite comedy, anything that you enjoy. Make time for that and prioritise it like it matters, because it does. Babies are often put to sleep with a lullaby and research has shown that actually listening to relaxing music before bedtime can help us all get more sleep and better quality sleep. Music impacts our parasympathetic nervous system which is all about relaxation. So do whatever you can to get the best sleep possible. The American Sleep Association found that adults who sleep less than eight hours a night report higher stress levels than those that get enough sleep. When we don't have enough sleep or poor quality sleep, this impacts our mood, our focus, our concentration and our ability to deal with challenges. And no-one wants that. So now you might just understand why that moment on my train journey helped me with my mental and emotional wellbeing. And hopefully it will mean you will start to check in with your own emotional battery and prioritise it just as much as you prioritise your mobile phone one.

166. How to be a good sporting parent

How can you best support your child's sporting activities, without getting over or under-involved? Here's a few pointers.

Published on 7 October 2020

Made in partnership with The Open University

Academic consultants at The Open University: Candice Lingham-Willgoss and Jessica Pinchbeck.

CANDICE LINGHAM-WILLGOSS*, Senior Lecturer in Sport and Fitness, The Open University*: As a parent, you want your child to do well, but how do you strike the right balance between encouraging and supporting your child - and pushing too hard?

CAPTION: HOW TO BE A GOOD SPORTING PARENT

CLW: Parents tend to fit into three main categories when it comes to children and sport the over-involved, the under-involved, and the optimally involved.

CAPTION: THE OVER-INVOLVED PARENT

CLW: They're often the ones screaming from the touchline, sometimes imposing strict training regimes, or perhaps being obsessively controlling of their child's diet. Some over-involved parents are, often unconsciously, trying to live vicariously through their children either because they were great at sport when young, or perhaps they didn't have those opportunities and want to offer them to their child.

While well-intentioned, the important thing to keep in mind is this is about your child and what they want - not you. So avoid being what researchers call...

CAPTION: CRAZED FAN PARENT

CLW: Hold back on criticising the referee, or the coach, or the other team. Research shows that around one-third of all comments from parents during a competition are negative. It also shows that children themselves tend to find this really unhelpful. Remember your role is to parent. It's the coach's role to coach.

CAPTION: THE UNDER-INVOLVED PARENT

CLW: The under-involved parent shows little interest in their child's sporting activities and provides little support. But why? Sometimes it might be because they don't value sport, or they don't think their child will be good at it. Try to avoid having preconceptions like this. It can end up being a kind of self-fulfilling prophecy. The reality is being a sporting parent can be very demanding in terms of time, money and commitment. It can also be an organisational nightmare. If this applies to you, do the best you can and if you can't be there for every game, that's OK. There are other ways you can support and encourage your child.

CAPTION: THE OPTIMALLY-INVOLVED PARENT

CLW: OK, so how can you be an optimally-involved parent? Let's start with a really important principle. Sport should be about fun and enjoyment. Not about the end result. Studies show children who are encouraged to enjoy sport for fun have more positive experiences. And they are also ultimately more successful at it. Intrinsic motivation doing something for the love of it is more powerful than external motivators, like the end result or score. Or trying to please someone else. It's important to give your child the opportunity to try lots of different sports when young. Children who feel supported enjoy sport more and feel more confident at it. But how do you give the right blend of support and encouragement? Research by psychologists Chris Harwood and Camilla Knight give a good starting point. They talk about being an "emotionally intelligent role model". As a sporting parent, at times you might feel all sorts of emotions like anger, disappointment or worry. Try to manage your own emotions. It's really important because your child can pick up on this even on things like body language. One study asked a group of 12 to 15-year-olds how they'd ideally like their parents to support them. And here are some useful dos and don'ts from that research. Before a game, help with mental preparation, by either building their confidence, helping them relax, or just leaving them alone. It's all about supporting your child's individual needs. During a game, encourage the whole team - not just your child. And focus on effort not outcome. Don't draw attention to yourself or them. And don't argue with the officials. After a game, provide positive feedback. But hold back on giving too much of your own analysis of the game as a whole. My daughter is a netball player, and my first question after a match is always "Did you have fun?" I don't really comment on her overall performance, but I do always feed back on something I think she did really well. Sometimes kids will want to spend time with their teammates digesting. Or time on their own thinking it through. Remember that even though you might feel you need

to talk, sometimes you just need to listen and let them process their own performance. All children are different, and all parents are different. But hopefully this will give you a bit more confidence and clarity on how you can best support your child. Good luck. And don't forget to have fun.

167. How to be happy in love (and have fewer rows)

Author Alain De Botton thinks we'll all be a lot happier in love if we listen to his advice.

Published on 15 February 2017

ALAIN DE BOTTON: Relationship is basically two monkeys with a few extra neurones getting together and trying to be happy together.

CAPTION: A realist's guide to love with Alain de Botton.

CAPTION: Should we be open about our flaws early?

ADB: There's a lot of goodwill at the start of a relationship. And if you're able to explain what's wrong with you and how you're likely to be difficult before you've actually hurt your partner with those difficulties, it's an immense benefit to the couple.

CAPTION: The art of argument.

ADB: Scratch beneath the surface of many arguments, what people are trying to do is to get some ideas across, but generally they're so panicked and the background thought that panics people in love is, 'I've got together with an idiot. I've ruined my life.' And this thought agitates us so much that we start shouting and humiliating. Of course, by the time you've humiliated your partner, they're not going to listen at all. Of course they're not. No one learns anything under conditions of humiliation.

CAPTION: Should we let the small things go?

ADB: There is no such thing as a small thing, and there's nothing more dangerous in a couple that when two people think, 'Oh, this is really too small to have an argument about'. The self that is involved in a relationship is incredibly fragile, delicate and isn't the sort of robust self that we have at work and in other areas of life. And therefore, it's quite legitimate to be upset about tiny things, because what we're trying to do is to create safe space in which our needs, however small, however vulnerable, however, from a certain perspective, ridiculous they might be, need to be heard

CAPTION: The dreaded comparison anxiety.

ADB: How we love is hugely affected by how we sense that other people are loving. We know what it's like from the inside. We only know other people's lives

and what they choose to tell us and they present us with a heavily edited picture, which leaves us feeling lonely and paranoid.

CAPTION: Getting over ourselves.

ADB: So long as we think that we're broadly easy to live with and pretty great, basically pretty great, someone should be kind of lucky to be with us, we will be perils to be around. We start to be kind people when we realise that, actually, we're kind of trouble for anyone to be with and we should be kind of grateful that anyone is putting up with us. And that is the bedrock upon which the tolerance of another person can be built.

168. How to be more creative in daily life

From colouring in to the 'vomit draft', actor and writer Kayode Ewumi shares five tips for unleashing your inner creativity.

Published on 21 December 2018

KAYODE EWUMI: Hello. My name is Kayode Ewumi, I am an actor and writer. And here are five ways to help you demolish creative blocks. A creative block is when you're either creating something, making something and your mind has totally switched off. You feel like anytime you go and write that song, that script, you go and make something, you hit a brick wall. Have you experienced that?

CAPTION: 1. Colouring and drawing.

KE: Well, I would suggest what helps me is getting a blank sheet of paper, some colouring pencils, pens, and just start to sketch on that piece of paper. Just sketch. And set a timer for two minutes. Then five minutes. Then 10 minutes. Why? Why, because as kids, this is what we used to do. And as kids we had this element of play, of fun, of imagination. Colouring down helps you get any energy, any stress, any bad vibes on that sheet of paper. The paper will then tell you how you're feeling, draw down whatever you want, however you want. After that, then try again. Try and make that thing again. Try and create again. And you'll see there'll be a change.

CAPTION: 2. Read, watch and listen.

KE: When you read, watch and listen, why don't you read something you haven't read before? Watch a film you wouldn't normally watch. A different genre or from a different era. Listen to songs you'd never listen to. Listen to songs with no words. Listen to rock, rap, hip hop, jazz, contemporary. Try and see things. Hear things that you've never heard or seen before. It will help you and will open your mind to a whole different world.

CAPTION: 3. Go on a journey.

KE: So this is what you should do? Get a notepad or something you can write notes in. Jump on any random train or random bus and take it to the last stop. As

you're taking this bus or this train, write down what's around you. Write down what you see, or in fact, that idea might just come to you. And make sure you get it down, because now is the time. Normally if you're in the same environment, the same room, the same place. You see the same things all the time and there's no room for inspiration. So go out there. Go out of your room. Go out of your house. Let the world take you on a journey.

CAPTION: 4. Learn an instrument.

KE: Learning an instrument requires diligence, patience and concentration. For me, for example, I start to learn an instrument at the age of 22. I'm now 25. I know I'm not the best. But any time I'm writing a script or trying to create something and I can't do it, I go away and I play the keyboard for a bit or I go on YouTube and I look at how to play chords on a guitar. Why? Because, for example, with the guitar, unless you get the right chord, you will not hear that sound. And that's the same as writing. Unless you get the right thing, the right characters, it will not be what needs to be. So instruments teach you diligence, how to keep on going and keep on going to get what's right. So then an instrument. I'll play the guitar. It's nice. It has your fingers though. Hey. The vomit draught is always the first draught and it looks terrible. It smells horrible, but this is what you need to begin your journey if you don't get it down. And it stays here. It's not helpful. You don't have to show anybody. Just keep it to yourself. But make sure you get this draught down. Forget about what people think. Forget about what your mind is telling you and just do what's right. Get it down and begin your journey.

169. How to become a multi-millionaire... at just 19

Akshay Ruparelia is the youngest person on the Sunday Times Rich List 2018. So, how did he do it? (Clue: It has something to do with frogs.)

Made by BBC Studios, 19 July 2018

AKSHAY RUPARELIA: The first business venture, so to speak, I tried, was selling sweets at school. At the time, I was looking to buy PlayStation and I wanted to buy it myself with my own money. At that age, people were not allowed to go outside of school grounds during the school day. So I thought, 'Perfect. I've got a captive customer base.' (*laughs*)

CAPTION: Akshay is 19. He was the youngest person on the Sunday Times Rich List, 2018. In two years, he has sold £400m worth of property.

CAPTION: Eat the frog.

AR: So, my first tip is, 'Eat the frog.' 'Eat the frog' means start your day with the hardest task you have. And it means the rest of your day becomes a lot more easier and smoother. In sixth form, you'd have free periods, for example. And there was times where I would sit in the free period and do financial forecasts. People would look over my shoulder and think I'm insane. But, you know, it was difficult to explain.

But I thought, 'Actually, okay, if I'm prioritising this now, because I know I've got a due date for an essay in two weeks, and it's just about managing that workflow.

CAPTION: Learn from real life.

AR: 'Learn from real life' is my next top tip. Both my parents are deaf. So my older sister and I have been carers our whole lives. I think we matured a lot earlier as children because . . . because we had to. If I go all the way back to the start of Doorsteps, that starts when I moved house, when I was about 10 or 11 years old, being carers for my . . . my parents, we got a bit more of a hands on experience of the whole property move. So I tried to understand the breakdown of costs and a big one, inevitably, was a estate agency fees. So a few years later, we learnt about different disruptors in different industries, taxi driving for Uber, shopping with Amazon. This is where I thought, 'Actually, why don't we try and connect buyers and sellers directly?

CAPTION: Read a biography.

AR: My next tip is: read a biography. For me, that was Michael O'Leary's biography about when he started Rynair. A good biography is really, really motivating. It shows you that it's doable. It shows you that actually the people that started these insanely successful businesses were normal people and actually they've decided to step out of their comfort zone and take a risk. And that's really inspiring.

CAPTION: Teach yourself new things.

AR: 'Teach yourself new things' is my next top tip. I think without teaching herself, it's difficult to start a business, because you need to understand every aspect and whether it's your forte or not, and understanding that means you can test the business cheaply. And for me, that was learning floorplans from scratch, photography from scratch. Things I . . . I didn't have experience in. So one thing I couldn't learn myself, unfortunately, at that point, was learning to drive. That's because I was only about 16 or 17. So to get to my first property, I did have to pay my sister's boyfriend to drive me down to the property in East Sussex so I could then go and do the visit.

CAPTION: Listen to your mum.

AR: My next tip is: listen to your mum. I've understood that my mum, 95 percent of the time is right and she is wiser than yourself. So my mum has been very influential, well, both my parents have. They've never let their disability stand in their way. Seeing that work ethic, especially tracing back to migration, for example, from my dad, from Africa into the UK, it's not easy. And they've actually managed to get our family to a stage where we are now, or I'm actually able to take a risk in my own life, because I've . . . I know I've got this stable family background. To be honest, the success of the money hasn't made a difference to my life. I do still live at home, still live with my parents. I still go to the same type of place that I used to. I still don't have a car. It's difficult to actually take a step back and look at the progress you've made, because I'm always kind of moving the goalposts further away. At the

moment we're a start-up, we're in the midst of growing. It's really, really exciting stages. I think we've got so much more to give.

170. How to bluff – and why we do it

Caught in a tricky situation? We offer some fail-proof bluffing skills.

Published on 28 April 2016

NARRATOR: There were many situations that call on your bluffing skills. For example, the Meet the Parents bluff.

YOUNG MAN (*Actor*) Hello Mr Hoffman.

MR HOFFMAN (*Actor*) So what do you do for a living?

(*image of young man as a stripper*)

YM: I work in the leisure industry.

N: And the 'I totally know how to be an adult' bluff.

WAITER (*Actor*) Would you like to taste the wine, Sir?

YOUNG MAN 2 (*Actor*): Yeah. (*gargles with wine*) Yeah, good.

N: The occasional bluff can maintain our status and keep the conversation flowing.

YOUNG WOMAN (*Actor*) So it's like, you know, in the Beethoven Opus 132 quartet, that the theme from the first movement is exactly the same as the third movement. It's just inverted, you know.

YOUNG WOMAN 2 (*Actor*) In A minor.

YOUNG MAN 3 (*Actor*): Yeah, yeah. Inverted.

N: Suggesting he might have some expertise, can help you get a better deal.

YOUNG MAN 4 (*Actor*): So you see what I mean, I'm having a bit of trouble with the old jam jar, you know?

N: Bluffing allows us to let different sides of ourselves come to the fore in different situations.

YOUNG MAN 5 (*Actor, on phone, talking 'street'*) Because the thing is, like, if he talks to me like that again, I'm going to kick off, and if I kick off then I'll proper kick off, yeah? Hang on a second, I've got another call. (*in middle class voice*) Hi mum! Oh, fish fingers? Yeah!

N: A bit of harmless bluffing can help keep a group happy. (*shot of group singing Auld Lang Syne, with one pretending to know the words*) And playing along keeps us from offending people.

YOUNG MAN 6 (*Actor*): Hey dan.

YOUNG MAN 7 (*Actor*): Hey . . . er . . . mate, are you alright? How . . . how are things? How's . . . everything? Nice to see you again. See you soon.

N: To get special access.

YOUNG WOMAN 3 (*Actor*) Hey, are you with the band.

YOUNG MAN 8 (*Actor*): Yes.

YW3: Ah, great.

N: Just be careful you don't get called on a big one. (*previous actor ends up on stage, being thrust a guitar*)

MAN READING POEM (*Actor*): Time. What is time?

N: Choose your language carefully.

MRP: Thank you, I hope you enjoyed the poem.

YOUNG WOMAN 4 (*Actor*) Oh, it was incredible

YOUNG MAN 9 (Actor) Oh hi, yeah babe. I'm just in the library. Yeah, I'll be back soon. (*cuts to show that 'The Library' is a pub*)

N: Body language is a bluffers best friend. Bluffing can help us make space for ourselves and cut through some of the awkwardness of life. Bluffing is a healthy human skill. It's important to let different sides of your personality out in different measures and at different times. Just don't bluff too much. Acknowledging your weaknesses is a strength and it's okay to admit when we need a bit of help. No one's got this whole life thing figured out completely. We're all just bluffing together.

YM8: (*Plays guitar*) Thank you Wembley (*pushed off stage by a man who calls for security and takes the guitar*)

171. How to build an igloo (when the climate is changing)

Climate change means the Greenland ice sheet is melting at a phenomenal rate, but hunter Julius Nielsen is still able to build an igloo.

Made by Swan Films Ltd, 20 December 2019

CAPTION: How to build an Igloo.

JULIUS [Subtitled]: My name is Julius. I am 40 years old. I am hunter.

C: Julius Nielsen is one of only 57,000 inhabitants of Greenland. It's one of the least densely populated territories on earth. Julius is an Inuit and speaks the Tunumiit language. The Inuit no longer live in igloos but sometimes use them for a night or two when hunting.

J: In the wilderness, the weather often changes quickly. I am always thinking about survival. That's why we build igloos. They can be the difference between life and death.

C: The Arctic is warming faster than anywhere on Earth. The Greenland ice sheet is melting at a rate of 270 billion tons a year.

J: It's very difficult to build an igloo these days. Winter snows have changed a lot recently. Every year is different.

C: The snow needs to be compacted so it can be cut into blocks and stacked.

J: We have many names for the different kinds of snow. To build an igloo you need hard snow. The best snow is called Pugaq. It is created by strong wind from the ice sheet which hardens the snow on the ground. With the right conditions I can build an igloo in an hour.

C: Larger blocks are used for the base. Blocks higher up the igloo wall are smaller and lighter. The blocks are overlapped and shaped to lean inwards creating a done. A final block is cut to fit the roof perfectly.

J: The snow freezes over the blocks to create a very strong layer of ice. It makes the igloo waterproof and windproof.

C: The temperature inside the igloo can be as warm as 16 degrees.

J: I boil water to cook what I have caught. The heat can melt the interior wall of the igloo, but it soon refreezes into another layer of ice, making the structure even stronger. The climate is changing so fast. We have had to change so much, but we still try to keep our traditions alive.

172. How to cope with your memory's flaws

False memories can feel remarkably like real memories, but how can we tell the difference in order to make real memories stick?

Published on 1 November 2018

Made by BBC Reel

DR JULIA SHAW *Author of 'The Memory Illusion'*: You have as many neurons in your brain as there are stars in the Milky Way galaxy. Now, if you picture a memory as a solar system within that galaxy, how much do we actually know about that solar system? I have a memory from when I'm one year old. I'm running up to my

grandfather and he picks me up and he twirls me around. I can feel the excitement. I can smell his hair. The problem is that this memory can't possibly be true, because we don't really start to form memories that can last into adulthood until about the age of two. False memories feel like real memories. Now, for everyday situations, that doesn't really matter, but for criminal justice situations, exactly what someone's hair looks like or what something felt like, those details really matter and can actually lead to miscarriages of justice. There are three things you can do in order to make memory stick. First, you can make things weird. You do that by saying things like, 'What does the number three smell like?' Second, you can think about what things taste like or feel like. Be mindful of the situation while you're there. Third, you can write it down. Whenever something is really important and accuracy really matters. Write it down. False memories are a by-product of a really healthy and important process. The same functions responsible for creativity and problem solving to flexibly recombine information in a way that allows us to tackle the future and be prepared for a life worth living.

173. How to create an economy where humans flourish

Anthropologist Jason Hickel argues we are 'addicted' to economic growth - and it's killing us.

Published on 8 August 2017

JASON HICKEL: Our addiction to economic growth is killing us. Right now, the entire global system is captive to a single idea: economic growth. Politicians rise and fall on their ability to increase GDP year on year. They promise that growth will make our lives better. But there is a catch. We can't have infinite growth on a finite planet. We're already overshooting our planet's biocapacity by nearly 60 percent. The consequences are all around us. Climate change, deforestation and rapid rates of extinction. This crisis is due almost entirely to overconsumption in rich countries. They use more than three times their fair share of biocapacity. Scientists warn that the only way to prevent ecological collapse is for rich countries to scale down their consumption. This is called planned degrowth. Degrowth is not the same as austerity. The goal is to increase human well-being and happiness while reducing our economic footprint. Instead of intensifying our plunder of the earth, we can share what we already have more fairly. We can cut excess consumption by kerbing advertising and taxing carbon. Introducing a basic income and a shorter working week would allow us to get rid of unnecessary jobs and redistribute labour. But the first step is to overthrow the tyranny of GDP. GDP is a crude measure of progress. When we slice down our forests for timber or strip our mountains for coal, GDP goes up, when natural disasters strike or hospital visits rise, GDP goes up. It ignores environmental and social costs. It's time for a more sensible metric, like the genuine progress indicator, which takes GDP and subtracts these negative outcomes. It accounts for the costs of growth. We need an economic model that promotes human flourishing in harmony with the planet on which we depend.

174. How to create the perfect atmosphere in a stadium

How clever design can help fans make a bigger impact on the action.

Made by Go Forth Films, 18 June 2018

VOX POP MALE: It's not even getting into the stadium, it's walking up the road. You know that that day is going to be big.

VOX POP FEMALE: Fans, absolutely being as loud as they can, supporting chanting.

VOX POP MALE 2: It's like a religious, like, union almost somewhere like Anfield.

VOX POP MALE 3: You've got the Turkish as well, with flares.

VOX POP MALE 4: What a perfect atmosphere is, is if you're an away fan or you're an away team, you're scared.

DR ANNE TEMPLETON *University of Kent:* If you think about it, when you're sitting watching a game, you're with your fellow group members. You're with people who support the same team and you can see the other supporters on the other side. Being in that situation where you're surrounded by your fellow group members, there's a lot of you, it can really enhance the positive atmosphere there. So I think the architecture of the stadium can actually really influence the crowd experience.

VOX POP MALE 5: The closer to the pitch you are, the better. The further away, it doesn't create much atmosphere, you need to be like close and on top of it.

VPM4: Don't have a running track around a stadium. That is . . . that's a big no no.

VOX POP MALE 6: Don't like these new stadia where you've got like, loads of space between the fans and the pitch.

ANDY SIMONS *Architect, KSS*: I think the fans would be amazed at how much we think about stadium design. So let's take a stadium example. The Amex at Brighton. Let's just look at this main West stand and how we enhance the atmosphere there. The key thing, I think, that every fan wants is proximity. So that distance there, we tune the terraces to be as steep as possible, so everyone's close without feeling vertigo. The roof form is quite key. That is reflecting playing for acoustics. It's bouncing the noise up and down onto the pitch. Density of fans, how close they're packed in within the stands is a big plus. Fans like to be tightly packed with their friends singing away. The beauty of the Amex Stadium is that it has a curvature to the roof as well. And that not only makes the sounding board reflective, but it's a focussed reflectivity. And we get a real sweet spot of noise, focused on the centre of the pitch here. The noise by this crowd is significantly increased and focussed exactly where it matters.

VPM6: Success on the field is created by atmosphere.

VPF: The louder that the fans are. It motivates and drives the players more.

DR TOM WEBB *University of Portsmouth*: We've done various research projects related to home advantage, so since the Second World War, since 1945, it's actually decreased quite significantly. The data shows that referees are less influenced by the crowd than they were.

ANDREW POTTINGER *Burohappold Engineering*: Maybe this is a point where we can say, 'No, hang on, let's try to at least level that out and maybe try and improve the home advantage for clubs.' Clubs spend a lot of money on players. So why shouldn't the ground be treated in that way? And actually, a lot of these interventions don't actually necessarily cost an awful lot of money. Statistically, more goals are scored in the second half than they are in the first half. And you could even argue that those goals are actually more pivotal. What if the stadium was actually shaped in a way that actually influenced the second half more than the first half? Clubs tend to shoot towards a certain end in the second half. What if the south end where most of the home fans are, that that was made a bit bigger and this was made a bit smaller? And so we could actually model that. The blue is actually the home sound waves and the black is the away. The hotter areas are where the sound is greatest. So wouldn't it be great if in the second half, when the game's getting really, really exciting, that red is towards your own end and you really feel that the actual ground is . . . is sucking the ball into the net. With good design and by doing things that's tailor made to the players, in this instance, you can actually make a real difference. And actually that might be the reason why you score an 89th minute goal.

VOX POP MALE 7: What they do on the pitch benefits you because it makes you want to get behind them and cheer more. And obviously, if you're cheering more, it makes them want to perform and hopefully score a couple of goals and lead to a win.

175. How to do less... but get more done

Being more productive isn't working all the hours of the day. These tips will help you focus, get stuff done, and know when to log off.

Made by Tandem Productions, 14 February 2020

Made in partnership with BBC Bitesize

NARRATOR: Getting things done isn't working all day at 100 miles an hour. Looking for ways to do less and get more done sounds a bit counterintuitive, but it actually makes a lot of sense. And the following tips can definitely help you. Suppose you've got a really important presentation to do. It's the kind of task productivity expert Professor Cal Newport says needs 'deep work'. Deep work is your concentration sweet spot, where you can achieve most. Smaller tasks like answering emails are 'shallow work'. Try to be more conscious of what your shallow tasks are, and give yourself permission to block them out for a while so you can focus on the important tasks that require 'deep work'. Lots of successful people have cut out the shallow to

work more productively. Bill Gates went to a remote cottage. Others, like Maya Angelou, shut themselves away to write.

CAPTION: Call it a day

N: For good productivity, be strict about when your working day is over, and when you get to the end of your planned work session, ease yourself into a more relaxed state and try Cal Newport's shutdown ritual. Look through your unfinished work. Write a short plan of how you'll tackle it tomorrow. Then close that textbook or laptop and say something out loud like 'Shutdown complete!' It might sound silly, but it signals the end of your working thoughts for the day. After that? Have some fun. Give your mind the rest it's earned.

CAPTION: Find your top level goal

N: Businessman Warren Buffett's technique for getting people to focus on their most important goals was simple: Write down in order the top 20 things you want to do in life, and then draw a line under number five. Until you've done those first five, forget everything else. For a more structured approach, organise your priorities by making a pyramid of goals, designed by psychologist Professor Angela Duckworth. Find the big thing that we could call your life's purpose, like inspiring others, or helping people in society. Put that at the top. On the next level you'll have mid-level goals like passing an exam. The goals below it should all feed into your top-level one. They'll be smaller, more practical things perhaps writing an email, or doing some research. If they don't help with achieving your top goal, then get rid of them!

NARRATOR: You could make a similar pyramid with a more specific task at the top - like that big presentation. Remember all the other to-dos should feed in.

CAPTION: Make your breaks smarter

NARRATOR: Let's get back to the big presentation. It'll take a few hours to get it done properly, but in order to keep those stress levels at bay, try the Pomodoro technique named after a tomato-shaped kitchen timer. Time-management guru Francesco Cirillo says that for every 25 minutes of intense concentration, you should take five off to do nothing at all. The theory? Tackling a big task in focused chunks with regular breaks gives the brain time to recover and keeps your productivity high. In the five-minute breaks, don't jump on your phone! Move around, stare out of a window. A recent study showed that regular five-minute walk breaks improve people's mood, and even make them feel less tired and hungry at work. And finally, if you really need to concentrate, find some pictures of kittens and puppies first. That's right. Research in Japan suggests that looking at cute baby animals brings out the natural caregiver in us, and improves our ability to focus on the details. Turns out productivity can be cute, too.

176. How to feel more in control of your time

How you think about time can make a big difference to how you use it. Try these easy tips for getting more out of your day.

Made by Tandem Productions, 14 February 2020

Made in partnership with BBC Bitesize

NARRATOR: Time, according to Greek philosopher Theophrastus, is the most valuable thing you can spend. We may want more of it, but we're stuck with the same 24-hour wad every day of our lives. Beyoncé's Single Ladies was written in no more than 20 minutes. That's one stonking pop banger created in less than 2% of a day. Imagine what you could achieve in the other 98%. The question is, how? Well, how you think about time can actually help you use it more wisely, and could leave you a lot healthier and happier. You know that rare feeling of having plenty of time to do what you want? Psychologists call it 'time affluence', and it does a lot for your sense of wellbeing. Bizarre as it may sound, it's possible to make yourself feel more time-rich by handing over some of your hours to others. One study took a large group of people. Some of them helped others in their spare time doing things like writing letters to cheer up a sick child while the rest did whatever they liked. The helpers later felt they generally had more free time compared to the rest of the group, despite giving some of it away. So rather than bingeing on that box set, do something for someone else. You'll end up feeling it's possible to achieve more in the time you have. Caption: You have more time than you think Now, think about all those tiny chunks of your day when your brain isn't doing very much at all. Like going for a run, sitting on a bus, or making a cup of tea. Scott H Young, author of Ultralearning, specialises in making time work better for people. He sees these mini downtimes as chunks of opportunity to use more wisely. So how do you want to use that time? You could try 'productive meditation'. If something's turning out to be a pretty knotty problem, use your daily jog to focus your mind on your surroundings, and your subconscious may find a solution while your mind relaxes. Or while the kettle boils, listen to the sound of the water. Watch steam rising from the spout. Be truly mindful and in the moment. Evidence suggests that when you get back to your desk, you'll get a lot more done in the time you have. "Start creating habits," Young says. "You'll be surprised how much materializes, once you simply start doing things for a few minutes a day." Whatever route you take, bear in mind that several recent studies have shown that trying to fit more in by working longer hours can lead to stress and illness. And nobody wants that.

CAPTION: The holiday paradox

Psychologist Claudia Hammond suggests that the best way to make free time feel worthwhile is to indulge in the holiday paradox. This says that doing something new sees your brain make an extra effort to remember it. So vary your routine, try new hobbies. Different experiences, however small, will be more rewarding, and when you're looking back on them, your sense of time will be expanded. Did you realize that if you add up sleep (very important), eating and working, most of us have around five hours a day left to do what we want to do. So take advantage of it. You

could even write a fifth of a novel. John Boyne wrote The Boy In The Striped Pyjamas in just two and a half days (not sure how much sleep he got though). Or you could climb to the top of Ben Nevis in five hours. If it was a weekend, you might have time to get down again. But don't be too hard on yourself if you just need that time to chill. A study in 2010 showed that playing computer games or watching TV can restore us emotionally and help us recover intellectually after a hard day. But you've got to buy into the experience totally, and don't feel guilty. Isn't that a relief?

177. How to find the superhero within you

Computer scientist Sue Black shares the story of her incredible life - and shares a few tips.

Made by BBC Studios, 4 October 2018

SUE BLACK Rock bottom can actually be a great place to start, because in a way, what if you got to lose?

CAPTION: Sue Black is a computer scientist and one of the most influential women in tech. She has a PhD, and OBE and founded the pioneering social enterprise, #techmums.

SB: When I was 25, I was a single mum with three small children living on a council estate in Brixton. I decided that something had to change. But what I didn't realise was that by changing my life, I also changed the lives of many other women all around the world. I woke up one morning in 1987 with my husband screaming that he was going to kill us all. He'd threatened me before, but I somehow hadn't taken it seriously. But as soon as he threatened my children, I just thought, 'I'm out of here.' So I got a suitcase, packed up our stuff. I put the twins in the double buggy, got my three year old daughter, and we ran down the road. I phoned up Women's Aid and a few hours later I was in a refuge on the other side of London. I thought. 'So what am I going to do now?' My favourite subject at school was maths. So I enrolled for a maths course at Southwark College. And the first day I went in, I was so scared. I walked into the classroom and it was full of mainly men in suits. And so basically I was petrified. But I saw a woman sitting at the back of the classroom, went and sat next to her. We became best friends. And in fact, we came top of the class at the end of the year. I did a degree in computing, then went on to do a PhD and eventually I got an OBE, which was amazing.

CAPTION: Be a superhero.

SB: I was really shy growing up and I realised that if I really wanted to be successful, I was going to have to change from being a shy 25 year old who was scared to even talk to people I didn't know, to someone who was much more confident. I've got a ritual that I do every time before I'm public speaking. And what I do is I go into the toilets (*laughs*) and I will say things, like, positive things to myself. So I'll go. 'I'm an amazing person. I can do anything I want to do' - or stand in more of a superhero pose. Just going away and doing that means that I go onto the stage

feeling very positive and kind of like radiating energy. Last year, I was speaking to 17,000 women in tech at a conference in Orlando in Florida. And at the end of my talk, I got everyone, so 17,000 women, to say along with me, 'I'm going to change the world.' And you know what? We can.

CAPTION: Ask for a promotion.

SB: Always ask for promotion. If you think you can go for a promotion, go for it. Every time I could apply for promotion, I did. In several years, I got promoted probably four or five times. And that is actually . . . just massively changed my life and enabled me to affect lots of other people's lives in a positive way, too.

CAPTION: Embrace Embarrassment.

SB: I was in a classroom talking to maybe about 15 mums. And as I was talking, I started realising, 'Oh, my goodness, I'm getting a hot flush, feeling a bit hot.' I couldn't concentrate. So I thought, 'Well, I'm just going tell everyone what's happening.' And actually, that seemed to help us really bond with each other. The more that we kind of make ourselves vulnerable, talk about things that maybe we wouldn't normally expect to talk about, but just kind of everyday stuff helps everyone to realise that we're all human and we all go through this. I've, over the years changed, myself by pushing myself forward, going for things that scare me half to death. The main message I would have to anybody is just get out there and do the things you want to do. You've only got one life. Just go for it.

178. How to fix your relationship - and when to stop trying

Practical tips for how to get on better with your partner, from relationship coach Sam Owen and the University of Exeter's Jan Ewing.

Published on 1 March 2019

Made in collaboration with Crossing Divides

SAM OWEN *Relationship Coach & Author*: Research shows that living in the midst of high conflict relationships can actually damage your health, shorten your lifespan, and it can even make a brain age faster. So how can you fix a relationship when it's going wrong?

JAN EWING *Shackleton Research Fellow, University of Exeter:* Talking about it at an early stage, but talking about it when you're calm. You know, so actually setting aside some time where you're not going to have distractions and you can talk to the other person, but in a just quite a neutral, kind of pragmatic, 'How are we going to sort this out?' kind of a way.

CAPTION: Dipak and Lucy, 11 years together.

DIPAK: I think the longer you try and bottle up, the more it comes out as like a snippy comment here and there. If something's wrong or something annoys you, bring it up sooner rather than later.

CAPTION: Prioritise a healthy sex life.

SO: If there were difficulties around your sex life. Remember this in a committed, monogamous relationship, you're the only other person who can give that to your partner. So it's really imperative that you do both find a happy medium that satisfies both of you.

JE: The couples that have been together for a longer period, they talked about the fact that, look, the relationship's just not as passionate as it was, but that wasn't an issue for them. So the people who had a good sex life, it seemed to be like an added bonus. They were strongly attracted to each other. Sex was a good connection for them, but it was an additional benefit on top of the friendship and the companionship.

SO: Be honest with each other about what you need in the bedroom. Be proactive and really take your time to work at it, because it may not happen overnight, but you do want to reach a point where you're both satisfied.

CAPTION: Friendship first.

JE: Do we actually have a good friendship that's going to last the course? You know, it's not just that I'm attracted to this person. But actually we have enough in common that, you know, in 30, 40 years' time, if we've had kids and they've left home, we're still going to enjoy each other's company.

LUCY: I think we definitely have a foundation of friendship. I mean, we mostly hang out with each other, so if you didn't like spending time with each other, it's probably . . . that would be a bit rubbish.

D: I'd say you're my best friend. The longer you're going out with someone, the more of a confident they become and the more, yeah, you open up to the things you wouldn't even open up to, like, yeah, your best mates about.

L: Yeah.

D: What was the question?

CAPTION: Set expectations.

JE: One lady told me that I wasn't expecting it to be Cinderella and roses or every day, and so they were disappointed because their expectations were quite realistic in the first place.

D: We had to decide very quickly, because I'm from an Indian family, who don't necessarily approve of me dating a white person. Like, it's all fine now. It did mean we had to kind of decide very early on how committed we were, because it's not easy.

JE: It's normal to have fights. That doesn't mean that it's the end of the relationship. So instead of the kind of . . . either the Disney story or the photoshopped lives of celebrities, actually real life isn't like that. And sometimes you've got to get your head down and you've got to work at it.

CAPTION: Appreciate each other.

SO: Appreciation and not becoming complacent is so important. At the end of the day, it doesn't matter if you've been together for a few years or you've been married for 30, the fact that that person's choosing to be with you is massive. So always appreciate them and their presence in your life and all that they bring to it. And the more you appreciate them and show it, the more they'll do for you.

L: Well, you're very intelligent, incredibly determined. You're just like . . . I don't know, I just like hanging out with you.

D: She's just a very kind, nice, generous person. We should write these things on Post-it notes and just leave them around the house.

L: Put them on the mirror for you in the morning.

CAPTION: When to walk away.

SO: Whilst positive relationships are really important for our health. Negative relationships are really bad for our health. So, it's so important to know when to draw the line and walk away. Now, it may be that one of you wants to work on the relationship and the other one doesn't. And if one of you is motivated, but both of you on not it's not going to work. On the other hand, if you're in a mentally or physically abusive relationship, for example, then you have to own your own worth and know that you deserve so much better than that. You have to be able to walk away to protect your own mental health and wellbeing, not just now, but in your future as well.

179. How to get on with someone you hate at work

How to manage workplace conflict from executive coach Jenny Bird and Acas' Alex Newton.

Published on 4 March 2019

Made in collaboration with Crossing Divides

CAPTION: (*Twitter style comment*) We all have this colleague who, we hope, quits his job so everyone in the office is happy. If you don't know any such person, quit your job.

CAPTION: (*Twitter style comment*) Coworker left himself signed in to LinkedIn and now his skills include 'mouth breathing.'

CAPTION: (*Twitter style comment*) I told all my colleagues at work that I have a twin so that when I see them in public I don't have to talk.

ALEX NEWTON *ACAS*: I remember once working with a woman who found it really frustrating that someone in her office loudly ate rice around lunchtime every day and her metal fork would constantly be hitting against the bowl. And she was so annoyed by it that she was actually going to go out and buy a wooden fork for this person. When you think we spend half our waking life at work, if there's someone who really gets under your skin, it's crucial to cross that divide.

CAPTION: BBC Crossing Divides. How to get on with someone you hate at work.

JENNY BIRD *Executive Coach*: We've probably all work with people we don't like. But really, you *hate* them? You actually *hate* them? That takes an enormous amount of energy and it makes little or no difference to them. I've they've really done something totally illegal or horrendous, there's probably much better remedies for it.

CAPTION: Tip One: Face the problem.

AN: Most of the time, we find that people want to avoid having a conversation with the other person because they dislike them. But if you don't talk about it, it won't get better by itself. So some people try to put it off and develop coping mechanisms, but it rarely makes the situation much better. And soon, it's years down the line. And you're still in the same boat, hating this person. It doesn't have to be like this. A bit of short term pain, i.e. a difficult but open and honest conversation with the person you dislike can bring a long term gain.

CAPTION: Tip Two: Check your personal narrative.

JB: We get people telling us we're intimidating when we think we're really cuddly, or telling us that we're shy when we consider ourselves thoughtful and serious. So think about what you give off to other people. Here's Ali. He's very bright. He's quite young. He's very highly educated. He's just got a great job. So he's sent to a conference. And because as well as being bright, he's rather modest, he decides that he'll keep quiet pretty much and he'll just observe what's going on and listen to people who are more experienced. The people around him who have heard how bright he is and how well-educated, see him being a bit restrained and a bit withheld and start to think 'Hmm, he's a bit aloof, he doesn't rate us. He thinks he's too good for us.' And so they start to freeze him out. We end up with a situation where everybody's misunderstanding each other and nobody is getting the benefit of their different abilities and experiences.

CAPTION: Get their perspective.

AN: Ask questions and seek to understand the other person's viewpoint, then show them you have understood their viewpoint. By summarising back to them what they have said – an incredibly powerful little tool for building rapport. Too often, people just tried to persuade others of their case. But if you show that you're open to listening to the other person and genuinely want to understand where they're

coming from, you'll have a much more constructive conversation. I remember once in a mediation where one person shouted at the other, 'You're a pathological liar.' Now, I don't have a problem with someone saying that if that's how they feel. But I do, actually, with how it's worded. If you tell someone they're a liar, they'll automatically disagree. We all would. But if you calmly point out that on this occasion, on this occasion, they have lied to you. You can have a conversation about it without them getting as defensive.

CAPTION: Remember.

JB: It's probably not personal.

AN: Remember that you don't have to learn to like the person that you're in conflict with. You just have to work with them.

JB: Be willing to challenge your assumptions and then learn from that. Welcome other's ideas and approaches.

AN: Be yourself. Be open. Be honest about your own strengths and contributions.

JB: The really great thing is if you're doing those things, not only does it diminish that feeling of dislike and make you better at working with people, you might actually get to enjoy working with them.

180. How to get on with your ex (when you have to)

Ever fallen madly out of love with someone? But had to keep seeing them? Two experts share their top tips for getting through it.

Published on 7 June 2019

Made in collaboration with Crossing Divides

PERSIA LAWSON *Love Coach and Author:* So recently I had a client of mine ringing me up and she was in a really tricky situation. Her and her boyfriend of three years have basically just broken up. Now, they live in the same flat together and they've got five months left on the contract. So not only are they going to have to share the flat for another five months, but because it's a one bed flat, they're going to have to share the same bed. Can you even imagine how difficult that must be?

ALEXANDRA LEWIS *Family Lawyer and Mediator*: I remember helping one couple in particular whose communication had become so toxic that they could no longer hear and understand what the other was asking. All they heard were their worst fears.

PL: Let's face it, breaking up is never easy. But when you're in a situation that forces you to get on with an ex, it can be a really difficult divide to cross.

CAPTION: BBC Crossing Divides. How to get on with your ex.

AL: People fall madly in love. And in my experience, they fall madly out of love as well.

PL: You might find yourself in a tricky situation. If you live in the same halls as your ex at university or you go to a party or a wedding of a mutual friend, or you happen to work together.

AL: Often the people I help share children and assets. And although you may not like them at the moment, your ex is likely to be your best possible resource to help you look after your children and create the life that you want for yourself. A messy break-up means that you need to find creative ways to cross the divide.

CAPTION: Tip #1 Give each other space.

PL: I know it's not always possible, but really try to give one another proper space after the break-up. Ideally commit to going around six months to one year with no contact. Just so that you give yourself the chance to get each other out of your system.

CAPTION: Tip #2 Seek advice.

AL: Take advice from all sources, accountants, tax advisors, benefit officers. Whatever is going to help you the most. If you have an area that you're afraid of, if you're afraid of finances, get help. Don't ignore it or stick your head in the sand and hope it will go away. It won't. Embrace it and grow.

CAPTION: Tip #3 Always take the high road.

PL: When you do see your ex in a social situation, go out of your way to take the high road. However difficult that may be. Say hello. Be graceful. Be mature. So I was in a situation like this myself a few years ago. I had been asked to do a speech at a festival about a book that I'd written. Now, this book was mainly about a really painful break-up that I'd had with an ex, and my new boyfriend of a year had come to watch me do this talk. And as the workshop started, in walks my ex from the book with his new girlfriend. And this could have been such an awkward situation for my new boyfriend. But as soon as the workshop was over, he went right up to my ex, introduced himself, and they ended up really, really getting on. So much so that he has very recently asked my ex to be an usher at our wedding next year.

CAPTION: Tip #4 Look into the future.

AL: Get in touch with the new you and who you want to be. Think about where you might want to be in a year's time. Be curious about those options. Think about your wider context. Get back in touch with your passions, your friends and the person that you may have compromised in the relationship. Focus on the future and the person you want to be rather than painful events that may have taken place.

PL: Whatever you do, do not put your mutual friends in an awkward position by making them choose between you and your ex or talking really negatively about your ex behind their back. Trust me, this does not put you in a bad light.

Mental lives and empathise with your ex partners need and try to be objective. It takes a great deal of emotional effort to see your ex through that lens. But remember, you did love them once and you did see the positive attributes. They still have them. You just can't see them right now.

181. How to get seriously good at reading

Are you a slow reader? Or a fast reader? Either way, here's some tips to help you get better at reading - and take more in.

Made by Objekt Films, 12 September 2019

CAPTION: (*Text in strange font*) Are you struggling to read this? Good. Is there a better way to read? It might sound counterintuitive, but fonts that are hard to read actually help comprehension according to readers at Princeton University. This is because we spend more time focusing on each word. Harder to read fonts like Haettenscheiler or Monotype Corsiva make us feel like we haven't mastered the words which encourages deeper processing. (*text flashes up quickly, 'What doesn't necessarily encourage deep processing however is speed reading'*) Did you get that? Probably not. Speed reading highlights key elements of a sentence, like verbs and proper nouns and less time is spent focusing on each individual word. Fluent readers of English read between 200 and 400 words on average per minute. British speed reader Anne Jones can read 4,200. She claims to have read all 784 pages of *Harry Potter and the Deathly Hallows* in just 47 minutes. Some speed readers use a technique called 'Meta Guiding': moving their finger along the line as they read. This can increase your reading speed by 25%. Others use a technique called 'Rapid Serial Visual Presentation' – RSVP. By eye movement altogether you can dramatically increase your reading speed. However, research suggests that fast reading often means you take less in. When reading, we tend to go back and forth across a sentence to work out its meaning. Speed reading overloads the short-term memory, so there's less retention of information. Comprehension improves when we read on paper rather than a screen. But scientists can't agree why. One study found that nearly 80% of students say they prefer reading on paper rather than screens, to 'understand with clarity'. When we read on a screen, we blink around half as often as we would on paper. So your eyes can get dry and uncomfortable. To give your eyes a break, doctors recommend the 20-20-20 rule. Every 20 minutes you should look at something 20 feet (6 metres) away, for 20 seconds. How long have you been looking at this screen? Perhaps it's time to look out the window.

182. How to invent (and be world champion of) your own sport

Introducing Volfsball, a brand new sport invented by comedian Marek Larwood. It's a serious business...

Made by What Larks!, 16 July 2018

NARRATOR: According to the World Sports Encyclopaedia, there are over 3,000 different sports worldwide. But no new major sport has emerged since the 19th century. Marek Larwood has a plan to change that and has created his very own sport: Volfsball.

MAREK LARWOOD: In 2014, whilst ona trip to watch American football at Wembley two friends bet me £20 that I wouldn't able to create my own sport from scratch. Based on my experience, I'm going to show you how to do the same.

N: Step one, name your sport. Table tennis used to be called wiff-waff, but Ping-Pong had a bit more appeal and stuck. Marek decided to take a more traditional approach, didn't you Marek?

ML: The interesting thing I discovered is that sport names are all simple and self-explanatory. For example, football, netball. Unfortunately, all these names were taken. So I just made up a word and put 'ball' at the end of it. Volfsball.

N: Step two, the rules. In wrestling, all wrestlers must have a handkerchief handy, usually carried in the jockstrap to wipe away any blood, sweat and snot. How did you go about picking your rules, Marek?

ML: I spent somewhere between three years and half an hour studying the rules of sport. And I spotted a gap in the market for sports for people with not many friends, i.e. three player sports. Then I noted, in basketball nothing really happens in the middle of the court. So I invented a three aside game that takes place in three circles with three thirds, each lasting three minutes. Lots of threes. In the middle of the pitch, there's a rotating prism with a hoop at the top and players have to throw the ball at the prism or through the hoop to get points.

N: Step three, the equipment.

ML: I told my dad about Volfsball and the next day he went down a DIY shop, built the prototype and we tried it out like two weirdos in the park. By some miracle, the dimensions worked perfectly. Simple kit is crucial to success in this sport. So football, you can play with jumpers for goalposts. Unfortunately, my sport is really complicated and expensive. A prism that rotates with a hoop at the top. Once you've got the kit, you need to transport it in style and then set it up. You'll be pleased to hear this piece of kit won me my £20 bet. But all the prototypes and other equipment cost me over £2000 pounds.

N: Well Adidas spent two and a half years designing the soccer ball for the 2014 World Cup. So it could be worse, Marek. Step four, find a team. In 2016 the FA introduced mixed gender leagues for the under 10s and under 12s where boys play against girls. How inclusive is your sport Marek?

ML: The great thing about Volfsball is that you only need to mates to play it, and then you just need to make up a name for your team and do a rubbish sports logo like these. Volfsball is the most inclusive sport in the entire world because everyone can play regardless of age, sex or ability.

N: Step five, play the game.

ML: The great thing about inventing your own sport is that you can still be really out of shape. And still end up being world champion. Of all the people you've seen play Volfsball today, I knew two of them before I invented the sport, they're just people who found out about it on the Internet and turned up. So it's restored my faith in humanity, the Internet and my stupid ideas.

183. How to make sure your emails actually get read

Billions of emails are sent worldwide every day. So here are some easy pointers to make sure yours are actually read...

Made by Objekt Films, 11 September 2019

CAPTION: 280 billon. That's how many emails are sent worldwide every day (give or take a few billion). But are you emailing wrong? It's estimated that 79% of all emails never get opened. We're drowning in them. The average person in an office job gets around 100 emails a day and has 199 unread emails in their inbox. So how can you make sure that your message gets through? According to a study of 300 million messages, the definitive answer is: Send it on a Tuesday morning, 10am to be precise. After catching up on Monday, Tuesday morning is when many people find the time for individual tasks and become more productive. Then it's downhill to the weekend from there. One study showed that personalising a subject line gives and email a 17% better chance of being read. Shorter subject lines are better because most emails are now read on a phone. The optimum length is between six and ten words. We often scan emails for a conclusion and may miss finer details. They key to a successful email is to be absolutely clear – and keep it short. And don't use the word 'just'. It downplays the importance of the task. Psychologist Daniel Goleman warns that emails tend to be interpreted more negatively than they're intended because they lack the social cues of face-to-face interaction. Should you use emojis? That depends, they're great for conveying emotion. But one study found that while people who smile in person are regarded as competent and positive, the effect of a smiley is not the same. A smiley in a work email can actually make you seem less effective. Email etiquette is cultural and varies around the world. In South America, work emails are expected to include personal notes before getting down to business. But in Germany emails are generally formal and to the point. And unlike in Western countries, silence or not replying is taken as a sign of respect and understanding in South East Asia. If you hate email, you might want to consider some of the tips from the Email Charter. It's a kind of crowdsourced guide to cut down on email. Here's a couple tips. If your email is really short, put it in the subject line, with the letters EOM (End of Message) at the end. That way the recipient doesn't even need to open it. And if you don't need a reply then end your message NNTR which stands for NNTR. Perhaps if we could learn to write better emails, we could send and receive fewer. Wouldn't that be nice? So, write like a German on a Tuesday morning and use emojis sparingly. Easy. NNTR.

184. How to manage your worries

A quick and easy way of coping with the things that you worry about.

Published on 22 April 2016

This video was made by BBC Radio 4

CLAUDIA HAMMOND *All in the Mind:* It's a pretty weird alarm to have, a bit like 'Time to slap yourself in the face with a wet fish.' Not really the thing to seek out unless your diary quickly gets filled with uninvited anxiety. We often think, 'If I worry enough, I can come up with a solution.' But worrying excessively does us no good. Though it's not always as easy as just saying, 'stop worrying.' Often when you try really hard to stop worrying, your worries become more invasive. Like saying, 'Stop thinking about a pink elephant.' One of the most common things I'm asked is how to deal with worries that go round and round in your head. You could try this technique devised by Professor Ad Kirchhoff, a clinical psychologist in the Netherlands who's conducted trials to find methods of helping people to worry less. He's worked with people who are suicidal and tend to ruminate a lot, finding themselves plagued with extremely negative thoughts that go round in circles. He then applied the techniques to anyone who finds themself worrying too much. So how does it work? You schedule your worry time for two 15 minute slots per day. And whenever an uninvited worry pops into your head outside your worry time, you say to yourself, 'Not now. It's not my time to worry now. I'll get to you later.' Don't have the worry time in bed or in your favourite chair. Sit upright, treat your worries like a job you have to do. Seek them out and deal with them one by one. This time, we only offer the worries a five minute window. Then for the last 10 minutes, schedule in a positive worry, think about a time you were happy or proud and treat this memory and the way you do your worries, analyse the memories, go round and round the positives, run over them in your head. Feel the good feelings and remember the sights, sounds and smells. When, you start to worry outside your scheduled time. Find a way of distracting yourself by reading a good book that transports you to another world by calling a friend, or listening to your favourite music. This technique isn't about ignoring your problems. You will get to them when the time is right. It's just that for most of us, the negative stands out. We're wired to spot a dangerous snake at once because that matters more to our survival than enjoying looking at a pretty flower. So try not to let your worries have more attention than they deserve. You can't get rid of all your worries, but you can keep them in their place.

185. How to negotiate a payrise

Not being paid what you're worth? Expert negotiator Natalie Reynolds shares her strategy.

Published on 3 January 2018

This video was made by BBC Woman's Hour

NATALIE REYNOLDS *CEO, avantageSPRING*: People aren't necessarily going to tap you on the shoulder and hand you what you deserve. It's up to you to get what you need. So here are my four top tips for negotiating your salary. And it's based on an approach called the REAP Approach. Firstly, research. And this is about making sure before you get to that salary conversation, you have researched everything that you're going to need to know and understand. So you need to research the marketplace. You need to research baseline salaries. You need to research what's going on in other comparable industries, but do as much as you can. You need to establish what is the minimum you will accept. You need to establish what your target is going to be. You need to establish what you're looking for in terms of maybe promotion opportunities. And be clear on all of that. Now, interestingly, in negotiation, a lot of people will avoid making the first proposal. And yet making the first proposal can give you an incredible advantage when you are negotiating for something. Be ambitious in what you ask for. Give yourself wriggle room. Test the waters to what they might be willing to give you. Just a word of caution, though. Don't ask for a number that is absolutely ridiculous because then you might hit the 'piss off' point, which is the point at which you've opened so ambitiously you lack credibility. And the other side may well tell you to do just that. The ability to persevere and to keep going, even when you are given a no, is essentially the sign of a brilliant negotiator. So they might say things like, 'Oh, okay, so what could I do to get you closer to my number,' or, 'Okay, so you can't move on the number. Could you move on these other aspects of my contract?' It's about having questions ready and being prepared to open your mouth and keep things going.

186. How to paint your city like a rainbow

Homes in Kabul are being painted vibrant colours in an attempt to brighten people's lives.

Published on 25 October 2017

This video was made by BBC World Hacks

CAPTION: From this [drab houses in Kabul] to this [painted houses in Kabul]. Afghanistan's capital city is getting a colourful makeover.

AHMED MASIH *Painter:* Some of the painters live here. Others are from different parts of the city. We're here to make our motherland beautiful.

CAPTION: Afghanistan has been hit by years of war, wrecking lives and property. Some people moved to Kabul as it was safer than where they'd come from. Many built homes in unplanned settlements in the hills. Now there are efforts to improve life for these new residents. They are being helped to paint their homes bright colours. The aim is to cheer people up. And nurture a sense of pride about where they live.

AM: We are very proud of this work, because we are making our country look better to the outside world and we are doing it ourselves. Our country is not peaceful. Everywhere there are suicide attacks, bomb blasts and bloodshed. So at least people can see something nice and feel calm. They can feel normal.

CAPTION: It costs between $60 to $70 per house. The local government is funding the project.

NAJIBULLAH ALKOZAI *Mayor Kabul District II*: These unplanned areas in Kabul, people think that the government doesn't take care of them, doesn't solve their problems and these things. But with the start of these activities, now people think that we are part of this government and they do some project for us as well.

CAPTION: The idea came from the city of Pachuca in Mexico. To help revive a deprived district, residents and artists spent six months painting the area. Rival gangs also worked with each other on the project. Community spirit grew and crime rates went down. But critics says new CCTV cameras improved security not the makeover. So will the painting project work in Kabul? That may prove difficult to judge as it's hard to measure happiness. And some argue the funding would be better spent providing basic services like running water in homes. But the authorities believe the project will make a difference. They hope to paint more than 40,000 homes.

187. How to save a young mother's life with a condom

Many women in the developing world die during childbirth - but a cheap kit containing a condom could save tens of thousands of lives.

Published on 2 August 2017

This video was made by BBC World Hacks

CAPTION: How can a condom, a catheter and a syringe stop women from dying in childbirth? Nairobi, Kenya.

ANNE MULINGE: My name's Anne Mulinge, a midwife who loves her work. We have saved three lives with this. Women who are bleeding so much and once we started using it, she stopped bleeding.

CAPTION: Worldwide a mother dies every two minutes in pregnancy or childbirth. The biggest cause is severe breathing (or postpartum haemorrhage). The solution is called a UBT kit. But it can cost over $400. Too much for many clinics in the developing world. But this version, called the ESM-UBT kit uses everyday items. So it costs less than $5. And it works.

AM: This is the condom and the catheter. And what we do is we put the catheter right inside the condom. We have to tie it. This is how it is tied. Now, let us assume this is now the uterus. You can you put it using your fingers. It goes inside well. This is the saline. See the way the balloon is coming up? The bigger the balloon is, the better, because it causes a lot of pressure within the uterus to stop those bleeders.

ANIMATION: MEDICAL AID FILMS: Grace is a midwife at the local health centre. Every day she helps deliver babies. Today to the health centre, Mary is in labour.

AM: Early last year, we had a patient who delivered and then a few minutes after the placenta was removed, she started pouring blood like water? It was pouring non-stop. And that is the time I remembered. 'Oh, I have the UBT, I should use it.' I opened it, prepared it and put it inside the uterus. And within five minutes, the flow of the blood was not like before. And she became stable. She left the hospital well with the baby. She is a very happy patient.

ANIMATION: Mary and her baby are safe and healthy.

CAPTION: Tests have shown the kit has a 97% success rate.

188. How to solve a cryptic crossword

Cryptic crosswords made easy. Become a genius at them in three minutes.

Made by Splinter Design, 7 September 2018

NARRATOR: How to begin at cryptic crosswords with expert advice from Ashley Knowles, a.k.a. Boatman. What is it about cryptic crosswords. Messages to a secret agent? A manual on how to build an alien spacecraft? The ramblings of a lunatic? Cryptic clues do mean something. They're just not what they seem. There's always one way to read a clue that will tell you what to do. Most cryptic clues have two parts. One part teasingly defines the solution. The other part is a playful way to get to the same thing. But which is which?

CAPTION: Where to find transport for a fish? On a boat? (3, 4)

N: Is this about finding transports or boats? Let's guess it's about transport and see what the rest of the clue could mean. What fish do we know? And boats. Hang on, we know what a 'Carpark' is. Sometimes key words will tell you what to do. Look out for anagram indicators. Sounds like indicators which are often phrases you just need to learn to recognise. Or reversal indicators. And don't give up. Remember, the person who set the crossword wants you to solve it. He or she may play the part of an evil genius torturing the hero who enters their lair, but you are Bond and Bond always wins. And you may even learn some new words along the way.

189. How to solve youth violence (and how we can all help)

Knife crime and youth violence are rarely out of the news - musician and mentor Femi Koleoso says we can all play a role in tackling them.

Published on 14 November 2018

Made in partnership with BBC Radio 4

FEMI KOLEOSO: We'll never stop youth crime unless we give young people a future that they can believe in. We all need to take a look into ourselves and think maybe we are the problem, but maybe we can be the solution. Yo, my name's Femi Koleoso, I'm a musician. I play the drums for Ezra Collective, Jorja Smith Nubya Garcia. And I'm also a youth leader and so I spend a lot of my time when I'm not touring, spending time with youth and children around London. When you starve someone of a future and of a dream, everything that they act in, everything becomes very much in the moment. And that's where you get such negativity, like some of these stabbings.

CAPTION: Knife Crime rose by 22% in England and Wales in 2017. Source: Office for National Statistics.

FK: For me, I'll be honest with you, I was never really a candidate for that. I was born into a stable home. I mean, yeah, there were hard times, yeah there were rough times. But I was born into a stable home where some of . . . that lifestyle wasn't really me. But I grew up around that lifestyle. It does no good just speculating and tweeting, 'Oh, London's a war zone. This is so bad. This is so negative. London is just as bad as New York.' Those kind of things don't help the issue. There's a lot of children that come to me. Their home is in a broken state. And they're not really getting the positivity they need from their home. And they're going to a school that is failing and struggling. You know, six different English teachers in a curriculum year and they're not seeing themselves passing their GCSE. They're not seeing themselves achieving those A-levels that are going to get them into uni. And suddenly you start to starve these kids of their future because they're not seeing it in a long term, positive way. One of the things that made . . . or a few the things that made such a massive difference to my life was people that were planting long, long sighted visions into me. For me, I remember when I was attending SE1 united - a youth club in the Southbank, there was just a normal guy, worked a normal nine to five in Canary Wharf, but he could speak English and Spanish. So he dedicated his Wednesday evenings to chilling with me and speaking Spanish with me. I had mentors much older than me that made me think, 'You know what? One day I could be like them when I'm older.' So that's what we need to be doing together as a community to all of these individual children. You know, meeting up with a kid might be the reason they don't roll out with a knife that evening because they're thinking instead of going out and dealing with this momentary anger I've got, I'm actually going to go and chill with this person and learn the violin, or learn a little bit about statistics, or learn a bit a bit about filming or journalism, etc. It's about giving the kid a reason to wake up every morning and think there is something to be achieved today. I know for me, I'm blessed that I play an instrument and a lot of kids love music. And it's not a case of being the best drummer in the world. I'm not the best drummer in the world, but if I know a little bit more than you, then I'm qualified to teach you, and that goes for any subject or any scenario, even if it's just an email once in a while, even if it's just a message, 'Yo, how's it going?' I mean, half the drummers that I've taught, they're not professional drummers right now. Some of them are, but some of them aren't. But you know what? Every single time I teach to kids, you kind of give them a personal relationship, someone to look up to. Even if it's just like, 'You know what, check out this tune.' I don't really care if they check out

the song, but it's a connection that you build with them, because what we need to be doing as a community is planting seeds into these children's head that make them believe 'I can achieve something and I can have a future.' You don't see news headlines like, you know, young footballer for Arsenal Academy stabs this person. And a big reason for this is because those kids have had that future planted into their head. Those kids are seeing their lives long term, and what they could potentially achieve. So people with a certain profile and gravity behind them, think of the bigger picture. Think about the schools in your borough that are cutting extracurricular activities left, right and centre because of lack of funding, and think, 'How can I go into those places and help bridge that gap and address that issue?' Do you know what I'm saying? It's not about who you are, but it's about what you're willing to give them. Don't just be a spectator, but try and put yourselves into the scenario and try and be a part of the solution.

190. How to speak like Shakespeare

Who wouldn't want to talk like the Bard? He certainly knew his way around the English language... (Performed by Passion in Practice.)

Published on 1 March 2016

This video was made by BBC Radio 4

ACTOR: Shall I compare thee to a summer's day? Rough winds to shake the darling buds of May.

PRESENTER: Shakespeare never sounded like that. The empty vessel makes the greatest sound. Life's but a walking shadow, a poor player that struts and frets his hour upon the stage and then is heard no more. It is a tale told by an idiot, full of sound and fury, signifying nothing.

A: Alas, poor Yorick.

P: Shakespeare wasn't about shouting from an ivory tower. He was in the pub with the rest of us.

[Extracts from Shakespeare, performed by actors]

P: In fact, 95 percent of the words in Shakespeare's plays still make sense to us today.

ACTOR 2: Without a doubt. Foul play. I said to him, when the battle's lost and won that's when the game's up. I was having none of that. He didn't fool me. He was more sinned against than sinning.

ACTOR 3: You speak an infinite deal of nothing.

P: Shakespeare has room for every different accent under the sun.

[*Actors reciting 'To be or not to be' in difference accents*]

P: And he dropped rhythms like your heartbeat. If music be the food of love, play on. And he used rhyme and wordplay to draw out the poetry, comedy and tragedy of life.

[*Actors recite more famous lines*]

P: And whether he was writing about kings or commoners, he was writing about things that still matter to us now. So when it comes to speaking Shakespeare, he wrote plays, not reads. You definitely want the Bard in your corner. He was sassy.

[*Actors recite Shakespearean insults*]

P: Shakespeare was daring with language, he broke the rules, loved to play. So the real way to speak like Shakespeare? Play with language more. Out of my sight, thou dost infect my eyes.

191. How to speak like a child

Children have their own words for all kinds of things. It can be confusing! So here's a lesson for adults in 'child speak'.

Made by Quintessence Films, 26 October 2018

BOY: Ice cold.

GIRL: Roast.

GIRL 2: Datcha – D.A.T.C.H.

BEN: Children have their own language that adults don't understand. But adults also have their own language that children don't understand, even if they don't realise it.

KUBA: And this is our guide to the words that we use that you adults don't understand.

VOICEOVER: Child speak, scene 99, take one.

B: My word is 'Ohhhh!!!' This word means when you have been wrecked. It's origins are from Christian in Year 4, who has now left.

K: My word is 'sick'. It means that something is really cool. But adult . . . most of the adults think that it means something really bad. And I think it comes from when somebody was on a rollercoaster and it was really fun, but they threw up, so they said it was sick.

B: What is your chosen word?

GIRL: Thornturning

B: What did this word mean?

G: It means when you're really, like, uncomfortable and it's not that pleasant.

B: Where did you first hear this word?

G: I just made it up. People don't know what I mean, and I . . . I just say it and they're, 'What?'

BOY: Roast. That means when you cleverly insult someone, for example, 'Keep rolling your eyes, you might find a brain back there.'

GIRL 2: Lit.

B: What does this word mean?

G2: It means something cool.

B: Where did you first hear this word?

G2: I heard my friends say it.

GIRL 3: Yeet.

B: What does this word mean?

G3: It means, like, when you throw something, you don't . . . you say something whilst throwing it backwards. Like, if I was opening a present, and I'd finished opening it, I would scrunch up the paper and throw it behind me and say, 'Yeet.'

BOY 2: Ice cold. It means that something's very cool. So, 'This new motorbike is ice cold.' So, it's a really cool motorbike.

GIRL 4: [Caption, 'Slumberparty'] It's a sleepover, but you have to wear your pyjamas for the whole day. It's a great way to describe a summer party, but very different.

GIRL 5: Datcha – D.A.T.C.H. Something weird but awesome. 'This cake is datcha,' like, if I had a chocolate cake but, in the middle it was . . . I don't know, spinach.

B: As well as words, we also have moves.

BOY 3: The dance moves, and they're a new trend that people see on YouTube and Instagram and things like that. When you do them, it expresses your feelings. I use the 'hype' when I' have fun and use the 'floss' when I'm bored.

B: Want to learn child speak?

K: Ask a child.

B: You never know what you could learn.

192. How to speak when you don't have a voice

Some disabled people have no voice or are hard to understand. That doesn't mean they have nothing to say, explains filmmaker Jemima Hughes.

Made by Jemima Hughes & Screen South, 12 April 2019

CAPTION: Technology for Talking narrated by Jemima Hughes using an electronic communication aid.

JEMIMA HUGHES: Meet Sarah, a digital artist. Martin, a web developer and new father. Helen, busy planning her wedding. And me, Jemima. I'm making this film. We have an important thing in common. We talk using electronic communication aids talking computers.

CAPTION: WHY DO YOU TALK WITH COMPUTERS?

JH: Some disabled people have no voice or are very difficult to understand. This does not mean we have nothing to say. We can communicate using alternative and augmentative communication, or AAC. With voice output communication aids, a synthesised voice can speak our words.

CAPTION: HOW DO YOU MAKE IT TALK?

JH: Most communication aids are touchscreen computers with an integrated speaker. Messages are created with a keyboard, onscreen alphabet or symbol-based software. But many of us have limited hand function, so we have to find alternatives. We might use a switch controlled by the hand, head or foot. I use vibrations from my throat. The computer scans through options until a selection is made with the switch. In recent years, eye gaze technology has allowed many people to control a communication aid using eye movement, tracked by a carefully calibrated camera. The same technology can also provide independent control of the home environment and anything done on a computer from film editing to grocery shopping.

CAPTION: DO YOU ALL TALK LIKE ROBOTS?

JH: Early synthesised speech sounded somewhat robotic and offered limited choice of voices. Today a wide range of accents and characteristics are available, although some people keep the voices they have always used. Stephen Hawking chose not to update his voice, because it was so well known and had become part of his identity.

CAPTION: LOOK UP AT THE STARS AND NOT DOWN AT YOUR FEET.

JH: Now "voice banking" is becoming more accessible and affordable. Someone whose speaking voice will soon be lost can record words and phrases from which the sounds of their voice can be replicated on a computer. People who have never been able to speak can invite a family member or friend to be a "voice donor". Technology for talking is increasingly individualised.

CAPTION: IS IT DIFFICULT TO TALK WITH A COMMUNICATION AID?

JH: Talking with a computer is not easy. Switch access and eye gaze are tiring. It takes intense concentration. But often the biggest challenge is the attitude of others. It takes me a long time to compose a message. Some people walk away before I finish, because they get bored or think I'm incapable of responding. We are often disregarded or patronised by people who do not recognise that we have something to contribute if they give us time to respond. Technology for talking can seem slow and frustrating, but it allows us to express our ideas, work, create and form relationships.

CAPTION: SO, WHAT DO YOU ALL DO?

JH: Sarah Ezekiel creates beautiful art using eye gaze technology. Martin Pistorius' memoir 'Ghost Boy' topped the New York Times' bestseller list. Helen Quiller helps run a national charity supporting disabled children. And I am Jemima Hughes, a filmmaker and animator. We don't have speaking voices, but we lead full, creative lives. Technology gives us a voice and enables us to participate. So next time you meet someone who talks with a communication aid, don't be shy! If you give us time to answer, you'll find we have something to say.

193. How to swear like a Swede

Vad fan! (That's "what a devil".) Because who doesn't want to adopt some of Sweden's strangest swear words? Contains strong language, obvs.

Published on 22 August 2017

This video was made by BBC Radio 4

MALE: Well, for the most common Swedish swear-word you need 'Vad' meaning 'What' and and 'Fan' meaning 'Devil.' Put them together you get 'Vad Fan'.

FEMALE: What the Devil

MALE 2: Vad Fan.

M: In Sweden we swear a lot. We're not shocked by swearing like you, prudish Brit.

F: We can say anything. We can even swear on television. And we can even use your swear words. So we can go (*bleeped out*)

MALE 3: Hey, you bleeped it you cowards!

M: You (*bleep*)

M3: First Brexit and then bleeping, I hate those (*bleep*)

M: Here's one for someone you're really angry. Perhaps they have stolen your meatballs or forced you to put together some IKEA furniture.

F: Din javla skitstovel. free.

M3: You devilish poop-boot.

M: Why would you fill a boot with poop? I don't know.

FEMALE 2: But it's really rude.

M3: Don't say that ever to a Swede, unless they did something really, really bad, like pooing in your boot.

F: Okay girls, so there's this sleazy guy talking to you. What do you do? What do you say? It's easy.

MALE 4: Hello sexy.

F: Din snuskummer. You dirty lobster.

MALE 5: Okay, so this one is really offensive and it goes like this. Ga och dra nagot gammalt over dig.

F: Go and put something really old over you.

F2: Why do we say this? I have no idea. I

M3: If someone has really crossed the line. I don't know what they've done. Maybe that forced you to listen to Abba's all songs, you know, back to back. I don't know. But then you can say . . .

F: Nu har du verkligen skitit I det bla skapet.

M3: You don't want to hear that from anyone.

F: Now you really pooed in the blue cupboard.

F2: So now you have learnt to swear in Swedish. Why don't you try it out by saying it to a Swede?

M3: Go ahead, do it. I dare you, (*beep*) face.

194. How to throw like a pro and win at stone skimming

Stone skimming isn't easy - there are whole championships devoted to the art of the perfect throw. Want to be a champ? Have a watch of this.

Made by Splinter Design, 22 March 2019

NARRATOR: How to win at stone skimming with help from Dr Hugh Hunt.

CAPTION: Dr Hugh Hunt, engineering professor at Cambridge University

N: Skimming, skipping, ducks and drakes. Whatever you call it, if you want to send a stone bouncing across the surface of the water, there's a surprising amount of science and technique involved. It's almost the same science that allowed engineer and inventor Barnes Wallace to create the bouncing bomb used in World War Two to attack German dams. The so-called Dambusters raid. Okay, so first you need to find the right stone. Wonky-shaped, thickset pockmarked stones are not recommended. Don't worry about it being perfectly smooth. But the ideal stone is flat and round, rather like a digestive biscuit, though maybe not quite as big. It just depends on the size of your hand. The key to a good throw is spin. The gyroscopic effect stabilises the stone, as long as it is spinning fast enough, preventing it from tipping over and falling into the water, just like a spinning top has to be spinning fast enough to stay upright. Amazingly, it's the same gyroscopic effect that keeps the earth spinning on its fixed axis in space. There are lots of ways to grip and throw the stone. But here's a good one to try: grip the stone with your thumb and fingers with your index finger around the edge. As you throw, bend down as low as you can and aim towards the water, keeping the stone horizontal. A good angle for the stone to bounce when it hits the water is about 20 degrees. At this angle, even a beginner can get away with a sloppy throw. But if you are good and you can throw the stone both level and fast, then go for as shallow an angle as you can. It's your index finger that will do all the work, generating speed and spin in the direction of the two arrows. The whip of your wrist creates extra spin. Lift your thumb off the stone at the last minute, get it right and you'll see more than two bounces. Who knows? On flat water you might get the stone to bounce 10, 15 or even 20 times. But don't expect to get into the Guinness Book of Records in 2013. Kurt Mountain Man Steiner from the US managed to get his stone to bounce a record breaking 88 times.

195. How to win a (Rugby) World Cup

Find your mantra. Look forward. Former England rugby star Maggie Alphonsi shares her tips for success.

Made by BBC Studios, 13 July 2018

MAGGIE ALPHONSI: My background's quite challenging. I grew up on a council estate, a single parent family. I was born with a physical disability. Regardless of your background, if you really want to achieve something, you can. So my first tip would be look forward. So the challenge I would have when I was playing was that I'd make a mistake quite early on and then I'd spend effectively 60 minutes worrying about what I done in the first 10 or 20 minutes of the game. I would dwell quite a lot. And it would affect me to the point where at halftime I'd get subbed off. And that's the worst thing. But when you make a mistake, just think forward. Look forward. Think about what you're going to do next. And that'll take you away from the previous error. So my next tip would be 'Find your mantra.' When I was born, I was born with a physical disability called clubfoot. So it's basically where one or both of your feet are completely turned all the way in. It still sort of has a slight angle in when I run.

Over my career, I think I've had many times where I've had a bit of, I guess, self-doubt and very negative thoughts. I really needed to work very hard on that mental side. So I came out of my mantra: 'Fit and fast and athletically strong.' And so it was all about me being confident in my body before I played in a big game, I would say to myself that mantra, 'Right. That's me. I'm going do it. I'm going to show people how good I am.' So my next tip would be to think in ink. By that, I mean, it's important that people set goals. And when you write it down, it really does focus your mind and it focuses your behaviour. And I think what's good about having a structured diary is that it allows you to, again, be organised. It allows you to feel good about yourself when you've done it, monitoring your progress and allows you to improve. So my final tip would be switching off. I think it's important to recognise prior to a game or prior to any big event that you're going to deliver, giving yourself time to think about what you're about to do. Early in my career, I used to be very much . . . I wouldn't give myself that time and space and I'd just go into a game or almost like a headless chicken, because I'll be so excited. And then as a result of that, in the first 10 minutes, I'll give away a penalty. So I'd always say to people where possible switch off. Prior to a big game, I like to take my dogs for a walk. I've got two dogs. And that allows me to feel quite comfortable and confident. So when I have to perform, I'm ready to go and I'm not anxious. It was incredibly special to actually achieve and win that World Cup. I felt happy. Felt ecstatic, felt all of those great emotions. But actually the biggest emotion that came through was relief because we spent 12 . . . 12 years building up to that point, we'd lost two World Cup finals prior to that. If I'd won the World Cup straightaway with my team, it wouldn't have been that special. It wouldn't have meant anything if we hadn't had that journey.

196. How to win at Poohsticks

Poohsticks is that game where you throw a stick over a bridge. And believe it or not, there is a perfect poohstick. And an equation to boot.

Made by Splinter Design, 7 September 2018

NARRATOR: How to win at Poohsticks with expert advice from Dr Ryhs Morgan (*Royal Academy of Engineering*). So you think Poohsticks is a simple game of luck invented by a bear of very literal brain? You couldn't be further from the truth. It is actually a game of skill and science. There is a perfect pooh stick and . . . wait for it. There is even a scientific formula to describe what it's like: Pp= A x D x Cd. If you don't want to be beaten, you need to understand this formula and get yourself a winning stick. Pp stands for the perfect Poohstick. So far, so easy. A is the stick's cross sectional area. D represents its density and Cd its drag coefficient. Let's turn science into reality. We need to pick a stick with a large cross-sectional area so that as much of it as possible is in contact with the water. It needs to be dense so that it sinks to the part of the water that is moving the fastest. The problem is wood is less dense in water. So the trick is to look for a waterlogged stick as the water in it makes it denser. And if it has a rough surface, its higher drag coefficient means that it will accelerate quicker. So there we have it. The best sort of poohstick is tubby, fairly

heavy with lots of sticky out bits – not unlike the bear himself. While an elegant, stereotypical poohstick might just lose you the race.

197. How to win at rock-paper-scissors

Three simple, but effective, game strategies to help you triumph at that all-important game, rock-paper-scissors.

Made by Splinter Design, 7 September 2018

NARRATOR: How to win at Rock, Paper, Scissors with expert advice from Dr Ben Dyson (*University of Sussex*) Rock, paper, scissors is an ancient game of cunning and chance. If only there was a way to improve those chances. Turns out there are a few key strategies. The game is mainly about predicting and reading your opponents. So what if you could predict their first hand? Research has shown that there is a slight preference for people to begin by playing rock. There are different theories about why it could be because it is mentioned first in the name of the game, or it could be because rock is similar to a fist, which seems powerful. So if we know that it gives us an edge, just play paper. Research shows that people who lose a hand tend to change. So there is a reasonable chance that our opponent will change to scissors or paper. That gives us our second edge. Just play scissors and we should either win or draw. But this isn't an exact science. What if it doesn't go to plan and your opponent wins? Perhaps they know a bit of game strategy, too? If we lost the previous hand, then our opponent might reasonably expect us to switch to something else. This gives us our final edge, surprised them by sticking with our previous choice. Hopefully they'll switch, expecting us to switch, and it should improve our chances. The less predictable you are, the better chance you have of winning.

198. How to write a winning political speech

Cody Keenan, speechwriter to President Barack Obama, shares his top tips for how to deliver a speech that will be remembered.

Published on 30 August 2018

CODY KEENAN *Speechwriter for Barack Obama*: The secret behind any great speech, it all . . . it all begins with the speaker. You know, having somebody who has that world view, who knows what they want to say, who knows what story they want to tell. That's critical. I mean, a speechwriter can come up with something on their own. But it really needs to be a collaborative process with the person who's speaking. Well you approach any speech by asking yourself what story do we want to tell? We try to come up with a headline for the speech first, you know, whether it's one, two or three sentences, because that's what you have to hang everything on. Otherwise, it won't hold together.

DONALD TRUMP: Tonight, I want to talk about what kind of future we're going to have and what kind of a nation we're going to be.

CK: One thing all great speeches have in common is that they're bigger than the place. They say something bigger than the moment, something like Lincoln's Gettysburg Address. He said it wasn't just to consecrate the ground where soldiers gave their lives. It was to dedicate ourselves to making sure that a nation conceived in liberty can endure. So any great speech has to speak to something bigger than that particular moment. You have to look beyond the headline you're going to get the next day, you have to look beyond tweets. We wouldn't necessarily write speeches with an eye towards what people will say about it in 50 years. But you're thinking about the broader sweep of history and where you fit.

JFK: today in the world of freedom. The proudest post is Ich Bin Eine Berliner.

CK: You know, other things that make a great speech are authenticity. And authenticity is, you know, so it's something more than just the truth. It's actually saying what's true. And I don't just mean facts. I mean things that people know, the way people speak in their everyday lives. Not every great speech has to be up here, like Lincoln or Kennedy. And people can tell when you're trying too hard. A lot of times great speeches are just talking to people where they are.

PRESIDENT MACRON *French Presidential Election (Translated*) Your fervour, your energy, your courage, always is something that's going to carry me forth.

CK: Humour goes a long way in speeches, but it's also very hard. President Obama would also say, you know, 'Give me some more jokes in here.' Comedy is difficult. We're all always very lucky that President Obama had a great sense of comic timing and he knew it. But he was always good at telling jokes. He relished, you know, he'd always dig at himself first in some self-deprecating way just to open it up so that he could dig on somebody else.

BARACK OBAMA: I am told that the last three speakers here have been the Pope, Her Majesty, the Queen and Nelson Mandela, which is either a very high bar or the beginning of a very funny joke.

CK: You want to know where you are and who you're talking to. If it's as small as visiting a high school and knowing who the mascot is, that handshake at the top of the speech goes a long way. And then you have the permission structure to take the audience on a greater ride.

MICHELLE OBAMA: I want to thank all of the students here, the smart, powerful, creative, accomplished young women of Mulberry School for Girls. You're all beautiful.

CK: Any aspiring speechwriter should just start writing. Constantly. Whether it's journaling, whether it's, you know, preparing a speech you wish you had the chance to write, so you have something to show somebody. I'd also say read widely. You know, that's . . . that's where empathy comes from, is understanding other people's lives and worldviews beyond your own. I don't have any classic training in speech

writing. I started out as a pre-med student and chemistry changed that course pretty quickly. But I would tell students, you know, take a lot of history courses. It doesn't always have to be writing and composition, history, economics, philosophy, because you're going to pull from all those disciplines in any good political speech.

BO: And with that, I just have two more words to say. Obama out.

199. How trees secretly talk to each other

Who knew? Plants talk and share resources using an underground network described as the "Wood Wide Web".

Published on 28 June 2018

This video was made by BBC World Service

NARRATOR: Trees may look like solitary individuals, but the ground beneath our feet tells a different story. Trees are secretly talking, trading and waging war on one another. They do this using a network of fungi that grow around and inside their roots. The fungi provide the trees with nutrients and in return they receive sugars. But scientists have found this connection runs far deeper than first thought. By plugging into the fungal network, trees can share resources with each other. The system has been nicknamed the Wood Wide Web. It's thought that older trees, fondly known as mother trees, use this fungal network to supply shaded seedlings with sugars, giving them a better chance of survival. Those trees that are sick or dying may dump their resources into the network, which might then be used by healthier neighbours. Plants also use fungi to send messages to one another. If they're attacked, they can release chemical signals through their roots, which can warn the neighbours to raise their defences. But like our Internet, the Wood Wide Web has its dark side too. Some orchids hack the system to steal resources from nearby trees and other species, like the black walnut, spread toxic chemicals through the network to sabotage their rivals. Arboreal cybercrime aside, scientists are still debating why plants seem to behave in such an altruistic way. The hidden network creates a thriving community between individuals. When you're next in woodland, you might like to think of trees as part of a big super organism, chatting and swapping information and food under your feet.

200. How was Arthur C Clarke able to see into the future?

In the 1960s, futurist and writer Arthur C Clarke predicted satellite technology, 3D printing and artificial intelligence. How did he know?

Published on 10 January 2018

This video was made by BBC Archive

ARTHUR C. CLARKE *Horizon, 1964:* The only thing we can be sure of about the future is that it will be absolutely fantastic. So if what I say now it seems to you to be very reasonable, then I'll have failed completely. Only if what I tell you appears absolutely unbelievable have you any chance of visualising the future as it really will happen.

CAPTION: Arthur C. Clarke was a British science fiction writer, futurist and inventor. His predictions about the future were regularly ridiculed. But he often had the last laugh. In 1945, he proposed building a satellite network in orbit. People were sceptical, but 20 years later Intelsat 1 was launched. Today, Clarke's predications on a host of other technological breakthroughs seem uncannily accurate.

CAPTION: Telecommunications.

ACC: I'm thinking of the incredible breakthrough which has been made possible by developments in communications and above all, the communications satellite. These things will make possible a world in which we can be in instant contact with each other wherever we may be, where we can contact our friends anywhere on Earth, even if we don't know their actual physical location. It will be possible in that age for a man to conduct his business from to Haiti or Bali just as well as he could from London.

CAPTION: Today there are over 2,000 communications satellites in Earth's orbit. Satellite technology has brought global coverage to television, phones and the internet and has transformed society as we know it.

CAPTION: Remote surgery.

ACC: If it proves worthwhile, almost any executive skill, any administrative skill, even many physical skill could be made independent of distance. I'm perfectly serious when I suggest that one day we may have brain surgeons in Edinburgh operating on patients in New Zealand. When that time comes, the whole world will have shrunk to a point.

CAPTION: The first successful remote surgery operation was performed on 7 September 2001 by surgeons in New York. The patient was over 6,000 km away in the French city of Strasbourg.

CAPTION: Artificial intelligence.

ACC: The most intelligent inhabitants of that future world won't be men or monkeys. They'll be machines. The remote descendants of today's computers. Now, the present day electronic brains are complete morons. But this will not be true in another generation. They will start to think and eventually they will completely outthink their makers. We are now at the beginning of inorganic or mechanical evolution, which will be thousands of times swifter. I think we should regard it as a privilege to be a stepping stones to higher things.

CAPTION: From driverless cars to voice assistants, Artificial Intelligence has limitless modern applications. But despite the continuing rise of AI technology, humans remain firmly in charge. For now.

CAPTION: 3-D Printing.

ACC: Looking as far into the technological future as I dare. I'd like to describe the invention to end all inventions. I call it the replicator and it's simply a duplicating machine, but it's a duplicating machine that can make an exact copy of anything. Can we imagine a world in which objects can be made as easily as today we can make books. Don't ask me exactly how the replicator would work, if I knew I'd have patented it at once.

CAPTION: 3D printing technology was first developed in the 1980s, and is in widespread commercial use today. A vast array of objects has been created using the process, including cards, firearms and even body parts.

ACC: Trying to predict the future is a discouraging and hazardous occupation.

CAPTION: Some of Clarke's predictions made him sound like he'd gone bananas.

ACC: We could certainly solve the servant problem and with the help of the monkey kingdom. Of course, eventually our super chimpanzees would start forming trade unions and we'll be right back where we started.

CAPTION: Ape servants are still not yet a part of everyday life as far as we know. And not all of Clarke's predictions have come to pass.

ACC: And that is why the future is so endlessly fascinating, because the try as we can, we'll never outguess it.

201. How we became obsessed with UFOs

For centuries, strange lights and objects in the sky have fascinated us but during the Cold War, UFOs became a part of pop culture.

Published on 20 February 2020

This video was made by BBC Archive

CAPTION: For centuries, strange lights, objects and celestial wonders in the sky have terrified and intrigued us.

UNNAMED ENGLISH MAN: A brilliant white light coming from over my shoulder here.

UNNAMED AMERICAN MAN: It was a very dazzling, brilliant appearance.

UNNAMED SCOTTISH MAN: It just came right up beside me. And . . . I felt a tug on my trousers.

CAPTION: The sense of unease at the sighting of extraordinary phenomena was particularly heightened during the Cold War.

TITLE: How we became obsessed with UFOs.

CAPTION: the Cold War was the long-term rivalry between USA and the USSR and their allies. As well as a war of words, there were top-secret military projects, a nuclear arms race and the space race. The fear of nuclear Armageddon and the threat from the skies seeped into the public's mindset. The US Air Force's Project Blue Book recorded 12,618 sightings of 'identified flying objects' between 1952 and 1969. In the UK, recently published memos show that in 1952 Prime Minister Winston Churchill was moved to ask: 'What does all this stuff about Flying Saucers amount to? And what can it mean?' Sci-fi publications flourished and inspired the public to look beyond the limits of our own planet and consider whether there was intelligent life out there. As TV ownership boomed ideas of aliens, space travel and UFOs all became mainstream. Shows like Doctor Who and Star Trek were beamed into front rooms around the world. Footage of the moon landing in 1969 captured the world's imagination.

NEIL ARMSTRONG: One small step for man, one giant leap for mankind.

CAPTION: In the UK, this growth in sci-fi culture coincided with an increase in reported sightings. Where all these strange lights in the sky a welcome distraction from the Cold War raging on the ground? Was military technology as-yet-unknown to the public part of the story? Or was there a bigger game being played, an exercise in shifting the public's attention from terrestrial tensions to the saucers and little green men? Many UFO sightings were actually explainable phenomena such as the re-entry or launch of satellite or weather balloons, meteorites, or light pollution. Early radar equipment could also be unreliable. The Berlin Wall fell in 1989 and the Cold War itself ended in 1991. While UFOs and aliens were still a part of pop culture the narrative shifted and they were more often posited as being part of a government cover-up. An incident at Roswell in 1947 fascinates ufologists and conspiracy theorists to this day. The US government says it was the site of a weather balloon crash, but others claim it was an alien spacecraft and that the US military recovered the extra-terrestrial passengers and performed autopsies on them. In recent years, the number of new UFO sightings has fluctuated. The UK's Ministry of Defence stopped recording them in 2009, deciding that they served 'no defence purpose'. But although much discussion of UFOs has moved out of the mainstream many of us remain fascinated by the idea of alien life. The truth is out there.

202. How we fell in love with sushi

How we came to love eating raw fish - an animated history of sushi, written by food historian Annie Gray.

Made by Somethin' Else, 6 July 2018

NARRATOR: Once described as, 'No different to the vomit of a drunkard', sushi has been on quite a journey. The story of sushi goes back to prehistoric Southeast Asia. There, fish was preserved by packing it with salt and cooked rice, resulting in a vinegary fermented fish and a gloopy rice. The rice part was truly disgusting and usually discarded. In Japan, where the technique remained in use as it died out elsewhere, it was called Naray Sushi, Naray meaning aged. This was the definition of sushi for several centuries, but by the 15th century, especially in coastal areas where fish was more plentiful all year round. People were leaving it for less time and daring to eat the rice, which eaten early, was pleasantly tangy. 200 years later, with Japanese demand for the taste of sushi booming an even quicker version was invented, which involved simply adding vinegar to the rice to flavour it. Finally, in the 1820s, in what is now Tokyo, raw fish as fresh as possible was added to the rice, now no longer aged at all, and modern sushi was born. The Japanese called it Haya sushi 'Haya' meaning 'fast'. Japan was a very closed country until 1854. So it wasn't until the late Victorian period that Westerners, particularly Americans, started spending time in Japan and encountered sushi. It required an incredible level of skill. Getting it wrong wasn't just annoying, but potentially risky. One rare delicacy pufferfish, which today is tightly regulated, is highly poisonous if badly prepared. It wasn't until the 1970s that sushi, both as a luxury treat and as a cheap street food, started to be seen outside Japan. It first emerged in California, which had a large Japanese population, and followed the Japanese across the world. Californians, initially aghast at the idea of eating raw fish, grew to love it, but to encourage them. Japanese sushi chefs came up with the Californian roll, which originally contained cooked crab. Other Westernised recipes followed, including the decidedly 1980s Philadelphia roll, with smoked salmon and cream cheese. Most Western countries don't allow fresh raw fish to be used because of the danger from parasites. Fish must be frozen, which kills the parasites, before use. As sushi spread, the deeply ingrained Western fear of raw fish meant that more and more versions came into use, which relied on ingredients such as cooked prawns, smoked fish or egg, and where they often complex side sauces were replaced with simple soy sauce, ginger and wasabi. The ultimate westernisation is probably the Asian Latin fusion, which is the sushi burrito, invented in 2011. The first sushi restaurant in the UK opened in London in 1994 in the City, the heart of businessland. Today, sushi is booming, marketed as being healthy, convenient and still just a little bit exotic. The conveyor belt concept used in many restaurants adds a certain level of novelty, as do the chopsticks. Although according to many Japanese, sushi is best eaten with the fingers. Today there are many types of sushi. At its best, it is often still very expensive and very beautiful, and its devotees can be positively fanatical. A Japanese apprenticeship lasts at least five years for a sushi chef, and both Japan and the UK have sushi restaurants which have been awarded three Michelin stars. Not bad for a food which started as a way to stop fish from rotting.

203. How well do you know John Lennon?

Comedian Russell Kane shares a side of musical legend John Lennon you might not have been aware of.

Published on 31 January 2020

RUSSELL KANE: I'm Russell Kane, comedian and podcast host. I'm also a massive John Lennon fan music that cuts across generations. Is he the greatest pop star ever? Or was he just a bit of a git?

CAPTIONS: John Lennon. Singer-songwriter of The Beatles and one of the best-selling music acts of all time. 34 Grammy nominations: 7 wins. 25 Number one singles in the USA. Anti-War Activist. Murdered in New York aged 40.

RK: In an interview in 1980, he admitted that he was violent and cruel to women. He said, 'I used to be cruel to my woman and physically. Any woman. I was a hitter. I couldn't express myself. And I hit. I fought men and I hit women.' A drunken John once attacked Bob Wooler. He was the man responsible for introducing the Beatles to Brian Epstein, their manager. Bob had been joking that John and Brian were in an intimate relationship and John just lost his temper, started hitting him. And he only stopped because he thought he was going to kill him. Wooler was left with several broken ribs and admitted to hospital. Lovely. Does that sound like the bed-sharing, Give Peace a Chance hippie? How can one preach love and practise hate? If you really mean the love, you wouldn't be practising something so vile and vicious. Something else you might not know about John Lennon. He wasn't a great dad either. In fact, he was pretty horrible to his first son, Julian. Julian said 'Dad was a hypocrite. He could talk about peace and love to the world, but he could never show it to his wife and son.' In fact, John Lennon hated his own son's laugh. Once he turned to him and screamed, 'I can't stand the way you [*beep*] laugh. Lovely. Day out with daddy, anyone? So maybe all this social campaigning, all of this genius was just a PR campaign to cover over what a nasty git the man really was. I mean, I love *Yellow Submarine*, but not enough to condone the psychological scarring of a child. So was John Lennon a musical visionary genius or a violent, misogynistic bully? You decide.

204. How well do you know Mahatma Gandhi?

Comedian Russell Kane shares a side of Mahatma Gandhi you might not have been aware of.
Published on 31 January 2020

RUSSELL KANE: Hi, I'm Russell Kane, comedian and podcast host. Born in 1869 in western India, Mahatma Gandhi - Mahatma means 'great soul' - was a lawyer, writer, activist and politician. He married age 13, studied law in London and spent two decades in South Africa. He became the leader of the nationalist movement against the British rule of India and was known for his commitment to non-violent protest. He fought for a free India, based on religious tolerance and acceptance of all faiths. When independence finally came and brought mass violence with it, Gandhi fasted to try and bring peace and was assassinated on his way to a prayer meeting. Sounds like the father of a nation. I mean, what's not to love? Well, here come the

icky bits. But don't hate me. I didn't make him do it. He was celibate. Nothing wrong with that. And he was proud of it. It's just he was a little bit . . . *too* proud of it. He liked to test his celibacy by sleeping naked next to young women. One of them was only 18. His grandniece. He was 77 at the time. Oh. Oh. What's wrong with a Werther's Original and a day out in the park? Gandhi believed, like many others, that celibacy was linked to power. If this was true, I should have become immortal when I was 15. I'm afraid the bad news doesn't stop there. During his two decades of living in South Africa, Gandhi repeatedly stated his belief that he thought Indians were superior to black Africans who he called Kaffirs. In fact, one of his first legal victories was to have the law changed to create a third doorway in the post offices of Durban, so the Indian people would not have to queue with black Africans. He said, 'The Europeans desire to degrade us to the level of the raw Kaffir, whose occupation is hunting and whose sole ambition is to collect a certain number of cattle to buy a wife and then pass his life in indolence and nakedness.' Don't want to rub salt into the wound, but you did go around topless for most of your life, Gandhi. Well, there you have it. Sir Ben Kingsley was him. India was made by him and he's seen as the father of all who believe in non-violent protest. A total legend, but . . . a naked grandniece? Little bit racist? (*shudders*)

205. How will humans have evolved 100 years from now?

Yuval Noah Harari argues humans will evolve by artificial intelligence of our own design (Animation: Cognitive)

Published on 24 August 2016

This video was made by BBC Radio 4

YUVAL NOAH HARARI: All big changes frighten people. We are probably one of the last generations of homosapiens. In a century or two, we will either destroy ourselves or, far more likely, is that we will use technology to upgrade ourselves into something different. We are facing changing the most basic rules of the game of life. For four billion years of evolution, life evolved by natural selection and life was confined to the organic realm. Doesn't matter if you're an amoeba or dinosaur or a homosapien, you're made of organic compounds. Life will evolve by intelligent design and it will break out of the organic realm into the inorganic. With the creation of the first inorganic lifeforms. There'll still be beings, entities on planet Earth. But they will be probably much more different from us than we are different from the Neanderthals or from chimpanzees. It's a complete game changer. It will also enable, for the first time, to break out of planet Earth. It's almost impossible to sustain human life or organic life in general, in outer space and on other planets. But once you make the switch from the organic to the inorganic, there is no problem sustaining artificial intelligence. So if you think about Star Trek, Star Wars and all that, they still depict people like us flying in a spaceship at the speed of light. But what they miss is that the really different thing won't be the spaceships. It will be the beings flying in the spaceships. It won't be something like us. It will be something

very different. It's evolutionary, but it's not evolution by natural selection. It's evolution by intelligent design.

206. How your phone can protect you from domestic abuse

Suzanne Jacob, CEO of Safe Lives, on the mobile technology that's helping save lives.

Published on 21 November 2018

Made in association with Nesta

SUZANNE JACOB: We're often told that our phones are dangerous in some way, that there are things that can reach us and hurt us through these little devices that we carry everywhere with us. I think that the opposite is true. There are so many opportunities for us to save ourselves and to help ourselves through those devices. I'm Suzanne Jacob and I'm chief executive of Save Lives, which is a charity that works across the UK to end domestic abuse for good. Before we talk about the potential of your phone, I just wanted to talk a bit about what domestic abuse is. Domestic abuse is really prevalent all over the world and it can take many different forms. We're sometimes kind of led to think from images that it's just about broken bones or black eyes. But actually, domestic abuse can take lots of different forms, emotional, psychological, sexual. It might be the woman who's made to weigh the potato peelings to make sure she's not wasting food. Or it might be the young guy who's told by his partner that he'll be outed to his family about his true sexuality if he doesn't do certain things that his partner's wanting him to do. So abuse takes lots of different forms. And it's everywhere. We know that there is a huge problem in terms of domestic abuse, and that means that we've got to get ever more creative about how we can help people help themselves. So in the UK, there's an app called Bright Sky that allows you to make a record, a safe record of the things that are happening on a daily, weekly, monthly basis, so that when you're ready, you can take that step to take that evidence somewhere and make sure that people know the full story of what's been happening. Equally, we know that there are ways of people engaging with their peers and building a sense of network around what might be going on. You can reach out and form part of the peer networks who increasingly are making their voice heard about their stories of domestic abuse. There is an army coming over the hill who want to talk about what's happened to them and how it's changed them and how they're not going to tolerate that anymore. And you can join in with that community, take strength from those other people who've had similar experiences to you, wherever they are in the world, and make sure you're not alone. At Save Lives we've been running a process called Every Story Matters, which helps people to tell their story in a way that works for them and to be in touch with other people who might have had those experiences and to make sure they don't feel alone, that they know that there are other people out there, take strength from those other people who are out there and know that things can be different in the future. These are no expensive technologies. These are things that people can take that power back and make these things for themselves. Wherever you are, whatever kind of tech you've got access to. Increasingly, I think, the use of your phone, the

way of kind of connecting with other people through your phone, is going to help charities almost get out of the way so that you can be the people who change things, that people who have the experience are the ones who are in the lead, in the front, taking charge of their situation and telling us what's required and making sure we're held to account just as much as anybody else. And finally, let's all not let the tech companies off the hook. There's a lot they can do. They've got incredible power. We can work with them to build in ways of securing what we do through our phones so that our phones really are that way of saving us rather than being a threat to us.

207. Hull's 'headscarf revolutionaries'

In 1968, a group of women from Hull staged a campaign to improve safety in what was then one of the world's most dangerous industries.

Published on 22 March 2018

This video was made by BBC Archive

INTERVIEWER: How do you regard yourself, Mrs Bilocca, as a sort of suffragette?

LILLIAN BILOCCA: Don't be daft.

I: How then? Why are you doing this?

LB: Because I'm a mother.

CAPTION: In January 1968, the northern British city of Hull mourned the loss of three trawler crews in the space of a month.

BRITISH PATHE NEWS: Hull. The nation was shocked by the tragedy. Three trawlers lost and three more stranded in the unbearably cold waters off Iceland.

UNNAMED WOMAN: Yeah, but the owners are trying to make the men go away with short (*word unclear 'crews'?*)

UNNAMED WOMAN 2 All they're bothered about is sitting behind their big oak desks, totting their profits up.

CAPTION: The women of Hull were not prepared to take the situation lying down. Local fishworker, Lillian Bilocca, a daughter, wife and mother of serving trawlermen was determined to do something about it.

LB: I've always been concerned, but I've never had the guts to do owt about it. But now I think it's time somebody did. I've made a start. It's up to these other people to follow me. I'm going to get aboard that trawler and stop on unless I'm . . . and I'll have to be moved off that ship, forcibly, I'll have to be carried off. Unless that ship's got a full crew, including the radio operator. I said, 'What ship's he on, love?' He said, 'I'm on the Romanus, my dad's on the Romanus.'

I: That's one of the missing trawlers.

LB: And that's the ship, one of the ships that hasn't come back up to now. What's in that bairn's mind, eh? Nobody knows. And it seems these bloody ship owners don't care.

CAPTION: The Hessle Road Woman's Committee was formed, gathering together hundreds of women. They were quickly nicknamed the 'headscarf revolutionaries.'

UNNAMED MALE: Well, Hessle Road, was the fishermen's area, all the trawler lads and people working in fish and on the docks lived in this area, you know.

VOX POP FEMALE: Well, I think it's gone on long enough, and if we don't do something about it, nobody will.

VOX POP FEMALE 2: I think they'd be proud of us.

CAPTION: The women had three main concerns: 1) undercrewed ships; 2) inaccurate weather forecasting; 3) a lack of onboard radio operators.

LB: Make these owners sit up and take bloody notice now, not next year or the year after. There's been talk before but no action. If I find out any ship's sailing out of this port undermanned and without a radio operator, they'll not shift me off. They'll not shift me off, not unless they carry me off.

I: You'll go out to sea with them?

LB: I'm prepared to go the full way.

CAPTION: However, not everyone was happy with the efforts of the women.

VOX POP MALE: I don't like it. It embarrasses me. And I feel that if I want to go to Iceland and be in danger, I can quite . . . do it on their own without the help from any women or anything like that.

LB: Well, we've stopped a ship from going without a radio operator, haven't we? That's a start. It's not the finish. It's a start.

CAPTION: They presented a 'Fisherman's Charter' to the government in London.

NEWSREEL: As an island nation, we value the sea's harvest. But it is only a tragedy which shocks us into realising how that harvest has been gathered. There are women who constantly live in fear of losing their men. Suddenly it became too much. Led by Mrs Lilly Bilocca. Some of them came to London, Something, they demanded, had to be done before more men died.

VOICEOVER: The result was a government investigation. And for Lil Bilocca, the sack from her job.

CAPTION: Lillian received death threats and was blacklisted from the fishing industry. But the 'Fisherman's Charter' achieved what trade unions had failed to. It directly influenced the new Shipping Act, which improved safety at sea.

NEWSREEL: Knowing that even with the new safety rules, far from all the dangers have been removed. Another trawler crew steams out of Hull, headed for the Arctic fishing grounds. They leave behind wives, children and families always anxious for their safe return.

208. Hungry? A brief history of the humble sandwich

From the Earl of Sandwich, to 'mouth distorters', to the ubiquitous quick lunch, food historian Annie Gray tells the story of the sandwich.

Made by Somethin' Else, 13 July 2018

It's clearly a pretty obvious thing to stick a bit of filling between two slices of something along the lines of bread and eat it with your hands, but the British sandwich industry is worth £8 billion a year. Across Western Europe and America sandwiches are booming. Some made in-home but most bought on the run. It's been done for thousands of years, whether it's with flatbread or yeasted loaves, cheese or meat, especially by those eating away from a table. For instance, working on the fields or as a casual snack. It wasn't named though or even recognised as a thing which needed a name until the 18th Century. The story goes that John Montagu, the 4th Earl of Sandwich, a town on the south coast of England, was at the gambling table one night, decided not to stop for supper, and ordered a simple snack of beef between two slices of bread. The real story is a bit less clear cut. Montagu wasn't a big spender, he was broke most of the time, and his idea didn't come out of nowhere. He'd almost certainly seen pitta breads used with a filling on his travels in the Eastern Mediterranean. Whatever the truth, the concept was certainly named after him, and the word was in fashionable use by the 1770s. Early sandwiches stayed close to the original idea, they were designed for quick eating initially by men doing business at coffee houses or playing cards, and then for more mixed tea parties, ball buffets and light suppers. Early 19th Century sandwiches were intended to be elegant, often served on doilies with the crusts cut off. But the name was also used for the age-old worker's meal thick bread, butter and a universal filling of ham. And by the middle of the Victorian period, sandwich sellers clustered around every factory gate. One writer called them mouth-distorters, and pleaded for sandwich makers to make them delicate and delicious. His suggested fillings included bone marrow and nasturtium, potted woodcock, sliced sweetbreads, sea kale and oranges soaked in brandy. A more humble alternative was provided by bestselling author Isabella Beeton. She suggested a toast sandwich literally a slice of cold toast between two slices of bread, well-seasoned with salt and pepper. It was, apparently, particularly well-suited for invalids. In the 20th Century, the British sandwich of two slices of bread and a filling was joined by other alternatives from overseas. The Scandinavian open sandwich was praised by British food writer Marguerite Patten in the 1960s. While filled pittas, croissants and wraps have also crept in to join the basic bread and butter version. Toasted sandwiches came out of the States in the 1920s when the Toastie-Maker was patented. The US had become sandwich-central,

even briefly having a national Sandwich Day on November the 3rd - the original Earl of Sandwich's birthday. But it wasn't until 1980 that the pre-packed sandwich made its first appearance in Marks and Spencer and initially only in five stores. They were an instant hit and now the working lunch is almost synonymous with the prawn cocktail sandwich still M&S's biggest seller. The science behind constructing a non-soggy sandwich which can last all day is very big business indeed. Of course, the predictable fillings still vie with slightly more avant-garde attempts. Lasange-wich anyone? And many sandwich aficionados swear blind that the biggest improvement to any bought sandwich is a layer of ready-salted crisps.

I

209. If you're blind, what do you see when you dream?

Do blind people have heightened senses? We put some of the most searched questions on the internet... to those best placed to answer.

Made by ITN Productions, 16 December 2019

Q. Do blind people have heightened senses? Q. What do blind people see when they dream? Q. Can blind people work? Of course we can work.

ASK US ANYTHING

LUCY EDWARDS: I'm Lucy Edwards.

SIMON BROWN: My name is Simon Brown.

AP: My name is Dr Amit Patel.

LE: And I'm totally blind.

SB: And I'm registered severely visually impaired.

AP: And I'm severely sight impaired.

LE: There's all sorts of questions floating around the internet…

SB: So let's clear the air.

TEXT: We put some of the most asked questions on the internet to our guests … the questions you'd love to know the answer to, but might be too embarrassed to ask…

Q. Do blind people care about their appearance?

LE: Yes, yes, yes! We do. Just because we can't see ourselves in a mirror doesn't mean we don't want to feel good and look good. I actually wrote the first ever blind beauty guide.

AP: Absolutely. I love shopping. I love going out and shopping for myself, so I rely on people in the shops to tell me, and describe things to me.

LE: I'm obsessed with make-up. It's part of me. It's part of Lucy. Just because I went blind doesn't mean I lost Lucy.

AP: I definitely take pride in how I look.

Q. HAVE YOU ALWAYS BEEN BLIND?

SB: I lost my sight in 2006. I was in operations in Iraq and I was shot in the head by a sniper. It ripped the optic nerves off my left eye and there was catastrophic compression damage to the right eye.

LE: Age eight, I went for a routine eye check with my parents and they said, "Quick, rush her to the hospital. Your little girl has something wrong with the back of her eye." Age 11, I lost my right eye, and age 17 I lost my left eye, and now I only have a bit of light perception.

TEXT: DO BLIND PEOPLE HAVE HEIGHTENED SENSES?

SB: No sense can actually improve. What happens is you get better at using the other senses.

AP: I learnt to tune into my hearing a little bit more - focus on what I needed to hear. Same with touch.

LE: I can understand why people might think we have supersonic hearing but no, unfortunately. I wish.

TEXT: WHAT DO BLIND PEOPLE SEE WHEN THEY DREAM?

LE: Now personally, I don't see anything. I just have thoughts when I dream.

AP: I have vivid dreams. I lost my sight overnight, so I saw my wife in the evening. Next morning, I woke up I was completely blind, so I kind of hold onto that memory. I see my wife and myself having dinner a lot of the time.

DO ALL BLIND PEOPLE HAVE GUIDE DOGS? AND DO THEY KNOW WHERE TO GO?

LE: Not all blind people have guide dogs, but this one does. And how do you work, Olga?

AP: If Kika my guide dog hasn't ever been to a location, she will never know where it is. So guide dogs are taught to go from kerb to kerb. That means avoiding obstacles - be it lamp posts, bins, people on the streets - and then they'll wait for directions left, right, or cross the road.

LE: I think the most common question for me is, "Is your guide dog a sat-nav?" And my answer is "No."

SHOULD I HELP A BLIND PERSON ON THE STREET?

SB: If you see someone struggling whether they're blind or not, then I think there's an obligation for those of us who can, to support, and ask if they need support.

LE: There is a problem when it comes to crossing the road, and just being taken.

SB: A good way to get a blind person's attention is with the back of your hand on the upper arm, because it's a non-aggressive place to touch somebody. Introduce yourself, ask them if they need support. What I would also say is, don't be offended if they say no.

AP: And you never know, that tiny, that two minutes out of your life, will make such a difference to someone like me.

WHAT IS THE QUESTION YOU WISH PEOPLE ASKED YOU?

AP: "How do I help someone who's visually impaired?" That's probably the question that would probably make my life a lot easier.

SB: Don't be ashamed to ask what happened? Don't be ashamed to ask what's it like? There's so many different questions that I would be happy to answer if people were happy to ask.

LE: Sometimes it would be nice to see the person behind the dog and say, "Hi Lucy, how are you?" It would make me smile. Yes.

210. Imagining a world without fossil fuels.

Made by Somethin' Else, 5 April 2018

CHRISTIANA FIGUERES *Former UN climate chief:* Imagine a world without fossil fuels. None at all. Imagine a world where you never need to smell the fumes of a passing car, bus or truck and where traffic noise is massively reduced. Imagine a world powered by something you can't touch, which will be abundant for billions of years. Imagine a world where every single home has electricity, no matter how far it is from the grid. That's the future beyond fossil fuels. Imagine governments no longer needing to subsidise fossil fuel production or spend fortunes protecting their underground fuel sources, pipes and transmission lines. Trillions of taxpayer dollars are freed up, smog and greenhouse gases plummet. Public health improves. This healthy future is closer than you think. Our energy system is undergoing an unstoppable transformation. The coal fired power industry that took a century to build is being rapidly replaced by sun and wind power. Forces of nature, which cannot be dug out of the ground or sold on commodity markets in this totally fossil fuel-free world, electricity belongs to everyone, is home grown in the true sense, bringing power to the 1.3 billion people who are currently inexcusably without it. The Paris Climate Agreement bound nations of the world to work peacefully for a fossil fuel-free economy. But we need to move fast. We must harness the power of the sun and work at the speed of light. Our collective mission is to bend the curve of emissions now, so that renewable energy outcompetes fossil fuels as the best new source of energy in all markets around the world by 2020. So let's thank fossil fuels for all they have done, their contribution to humanity has been nothing short of

extraordinary. However, now that we understand the dangers and the side effects and have exciting everlasting alternatives, it is time to retire them pronto. The journey to our fossil fuel-free future is the most exciting, the most innovative, the most necessary, the most inclusive and far reaching global transformation we have ever seen. This is the answer to so many challenges in the world. The energy newtopia. The only question now is how quickly can we get there?

211. In praise of retrofuturism

Dreams of flying cars and space colonies haven't yet come to pass but retrofuturism celebrates the fantastical futures of years gone by.

Published on 31 January 2020

This video was made by BBC Archive

CAPTION: The future is not what it was. Fevered dreams of space colonies, flying cars, robot servants and commuting to work via jetpack, have been replaced with scepticism and bored detachment. Retrofuturism is the fascination for a future that never came to pass.

TITLE: The joy of retrofuturism.

CAPTION: Retrofuturism incorporates two overlapping trends. The future as seen from the past and the past as seen from the future. Against the backdrops of economic depression in the 1930s and WWII ideas of the future began to look to the sky and into space. The adventures of Buck Rogers in comic strips and others like him became a key part of popular culture. And as television took hold, viewers were often treated to playful visions of the future and upcoming technological advancements and shows like Tomorrow's World. This kitschy style would later be seen as retrofuturist. The fetishisation of early computers is now become classically retrofuturist.

TOMORROW'S WORD *1967*: This is computerised catering. Instead of being passed to a cook, the order is fed into a memory bank.

CAPTION: The potential application and power of these strange new machines was often woefully underestimated or misunderstood. The flying car and other strange modes of transportation were fascinating for futurists. It's in the gap between these grand visions and reality that retrofuturism playfully exists.

TW *1974:* This particular kitchen is one designer's view of how the kitchen of the future and the not too distant future might look.

CAPTION: How we would live and what we would wear were almost like alien frontier is waiting to be conquered in years to come.

TW *1966*: Science fiction has, again, turned into fact, the all-chemical meal. Tastes like cold cabbage water with a dash of pineapple juice.

CAPTION: Disneyland was an early adopter of retrofuturism. Opening in 1955, 'Tomorrowland' was a genuine vision of the future full of rocket ships to the moon and monorails speeding between shiny skyscrapers. But Disney abandoned this sincere brand of futurism with its redesign in 1997, replacing the promise of tomorrow with a kitsch version of how we used to view the future. Though many retrofuturist ideas seem laughable, fundamentally the dreamers of the past got many things right. We have indeed sent spacecraft to other planets, developed monorails, built plenty of skyscrapers, and achieved many other great engineering feats. None of it looked quite how Disney and other futurists thought it would. And remarkable scientific feats are now perceived as everyday events. The most futuristic of dates, the year 2000 itself was, technologically speaking, defined by the force around the millennium bug. And not some great changing how we live our lives. Today, the rate of change is so incredibly fast it can be hard to imagine the future. Can we conceive of anything much beyond faster, smaller phone? Or existing modes of transportation power differently? In our post-modern age, there's a detached distance from the fantastical futures of yesteryear. It's in this space that retrofuturism will continue to flourish, while the real future remains uncertain.

212. Individualism: Is it a good or bad thing?

What's the definition of individualism? And is it a good or a bad thing, asks philosopher Julian Baggini.

Made by Somethin' Else, 9 January 2018

JULIAN BAGGINI: The A to Z of isms... individualism. If someone called you an individualist, would you be flattered or insulted? An individualist might be a rugged John Wayne, a pioneer like Amy Johnson, a creative innovator like Kate Bush, or an entrepreneur like Richard Branson. People we admire for refusing to follow the crowd, for being true to themselves. But individualism is also often said to be the source of Western civilisation's degeneracy, accused of leading to selfishness, shallow consumerism, the breakdown of society. Individualism is a double-edged sword. Many believe its Western roots go right back to early Christianity. Jesus taught that salvation did not depend on what tribe you belonged to, but on how you chose to live your life. God had a one to one relationship with people, not to groups. The 16th century Protestant Reformation took this further, taking away the need for priests to act as intermediaries between God and ordinary people. This sowed the seeds for the flowering of the modern individual in the 18th century Enlightenment. The Prussian philosopher Kant summoned up its key message in the Latin phrase *saupere aude* – to dare to know, to think for yourself. Personal autonomy became the central value of Western society. We see this in the principles of one person, one vote, civil liberties and equal rights for all. But this, in many ways welcome development has gone hand-in-hand with the decline of community. The growth of independence and autonomy leads to a decline in interdependence and solidarity. In other cultures, these communal values have traditionally taken precedence. Across East Asia, who you are cannot be separated from the groups you belong to. That

does not mean you lose your identity in the crowd. You find your identity in it. As a parent, a child, a ruler, a teacher, an apprentice. When we can all be different and yet all come together, we have harmony, the highest value in Confucian philosophy. Across the world, individualism is lamented when it turns us into atomised units cut off from each other, showing little or no interest in our fellow citizens. But if you can be yourself while also being part of society, contributing to it, your individualism will be praised and celebrated.

213. Innies and outies: The wonder of the human belly button

Whether you have an innie or an outie, you definitely have one. So, here's everything you might ever want to know about the belly button.

Made by BBC Scotland, 10 June 2020

NARRATOR: It's likely to be the first scar you ever get. It's a bit like a biological USB port, transferring oxygen and nutrients to you in the womb. And although you probably don't pay it much attention, it's key to what makes us human. In fact, it's just about impossible to be born without one. Omphalophobics beware… we're talking about belly buttons! Available in two varieties - innie or outie - nearly every mammal has a belly button. I say nearly... I'm looking at you duck-billed platypus. We'd need a whole other video for what you've got going on. Now not having easy access to scissors, other mammals tend to just gnaw their umbilical cords off after they're born, and therefore they have flatter scars that are more difficult to see. Now, even if we humans didn't snip our umbilical cord, it would just go a bit dried and horrible and fall off after three to 10 days anyway. Some celebrities have even kept the withered remains and used it to make art - which is, you know, very normal and fine. The humble belly button is one of the first things about you that develops in the womb - way before the brain or lungs or anything really. It's the very foundation of what you are. It connects directly to your umbilical cord, which is made up of a vein and two arteries. The umbilical cord keeps us alive in the womb - a squishy motorway carrying oxygen and nutrients from the placenta to the foetus, and transporting waste products back the other way. That cord is the most indispensable (but disposable) organ you're ever going to have. It's a key part of what makes us mammals too - the connection with our mothers before we're born is integral to our development. Your mother's belly button probably changed as you grew inside her too. Many expectant mums go from having an innie to an outie in the second or third trimester of pregnancy. When their expanding uterus puts enough pressure on the abdominal wall, pop goes the navel. Once you've made your grand entrance into the world, it may seem like your belly button has served its purpose, but it does remain important, especially if you ever need abdominal keyhole surgery - the belly button is the ideal entry point, being so central to all your vitals. The navel has fascinated various cultures throughout history, from Greek myths suggesting our scars are a reminder from the gods not to have another go at an uprising - "Can't go to war sorry - my belly button says so!" - to Japan where children are warned that during a storm, the demonic, three-fingered God of

lightning Raijin, could steal their belly buttons in the seconds after a lightning flash. Scary. Although we all have them - subject to Raijin's mercy - belly buttons were taboo until fairly recently. Not so long ago, they were deemed too hot for TV in the US, and were banned from appearing on screen in 1934. By the '50s, female stars were skirting the line of so-called "decency" by covering their navels with jewellery so they could belly dance without causing too much of a fuss. No-one seems to be able to agree on who was first to slip by the American censors - some say it was Star Trek, going boldly where no TV show had gone before in 1967, while some others claim it was Cher herself who first showed her navel on the telly. But to clear that one up, we might have to "turn back time". The next logical step for belly button enthusiasts is, of course, making belly button cheese. Turns out that the unique bacteria nestled in some navels can actually be used in cheese making, leading to what might be the weirdest brie you're likely to never sample. Right, OK - that's enough about belly button cheese. Whether you end up with an innie or an outie has nothing to do with how the umbilical cord is cut - it's just part of what makes us diverse. So whatever you've got, dig out that crop top from the back of the wardrobe and wear it with pride. Now let's face it, they're not much to look at, but they've fascinated us since we first gazed upon our own navel, confronted with the knowledge that we once had a literal, physical connection with another person. So take a minute to ponder the humble belly button… And get that bit of fluff out of there while you're at it.

214. Inside the mind of Professor Stephen Hawking

A short animated journey into the mind of the world's most famous physicist, who has died aged 76.

Published on 11 January 2016

This video was made by BBC Radio 4

PROFESSOR STEPHEN HAWKING: This was the first LP I ever bought. It combines my two main pleasures. Theoretical physics and music. I could listen to that until the batteries in my Walkman ran out. This is a glorious time to be alive and doing research in theoretical physics. Our picture of the universe has changed a great deal in the last 50 years. The further we probe, the more remarkable are the discoveries we make. The fact that we humans who are ourselves, mere collections of fundamental particles of nature have been able to come this close to an understanding of the laws governing us in our universe is a great triumph.

UNNAMED SPEAKER: The cosmos is full beyond measure of elegant tubes of exquisite interrelationships.

UNNAMED SPEAKER: There aren't questions much bigger than this. Black holes are the key.

SH: Is there a theory of everything? We need to know the laws at the moment of creation, when the universe came into existence. Much of my work has been

concerned with the mysteries of black holes. I want to describe an exciting new development that may transform our view of the universe and of reality itself, whatever that may be.

PROFESSOR BRIAN COX: When you look into the night sky, you don't just see stars. Ultimately, we are part of the universe. So this story is our story.

SH: Trying to make sense of what you see and hold onto that childlike wonder about what makes the universe exist. Thank you for listening.

215. Introducing Mabel the house robot

Meet Mabel, the robot housemaid.

Published on 4 August 2017

This video was made by Tomorrow's World

VOICEOVER: Introducing Mabel The robot housemaid. Free your wife from domestic slavery. Let her command her own slave at the touch of a button.

CAPTION: Mabel seemed like a good idea at the time. She could hoover the floor whilst unscrewing her own head.

VOICEOVER: Ironing? Forget it. Leave it to Mabel with her computer understanding of textiles.

CAPTION: Her nimble pincers combined 'the strength of a gorilla with the dexterity of a watchmaker.' She breezed through day-to-day tasks with consummate ease and housewives of the world rejoiced! Then cracks started to appear. Mable sometimes seemed a little too pleased to see her master in the morning. Then there were the nights where she'd come home late, the never-ending cocktail parties followed by the obligatory fry-ups. Neighbours suddenly felt uneasy walking their dogs. The time had come for Mabel to charge up and move out.

216. Introducing the 40,000-year-old 'Lion Man'

For our prehistoric ancestors, finding food and shelter would have been top priorities. So why spend hundreds of hours carving this figure?

Published on 28 February 2018

Made by BBC Two

NARRATOR: In 1939, the fragments of this lion man carved from mammoth ivory were found in a German cave. They remained an unsolved puzzle for 30 years before archaeologists realised that they formed a single figure made between 35 and 40,000 years ago. This may be a shaman in the middle of a transformation. It may be

the very first of the beast gods around which pagan religions would build their mythologies. Perhaps the making of such things was itself a sacred calling. To see how much work was needed to make a lion man, archaeologists Wulf Hein embarked on an experiment to carve a replica using authentic tools and materials. Without a mammoth tusk, he used a piece of legally sourced elephant ivory.

WULF HEIN: I started working from the whole tusk and then I took a big stone and hammered away this piece and I was sweating like hell, because if I would have ruined it, that would be a disaster. And the most time consuming part of the work was setting free the arms, because I had to take a very tiny tool and make grooves like this underneath into the ivory and your scratch and scratch and days and days and working and working. I had blisters on my hands and every finger was aching. So it was very heavy work. I started in April and I stopped working in the middle of July. I worked about four, five hours a day. In the end it was about 400 hours, then I stopped counting. I guess it was a real artist who made this. And he was set free by his community only to do this piece of artwork. If you do this a whole summer or whole winter through, you can't go hunting, you can't go fishing, you can do nothing because you work all day on it. It must have had incredible meaning for the people who made it.

217. Is 'black don't crack' a myth?

Poet Theophina Gabriel dispels the myth that black skin does not age - it's more complicated than that.
Made by Resource Productions/Empoword, 26 January 2018

THEOPHINA GABRIEL: They say 'black don't crack.'
But we need to split the myths.
We need to back the facts.
Yes, our melanin gleams and shines
and bends us away from catching those lines.
They can never really say our age did us dirty
when we're out here, 50 looking like 30.
But pigment isn't enough to deflect the rays
and cancer doesn't care if our skin cells pay.
No one is immune to the sun. And that's a fact.
So unless you protect your skin, then your black could crack.
Yes, the darkest and the richest and the thickest are the best
at absorbing those rays. But even though it's blessed,
If you love your melanin and you love those sun beams,
love your complexion and lather in sunscreen.
Don't forget your ears, your elbows and the tops of your feet
to your eyelids, your shoulders and the backs of your knees,
your ankles, your wrists and the back of your neck.
Our skin is beautiful. Show it some respect.
Your back, your shins and behind your ears,

the only thing our skin can shield us from is the years.
So protect that superpower of your magic melanin
that suspends the ability to guess your age based on your skin.
For a while, melanin may be time-defying,
but if you say it can catch all the rays,
then you'd just be lying.
Yes, we can absorb the sun to a certain extent,
but time is a currency with which each body pays its rent
And there's no escaping that, no matter your tone.
Love your age spots and your wrinkles,
Each imperfection makes our skin, our homes.
Black people protect your melanin.
We need to crack the myths before they crack our skin.
Black don't crack it's a blessing disrespected.
Black don't crack, if the sun cannot affect it.
Black don't crack. Some people just don't get it.
Black don't crack - but only if we protect it.

218. Is free will just an illusion?

Do we have free will? Or is it just an illusion? Melissa Hogenboom explores the physics of free will.

By Melissa Hogenboom/Pierangelo Pirak, 16 March 2020

Made by BBC Reel

PROFESSOR PETER ULRIC TSE *Neuroscientist:* Name a woman. And you might say, 'Oh, I don't know' you'll name some woman. I say, 'Okay, name a woman politician' and you might say, Oh, I don't know, Hillary Clinton,' then I'll add a third criterion. 'Name a European woman politician and you'll saw . . . aww . . . Theresa May or, you know, Margaret Thatcher or Angela Merkel.'

PROFESSOR JIM AL-KHALILI *Physicist:* The laws of physics, as we understand them today, suggest that the future is predetermined and therefore there cannot be any such thing as free will.

PUT: At the other end, David Hume would say, well, there's just utter randomness, just random stuff happens. And you have no say in, you know, randomness, it's just random, right?

UNNAMED MALE: That's the big question in the free will debate.

JAK: The laws of physics suggest that if something happens, it's . . . it's caused by something before it. And so tracing all the way back to the Big Bang, the laws of physic tell us how one thing, one event will lead to another: cause and effect.

NARRATOR: [*showing dominoes*] In this scenario, there are two choices I could make. But when I knock over the Big Bang domino right up the back, it would result

in a cascade of events that inevitably leads me to making choice A rather than B. This is determinism, the view that all our choices in life are in some way fated to happen.

JAK: Now, since we and our brains are, after all, only made of atoms, there's nothing else, no magic extra. Then our brains are subject to the laws of physics. So in a deterministic universe, where one thing follows the other, surely when we think we're making free choices, it's just the laws of physics playing themselves out. It's just that our brains are so complex that we can never predict in advance what someone's going to do or even what we ourselves are going to do. So we have the illusion of free will.

PUT: I would say a fundamental mistake the determinists make is that they think of causation in general and causation in the brain in particular in terms of what is sufficient. That this event in the brain is sufficient to cause that event in the brain. If causation in the brain is, however, criterial, and there's lots of different ways to meet any given set of criteria, then causation is not a matter of sufficiency. That if this happens, that has to happened. It's a matter of adequacy. Why did you say, say, Angela Merkel first as opposed to Margaret Thatcher? I would say, well, that comes down to chance. Had neural activity been slightly different, influenced, for example, by Brownian motion and other random processes in the synapse, you might have said Margaret Thatcher instead of Angela Merkel, if I could rewind the universe to that moment. But it's not utterly random. Right? When I said to you think of a woman, European politician, you didn't say 'frog' or, you know, 'truth' or 'democracy', you said, you know, whatever said? So it was not utterly random, but it was constrained randomness within those criteria.

N: Okay. Now add some randomness with turbulence and we'll see that knocking over the Big Bang domino could result in either choice A or Choice B. There are some criteria, though. The blocks must all be the same size and not ducks. Still, it could be argued that that randomness we added with the turbulence, even though incredibly complex, would still obey the laws of determinism.

PUT: Physics and chemistry are looking at one kind of causation. They're looking at certain aspects of energy, like the amplitude or the amount of energy or the frequency of energy. But what they're not looking at especially, is patterns of causation rooted in patterns of energy.

N: Right. Here's a pattern of energy. It's a rhythm. Tap along. Keep tapping. In a second. I will cut the track and you should carry on tapping. That pattern of sound caused a pattern of activity in your brain, which resulted in a pattern of movement in your finger. But not all of you would have kept to the rhythm exactly. And there would have been those amongst you who refused to tap at all - rebels. So patterns of energy that trigger patterns of energy may not cause a predictable effect.

PUT: Patterns of energy don't obey the traditional laws of physics. What evolution has done is taken matter and made it sensitive to patterns of energy. Now there's spatial patterns, like a little receptor having this shape versus that shape. And if it has this shape, of a receptor might open, allowing ions in which will make the neuron fire. But there's also patterns of timing. So neurons, at a much higher level

than a receptor, are sensitive to the pattern of timing. And this neuron might fire if, say, 10 spikes all arrive within 25 milliseconds. Otherwise, it won't fire. So this is a pattern detector in time.

N: Let's go back to those dominoes. Let's zoom into this part here that's happening inside the brain. So this pattern of dominoes will result in either Choice A or Choice B, depending on turbulence. But in the brain, the pattern is not fixed. If I find Choice A morally repugnant, I can change the pattern so that only Choice B is ever possible. My abstract morality, which is itself a pattern of information, will shape the decisions I make.

PUT: So I think that evolution created a whole new kind of physical system, which we call life, which is rooted in patterns of energy, triggering patterns of energy, triggering patterns of energy. And paramount to that is our consciousness, which was ultimately a kind of pattern of information realised in the brain that allows us to model the world and ourselves in it, either in the real world that we find ourselves in now to deal with lions or whatever, or in our virtual reality, playing things out in multiple possible futures and then selecting this future to happen over those others and setting about making it happen.

N: But what if our future already exists, in what way, then, are the choices we make ever truly free?

JAK: The block universe is an idea in physics that developed pretty soon after Einstein came up with his special theory of relativity, where he said that time and space have to be unified. You can't talk about three dimensional space and one dimensional time as though they're separate things. They're part of one four dimensional space-time. So the block universe is a bit like . . . imagine it's . . . of course, we can't think in four dimensions. So what we tend to do is imagine space was only flat, only two dimensional. And then the third dimension is time. So think of a loaf of bread. The time axis is along the length of the loaf and space are the individual slices. The block universe says that it's not just the present time that exists. The past hasn't gone and been forgotten and the future hasn't yet to be decided. In the block universe, all times coexist. They're just different slices of the loaf. There is no universal present moment.

N: In this scenario, it doesn't matter which of the domino simulations I pick, because every single frame of that animation already exists and will exist forever. There can only ever be one outcome.

JAK: We've done many, many experiments over the last century since Einstein's theory of relativity and we know this is really the case. So, certainly, for very short time intervals, it's all subject to the speed of light, we do know the block universe is more than just a theoretical idea. That is the way things really are.

N: Okay. So this idea of all time existing at once is instinctively counterintuitive, but it's worth explaining. Let's start with some basics. One, the speed of something is the distance it travels over the time it takes to travel that distance. And if Archer A is on this train and fires an arrow at Bystander B, the speed of the arrow will be the

speed of the train plus the speed of the arrow. Two, the speed of light is constant. It just is. Lots of experiments have shown that it is. And if it weren't, it would result in all sorts of visual paradoxes. So the speed of light coming off a moving train is the same as the speed of light coming off a stationary train. It's constant. We'll call it C. So the train zooms past me on the platform. At this split second, A and B are the same distance from me. But A is moving towards me and B is moving away from me. The light travelling from A therefore should be the speed of light plus some fraction of the speed of the train. And for B the speed of light, minus some fraction of the speed of the train. But because the speed of light can't change and the light covers the same distance from each person to me, the only variable left in the equation that can change is time. The light from B must be coming from an earlier point than A. In this scenario, we have three different nows happening at once. Extrapolate this for the whole universe where everything is going at different speeds relative to one another over vast distances. And it leads to a multiplicity of nows, all existing simultaneously: the block universe.

JAK: Well, if the future already exists, if it's already set, as it were, even though we haven't experienced it yet, then that suggests that we have no free will. We cannot change what is meant to be. The future is there, it's preordained. It's fixed, even though we don't know it yet.

MELISSA HOGENBOOM *Journalist*: Is that not a bit dangerous to go through life thinking, 'Oh, it doesn't really matter what decision I make, because it's all set in stone anyway?' Could that not have a negative impact?

PROFESSOR HELEN BEEBEE *Philospher*: I mean, I think it can engender a certain kind of worry about, you know, the meaninglessness of human existence or the futility of going through life as though we're making all these choices in determining our own path. And really we're not determining our own path.

JAK: But actually we can't see the future. We have that illusion that we have free will and that is powerful. In fact, that is good enough, for all practical purposes, we are making free choices. The fact that once the future has arrived and we can turn back and say it was always going to be this way, hasn't detracted from us feeling that we were making free choices to begin with. So, I don't feel depressed about the fact that my free will is just an illusion because for me it's very real.

N: But which reality are we talking about? Physics currently has two main theories to describe reality. The theory of relativity is used to describe events at large and very large scale. While quantum mechanics describes events at the small and of very small scale.

PUT: What quantum theory does is, it predicts the probability of outcomes.

N: So now let's add a quantum domino. This domino can be in one of two places. But we'll only know which one once it's been hit by the previous domino. We can run the simulation over and over. Sometimes we'll end up with Choice A and others with Choice B.. This is a truly random domino and we could substitute this for

the turbulence that we added earlier, to create a more accurate model that refutes determinism.

PUT: Now you can talk about a block universe that's very different. This would be a block universe where all possibilities exist. And I think that is valid. You know at the big bang at the start of the universe, all possibilities that could possibly happen existed in some sense. But that's a very different notion of a block universe of possibilities, than a block universe of actualities. Now, take this new notion of a block universe of all possible things in some sense, already having happened because they're possible. Well, in that notion of a block universe, you carve out this reality versus that reality. You . . . you choose to make happen this reality where you will, in a year from now, speak Swahili versus that alternate reality, where in a year from now you'll speak Mandarin. And that comes down to your own decisions.

N: So general relativity seems to support determinism and no free will. Well, with quantum mechanics, the opposite is true. It's called indeterminism and *does* support the presence of free will. The problem is that both theories work really well at describing their own events at their scale, but not at the other's. But which is most true for us. Still, they do agree on one thing: that all our choices, freely willed or not, will echo through space for all time.

HB: I guess I think it doesn't really matter whether determinism is true or not, because I think even if it is true, we can have the kind of control over our actions that we need in order to be accountable.

219. Is innate talent a myth?

It's easy to believe that elite performers like Usain Bolt or Simone Biles possess a gift that can't be taught. What does the science say?

Published on 17 March 2020

Made by BBC Reel

TUI MCLEAN *BBC Filmmaker*: Simone Biles appears to defy gravity in her gymnastics routines. Michael Phelps has 23 gold medals and Serena Williams won her first grand slam at 17. In everyday conversation, we say that elite performers must be naturals who possess a gift that can't be taught. But what does the science say? Could innate talent just be a myth? Some researchers now argue that nobody is born a natural brain surgeon or cellist or sports champion. Research across a wide range of fields shows that many people do not only fail to become outstandingly good at something, they frequently don't even get any better than they were when they first started.

ANDERS ERICSSON *Professor of Psychology:* So if you're wanting to start playing tennis, for example, you know, you get some instruction and you eventually get to a point where people are willing to play games with you. And at that point, it seems that they become less aware of what they're doing. And it's almost like they're kind

of finding now a level of performance that they're just sustaining. So the activity of actually practising with friends doesn't seem to kind of keep improving the performance.

TM: In the book *Peak*, Anders Ericsson and Robert Pool argue with the exception of height and body size, the idea that we are limited by genetic factors is nothing more than a pernicious myth, that in fact it's down to something else. A new finding from their research that explains elite performance, something called deliberate practice. Deliberate practise refers to a special type of practice that is systematic and purposeful. It requires focussed attention and is conducted with a specific goal of improving performance. Several things make deliberate practice different to regular practice. Number one: it's restricted to fields where there is already an accumulated knowledge of effective training activities. Number two: it involves a teacher or a coach. And number three: it requires immediate and actionable feedback.

AE: So you are actually going to try to achieve a state where you can do something that you currently can't do. And that really is sort of stretching yourself and very different from this idea of, you know, naive practice, where you just try to do the best you can with the skills that you have. You really identify now something that is well outside of what you can currently do. And in order to do that, you really have to push yourself maximally, so you can gradually stretch to this new goal of mastery.

TM: So it's not so much about the amount of practice you do, but the way that you do it, which means by that logic, anyone who trains in the right way could achieve high level results. So why don't they? Well, the answer's pretty simple. Deliberate practice is hard. It's repetitive and it's pretty boring. And there's not that many people who are willing to put themselves through it. So most of us end up taking the easy route. But even if we think it's unlikely we're born with talent, we might still think that great achievement requires natural abilities or aptitudes like a high IQ or superhuman memory. For most of the 20th century, it was believed that memory capacity for rapidly presented information was limited to around seven pieces or chunks and couldn't be improved by training. In 1975, Professor Anders Ericsson undertook a study which disproved that claim by having a normal college student improve his ability to reproduce random sequences of digits from around seven digits to over 80 digits after several hundred hours of training spread over a couple of years. The student's achievement was significant because when he reached 82 digits and stopped, there was nothing to indicate that he had reached his limit of improving memory skill with practise.

AE: And maybe most interestingly, we found that the way he was encoding and recalling the digits fundamentally changed with practice. He was now able to actually, instead of just rehearsing them, you know, saying them again and again until you recall them, he was able to meaningful encode them and relate them to knowledge. In his case, he was a runner. So he actually thought of the kind of digit groups of three as running times for various kinds of races. So that really showed that this limiting factor of having a memory, you know, really can be improved.

TM: So is there anything that can hinder extraordinary performance? Congenital, physical, mental and health conditions, along with diseases or disorders are some obvious constraints. And even if you're in peak physical health, other physical aspects like height or body size are also contributing factors. If you're born with a soprano voice, for example, it's going to be a challenge singing bass And then there's the issue of luck. For example, a chance accident and the detrimental effects that can have on reaching elite levels of performance. In his book Blueprint, Robert Plomin makes the case for talent as a result of our DNA. Plomin argues that genetic factors can affect outcomes, which raises the question, what role do genes play?

AE: People wonder how Mozart and Tiger Woods would be able to perform at such a high level at young ages. It seems almost impossible that training could explain that. If we look more carefully, we'll find that in all of these prodigious cases, a parent was helping the child, often starting around two or three years of age, to actually be able now to systematically, you know, acquire the skill. They were sufficiently skilled here to kind of help the child. So these prodigies, it was clearly the result here of a very kind of supervised training, helping them achieve the kind of skills that would then later on displayed at a very young age. So if we actually look at what Mozart as a child was able to play, we can now find that with kind of training, average children can actually acquire the ability of playing, not just those kinds of pieces that Mozart played, but even more complex pieces, which again suggests that over time the performance has changed.

TM: Whatever you believe, it's clear that the price of elite performance is extremely high and those who reach superhuman levels of performance are often the ones who are willing to sacrifice everything to pay for it.

220. Is it Okay for doctors to cry?

Should doctors show their emotions when speaking to a patient? Can showing empathy be positive or negative for healthcare professionals?

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AOIFE ABBEY *Intensive Care Doctor:* So as a doctor, I think with every patient, to an extent, you are emotionally involved. I don't think we get to be human and be doctors and not have emotional involvement. There's levels of emotional involvement. And as a doctor, I think frequently I put a cap on it when I'm in a room with a patient and then take the cap back out when I'm outside in order to kind of deal with those emotions.

MICHAEL BROWN *Medical Historian*: In a way, there's a distinction here and there between emotional sensation and emotion expression. So you may feel very strong emotions about a patient, but you have to make a judgement, I guess, in a clinical context about how you give expression to that and whether it will be beneficial to a patient to see those emotions or maybe not in certain cases.

AA: In a real situation, if I have a patient that comes into the A&E and, you know, they've been in a trauma and they may be bleeding to death in front and in front of me, for me to actually embody their fear is would be silly. What I need to do is understand that they're scared. And then, you know, adjust my behaviour accordingly. Certainly in my journey through medical school, nobody ever taught . . . sat me down and said, 'I'm going to teach you how to be dispassionate.' They always taught me the opposite. 'This is how you . . .' you know, 'We would like you to be . . . have empathy and be passionate.' Not . . . not the opposite way around.

MB: That's a product of the more recent time. And I think that idea that it cloud objective clinical judgement to be too emotionally attached to one's patients, I think really held sway for a lot of the 20th century in medicine. It's come under scrutiny again in the last 20 or 30 years.

AA: If there is a downside to empathy, it is probably that it can often cloud us to the bigger picture. I mean, you know, I think it was Stalin that said that one death is a tragedy and one million is a statistic, right? And I guess there are situations where you can empathise with somebody because, you know, they . . . you know, they're the same age as you, they're the same gender. Maybe they have something in common with you and you can place their needs above the needs of other people, because you're empathising with them, which I guess is one of the downsides to empathy.

MB: Yes, that's very interesting, actually. That's something I hadn't thought as much about as I might have done. The idea that empathy can, yeah, that you might empathise more with certain people because of who they are.

AA: The issue isn't getting professionals to be empathetic. It's getting professionals able to deal with the emotions that that creates. It's frequently said that, you know, kindness and compassion don't cost anything. And I guess in monetary terms, they don't. But actually, it is my experience that they do cost you something, emotionally, there's an emotional investment in order to be compassionate.

MB: Yes, that's really interesting. There's the concept in sociology of emotional labour. And I think often emotional labour is an undervalued aspect of a public facing roles. And I think in something like medicine and surgery where the people who go into it are expected to be caring by nature of the occupation they're going into, it is assumed that this is something which people will do, as it were, as part of their everyday lives.

AA: I mean, people ask, 'Have you ever expressed emotions with a patient?' which to me is a bizarre question, because every single thing I do is in emotion. And I think when people ask that question, probably what they're getting at is, 'Have you ever cried or, you know, been kind of visibly upset in front of a patient or relative?' In truth, I have never cried in front of a relative or a patient. That doesn't mean I haven't cried afterwards. And it doesn't mean I haven't wanted to cry. But I think that in those moments, the only reference I have is my own barometer and it has never felt right.

MB: One other factor to consider, of course, is that medicine and surgery have changed hugely in terms of patients' experiences and patients' expectations. A patient undergoing surgery now will expect their operation to be successful. Intraoperative death is extremely rare. Post-operative death is relatively rare. But, of course, in the period in which I'm interested, the early 19th century, that is not the case. And I think both patients and practitioners approach surgery as a shared tragedy and as a source of great pity. And it's the same in medical treatment more generally, that people don't have that expectation of success necessarily. So those emotions of fear, anxiety, pity, I think are especially pronounced, which is one of reasons why I think people are encouraged to give expression to them.

AA: Right. Because, I mean, part of how I cope and what I do is you have to remember that it isn't about you, it's about them. And you're trying to give them a service in spite of their grief and their trauma and their pain. And so me crying is never seemed something that it was appropriate to do. But that wouldn't be a judgement on anybody else, because I think that the . . . the nuance of those situations, two situations are rarely the exact same. So I don't think it's possible for me to philosophise and say it's never appropriate, because that would just, I think that would be silly.

221. Is it time to reassess our relationship with nature?

Western societies tend to see nature and humanity as separate. But are there other ways of relating to the natural world?

Made by Flock London, 17 July 2020

Made in partnership with The Open University. OU consultant: Dr Eleni Dimou.

NARRATOR: Earth. Us. Earth. Us. Earth. Us. But, hang on, aren't we part of the Earth? We're organic creatures, made of the same molecules as everything else on our planet - one interconnected ecosystem that keeps us all alive. But are we superior? Different? Or special? Why do we so often feel, well... separate from the Earth? In fact, not everyone does. Throughout human history lots of cultures have viewed their relationship to the Earth in other ways. Many still do. Animism - the belief that spirit infuses objects, nature and the whole of existence - is a fundamental principle of many indigenous societies. In Taoism, cosmic energy - or life force - is everywhere and is constantly seeking harmony and balance between all things. Ancient Andean civilisations placed the spirit of Pachamama, or Mother Earth, at the very centre of their worldview. And, today, for many indigenous people around the world, like the U'wa tribe in Colombia, the Earth is not just the dust from which human beings are made. It's the spirit of their people and ancestors. It's their history. It is life itself. This isn't always an easy idea for people in today's Western societies to grasp. The Druids of Ancient Britain did grasp it - focusing their spiritual practices on a reverence and connection with nature. But when Christianity spread through Europe, animism was condemned as pagan and savage. European colonialism enforced these views around the globe, in places like the Americas and Australia -

crushing the indigenous peoples and their nature wisdom. Since the birth of agriculture, humans had been manipulating the world around them, harnessing, dividing and selling its natural resources. But under colonization, the Earth became a place to be conquered, dominated, farmed, fished, plundered and mined, on a vast scale. Was there any scientific thinking behind our ever-increasing control over the natural world? 17th Century Europe thought so. In fact thought was all the rage then, as French philosopher Rene Descartes, and other others, like Sir Isaac Newton, helped to kick off the Enlightenment - an era that prized reasoning, science and order. A new view of the world emerged - with human beings as the thinking, rational, masters, and nature as our unthinking, unfeeling servant. Standing apart from her, humans investigated nature's ultimate questions, dissecting her into smaller and smaller pieces. This brought us great power. And with great power, comes... ... you know the rest. The Anthropocene Age had begun - an epoch defined by one dominant species. Us. On a planet that is billions of years old, in just 500 years, much of the human race has come to see itself as the rulers and centre of all life. Today, we are still trying to bend the planet's environment, processes and biodiversity to our will. Our vast, sprawling cities have pushed nature out of sight and out of mind. The world is attempting to meet the urgent challenge of climate change. But can anything fundamentally change while we still see ourselves as somehow separate from Earth? There are signs of hope. Other voices are starting to be heard once again. Influenced by a resurgent, indigenous view of Pachamama, Bolivia and Ecuador have passed laws granting all nature equal rights with humans. And in New Zealand a Maori tribe has successfully fought to have their river - and ancestor - given the same legal rights as a person. In an interconnected world, can we humans find ways to truly reconnect to all life on the planet? A new era might start with one single idea. There is no Earth and Us. We are one.

222. Is social media messing with our emotions?

Author Laurence Scott believes social media is changing the way that we express emotions.

Published on 30 April 2018

Made with the help of BBC Radio 3

LAURENCE SCOTT: My name's Laurence Scott and in my humble opinion, I think that social media is changing the ways both in which we experience the emotions of other people and how we express our emotions publicly. I think the main thing you have to think about social media is that our emotions are a valuable resource. So it behoves the people who are designing social media networks such as Twitter, Facebook, to make our emotions as clearly obvious and evident to others as possible. So you may have noticed on Facebook, one of the first questions you are greeted with is what's on your mind? A couple of years ago I noticed sort of a comedy of errors that's brewing in our emotional landscape, with social media. So in the same year, Facebook finally rolled out its six reaction features. So instead of just simply liking things that your friends have posted, you could add the heart or the sad

face or the angry face. Mark Zuckerberg at the time said what people want to do is express empathy. But this empathy was again channelled into discrete, a discrete set of emotions that weren't sort of limitless or boundless. Now, why this is a funny sort of irony, is that in that same year, a robot was released onto the market by a company called Hanson Robotics and the robot was called Pepper. And robots such as these were being trained to recognise, and I quote, 62 different facial and neck architectural features of humans. So while the robots were learning 62 different ways to recognise us and to be able to tell what emotions we were feeling, we were being allowed a range of six emotions on social media. I'm sure you've noticed this, too, that on social media, we're sort of asked to experience two completely different kinds of emotions. One after the other. So on your timeline, you may see that your best friend's child is sort of toddling around on the carpet. You may feel the warmth and excitement of that. And then the next post could be something about 7,000 killed in an earthquake. The way that the timeline and the new feeds is structured really have no emotional consistency at all. So we're often being jerked in our effective responses from one emotion to the next quite quickly. And I think this century will be about how do we cope with these quick gear changes in our emotional lives, where people's sort of internal landscapes are being altered very, very radically from one emotion to the next. Really, the name of the game in social media commerce is to make your time on the site as maximum as possible. So a lot of the way that the websites are designed are to encourage you to stay on it, to return to it, and how they do that is to create quite sort of addictive little algorithms such as there's one, where on Twitter, there's a . . . there's a bit of a delay before the, how many notifications you have come up. And there's that . . . there's a very human basic response that where we wait to see something that is variable and changing. We get a little hit of dopamine when there's sort of a category of data that's changing that we can monitor. So there's that brief moment of excitement that we all know, even when we're just checking an email. How many new emails do I have? How many new notifications? And that little pause encourages in us that sort of sense of anticipation that is then rewarded when we see the actual number. So in this way, social media is sort of trying to tap in to very fundamental things about how our psychologies work and our emotional lives are structured.

223. Is technology addiction a myth?

Addicted to your phone? Think again. The Oxford Internet Institute's Professor Andrew Przybylski argues "digital addiction" is a myth.

Animated by Cheng-Hsu Chung, 10 July 2019

This video was made by BBC Scotland

PROFESSOR ANDREW PRZYBYLSKI *Director of Research at Oxford Internet Institute*: My name is Professor Andrew Przybylski. And in my humble opinion, technology addiction is a myth. Casual use of the term addiction has a very real effect of potentially trivialising how we talk about addiction more broadly. We might say a popular game app or streaming series is addictive. But what do we really mean when

we use that word? Are we seriously equating this kind of behaviour with a problem with drink or taking drugs? What we really mean is the activity is fun, it's engaging, it's immersive and it's enjoyable. We know the amount of dopamine that's released when you do something like have sex, eat food or play video games is kind of a pretty narrow band. But taking drugs like cocaine, ecstasy or amphetamines has a much larger impact. Something that not many people know is the technology. Addiction itself started as a bit of a practical joke. In the mid-1990s, the American psychiatrist, Dr Ivan Goldberg, grew frustrated with how psychiatry was medicalising everyday life. He wanted to use the internet as an example. He took symptoms from gambling disorder and substance abuse disorder, and he pushed them together to kind of illustrate how silly the manualisation of everyday life had become. Here we are 20 years later, talking about videogame addiction, internet addiction and smartphone addiction as if they're their real own things, along with checklists, acronyms and media headlines. Though headlines might seem very sure about the addictive potential of technology, the actual research itself is a bit of a mess. We're not really sure if technology might cause problems in people's lives or if those who already have problems in their lives gravitate to using technology in less healthy ways. One of the most worrying things is: because there isn't a lot of good evidence in hand, there are a lot of people trying to sell the general public on some big ideas. At the very least, this means that people are selling books, they're going on chat shows, they're kind of being influencers. But at the worst, it means that some people are taking advantage. They're running for-profit clinics. They're using methods of treatment that haven't been either standardised or validated or shown to help people. In some cases, we have people who are running clinics, publishing research on technology addiction and not disclosing that they themselves are profiting directly from treating technology addiction. What's currently missing from the debates and the worries about technology addiction is a historic perspective. In the 1980s, we were very worried about Dungeons and Dragons, playing roleplaying games that involved young people's imaginations. We were worried that they would lose connection with the real world, that they would engage in satanic rituals. Then in the late 80s and early 90s, we became very worried about rap music and violent video games. We thought that maybe they changed young people, drove them to commit violent acts. We didn't stop worrying about rap music, Dungeons and Dragons, or video games because of new empirical evidence. We stopped worrying about them because our anxiety shifted from those fields, from those topics to things like the internet and online games. So as scientists and psychologists and researchers, we need to ask ourselves, is there really something special about technology or is this a new panic that we have to grapple with?

224. Is the coronavirus crisis a chance to reset the world?

The BBC's Amol Rajan looks back through history at times when crises have led to profound changes in society.

Animation by We Are Covert, 19 June 2020

Part of the Rethink project

AMOL RAJAN: Humanity has confronted countless crises – many have led to profound and sometimes unexpected change. It was the economist Milton Friedman who once said - “Only a crisis - actual or perceived - produces real change." But what kind of change can we expect in the aftermath of the coronavirus pandemic? And will it be change for the better? History may give us some answers By the summer of 1349 the Black Death had killed nearly 50 % of the population of England. There was a “second wave” of the plague in 1361 which killed another 20%. A disaster, yes, but the plague did something which had begun to look impossible: It stopped the 100 Years’ War – the series of bloody conflicts between England and France. There was also a profound labour shortage – because so many people had died - which put those who survived in a stronger position. Eventually, the exploitative feudal system - under which peasants swore allegiance to lords in exchange for a patch of land and some protection- collapsed. Fast forward to 1918, and another devastating wave of disease was sweeping the world. The so-called Spanish flu – although it didn’t actually come from Spain - spread through crowded troop transports and munitions factories towards the end of the First World War. By the end of the pandemic, more than 50 million people had died. But it did give rise to a new understanding of infectious diseases. And that spurred the development of public health systems across the developed world, as scientists and governments realised that the best defence against pandemics was at a societal rather than an individual level. Calls for a unified medical service in the UK date back even earlier but it wasn’t until after the Second World War, in 1948, that Britain’s National Health Service was launched. According to the NHS’s official historian, Charles Webster, the Luftwaffe “achieved in months what had defeated politicians and planners for at least two decades”. We only gave you part of Milton Friedman’s famous quote earlier. He went on to say: "When that crisis occurs, the actions that are taken depend on the ideas that are lying around." As well as the launch of free universal healthcare in the UK, the post-war period saw the adoption of other radical ideas that were ‘lying around’ at the time, including the rapid nationalisation of industry and the creation of the modern welfare state. Globally, institutions such as the United Nations were set up, determined to prevent future wars through international co-operation and diplomacy. Will the aftermath of coronavirus leave us with similarly fertile ground in which new ideas might flourish? Will it kick start new ways of living, working and travelling? Or make us think again about our attitudes to consumption or our responsibilities to one another? Will ideas such as a universal basic income, virtual education or even healthcare delivered by robots become logical next steps in a profoundly altered world? Or will we pick up where we left off, as if nothing had happened? And if there is to be change, who will decide if it’s change for the better? After all: not all the ideas lying around will prove to be the right ones.

225. Is the obesity crisis overblown?

In this radical view, psychologist and author Traci Mann argues that public health is being damaged by our fixation on weight.

Published on 6 July 2017

This video was made by BBC World Hacks

[*montage of various speakers saying 'Obesity' or 'Obesity* crisis']

TRACI MANN. The truth is there is no obesity crisis.

CAPTION: Worldwide more than 600 million adults are obese. *Source World Health Organization, 2014.* This woman argues she has a solution to tackle health problems associated with obesity.

TM: Our fixation on weight is keeping us from doing things to help people get healthy.

CAPTION: What you're about to hear is a controversial view that many medical professionals disagree with . This is Traci Mann, professor of social and health psychology.

TM: Obesity researchers hate it when I say this, but their own data show that obesity is not going to kill us. Most obese people don't have shorter lifespans than non-obese people. And actually, it's the underweight people who are most at risk. Obesity only really leads to shorter lifespans at the very highest weight. So why does everybody think obesity is deadly? Well, one reason is that obesity is correlated with three different things that we do know is deadly and that do shorten lifespan: being sedentary, having a lower income and not getting enough medical care. Everyone, the media, the medical community, operate from the unwavering assumption that obesity is deadly. And so any evidence that comes along that contradicts that, they just write it off. It is true that obese people are more likely to get diabetes and cardiovascular disease. But there's two things you need to realise. First of all, the obesity paradox.

CAPTION: A medical hypothesis which holds that . . .

TM: When obese people get these diseases, they're less likely to die of them than non-obese people.

VOICEOVER CHORUS: What?

TM: They're less likely to die of them than non-obese people. And second, to reduce your risk for those diseases, you don't actually have to get thin, you just need to exercise.

CAPTION: And exercise does not necessarily make people thin. But it does prevent diseases.

TM: In terms of heart rate, blood pressure and cardio respiratory fitness.

CAPTION: The 'fat but fit' idea has recently been questioned. But according to this view, 'It's not about losing weight it's about getting more exercise.'

TM: And if you want to know if that exercise is working. Don't look at your scale. That's not going to help you. Go ahead and find out your blood pressure. And this is really good news for obese people because it's a lot easier to get fit than it is to get thin.

226. Is there a better way to count...? 12s anyone?

We use a decimal system - based on the number 10 - to count. But is there a better way? The case for counting in 12s.

Made by Angel Sharp Media, 28 September 2018

DR VICKY NEALE *University of Oxford:* Base ten is the way we write numbers.

JOSIE *Mathsy person:* One, two, three, four, five, six, seven, eight, nine, ten.

VN: And I assume we do it because we've got ten fingers.

RASHIDA *Non-mathsy person:* Oh.

J: Yeah. So I guess we were just coming from going like, 'Well, this has been useful.' So let's write that down.

CAPTION: But is there a better way?

I just think everyone should know that it doesn't have to be that way. Base ten is just irritating.

CAPTION: The case for counting in twelves.

STEPHEN WOOD *Physics teacher, Base 12 enthusiast:* So, twelve is an amazing number because you can divide it by two, you can divide it by three and four and six and get whole numbers. So it's very special. in a dozenal world, it would be much easier to use currency. Anything that you're trying to measure, if you wanted to have a third of it, or a quarter of it, it would make it much easier to do. And that would make young children's experience of maths smoother.

CAPTION: There's a whole movement dedicated to making the case for converting to base 12. The first dozenal society was formed in the US in 1944 and the UK followed in 1959. So how would it work?

SW: So we bases are all about at what point you go from just having a single character to represent a member having two characters. For us, in the decimal society we do that when we go from nine through to ten, and we use numbers that have already been used. We use a one and a zero.

R: I hadn't even considered that. That actually, there are no symbols past nine, because then it's just zero and one again.

J: Exactly.

SW: So, base 12 would mean that you need twelve symbols. Zero through to nine as we have, and then two more symbols as well.

J: Ten, 11.

WILL *Mathsy person*: And it's only now when we get to 12 that we have to go into two columns.

SW: One zero. it would look like ten, but it would represent twelve.

CAPTION: So how does it make maths easier?

VN: I've never done this. So, four times table in base twelve. Okay . . .

R: Four times one?

J: Is four.

R: Four times two?

J: Is eight.

R: Four times three?

J: Is . . . twelve.

R: That's right, yeah, because it's one lot of twelve?

J: But it won't be that, it'll be . . .

R: No, no, no, because that's ten, eleven. And then we start again, because we've got, like, we've got a whole thingy of twelve. Ooh, it keeps repeating.

VN: Some times tables work more nicely in base twelve, some work more nicely in base ten. I guess there are more of them that work nicely in base twelve because there are more numbers that divide exactly into twelve.

UNNAMED MALE: Two, three, two, three, four, six.

VN: That's kind of what makes it useful for writing fractions. Kind of with nice things after the decimal place. A third, which is really difficult to write normally. 0.3333333. You could write nicely using base twelve, because this means four twelfths. But you still couldn't do a seventh.

SW: It's not rare, I don't think, to have to share something among three people or four people, and base ten is just . . . irritating.

CAPTION: So why do we have to use Base 10?

DR PHLIP BEELEY *Historian of Mathematics, University of Oxford:* I wouldn't say we have to use the number system 10. Why must we use the number system 10? If you go back to classical antiquity, you tend to find that other systems were more predominant. The sexagesimal system of the Babylonians, for example.

DR CHRIS HOLLINGS *Lecturer in Mathematics and its History, University of Oxford*: Base 60, so rather than having columns with powers of 10 like we have, they have columns with powers of 60. So, there's the units column, there's the 60s, there's the 360s add that up and 360 is very close to the number of days in the year. That's where this idea of using 60 comes from.

VN: The fact that we have 60 minutes and an hour comes from the Babylonians.

W: We convert in and out of Base 60 quite a lot when we work out how many hours things are.

UM: I didn't even know was doing fancy mathematics. Woah.

CAPTION: Different civilisations have used a variety of base systems. The Maya used base 20, the Chumashan languages base four and the Kaugel language of Papua New Guinea base 24.

VN: There are some legacies of previous counting systems in everyday life.

SW: When we're measuring things, we use lots of different bases.

CAPTION: There are 12 inches in a foot. We count our eggs by the dozen. And 16 announces make one pound.

SW: Civilisations have switched between bases throughout history. And we could do it again and I hope we do.

J: The entire world has grown up with base 10. You'd have to, like, completely rewire everyone's brains into being like, 'Oh, let me get my base 12 times tables.' It'd be like, 'Oh my gosh.'

SW: I really want to switch to base twelve so that when I'm using maths, it's a more pleasant experience. Why can't you be using the best base?

VN: It would be so confusing for me and for everybody else. But I can sort of see on a mathematical level why base 12 is cool?

227. Is trying to predict the future a waste of time?

Michael Lewis, author of The Big Short and The Undoing Project, makes an impassioned case against listening to the crystal ball-gazers.

Published on 8 January 2018

Made in partnership with Intelligence Squared

MICHAEL LEWIS: I'm Michael Lewis, and I'm going to talk to you about the idiocy of predictions.

CAPTION: The idiocy of making predictions.

ML: It isn't that predictions are useless. It's really nice to know how and where and when, you know, a meteor will strike the Earth. There are some things that are actually predictable. The problems arise in areas where there is a lot of randomness. So the matter is inherently unpredictable. So you see, like, endless demand for predictions about what's going to happen in financial markets or what's going to happen in political campaigns. And there's this curious phenomena that people long for predictions in exactly the areas that are unpredictable. And as a result, end up horribly disillusioned with the whole idea of experts predicting things. So political . . . you know, Brexit and the Trump campaign are great examples. These are seen as horrible indictments of the experts who are meant to predict political outcomes, when really the people who are disillusioned should be disturbed by their own need for a prediction about something that's inherently unpredictable. There's this lovely phrase that the Israeli psychologist Amos Tversky had in one of his notepads, he said, 'reality is not a point, it's a cloud of possibility.' And what he meant by that was that at any given moment, the world could go lots of different directions and that it ends up going in one direction. But it's not that it was fated to do so or that it was predictable that it would do so. But this makes this this idea of holding this idea in your head that although, say, Donald Trump got elected, it's quite . . . he quite easily could not have, is hard. People want certainty. They long to believe that the future is somehow knowable. You know, some of the best cons take advantage of this desire in people to have the future predicted for them. Every stockbroker on Wall Street who's a kind of a con man knows that, you know, if you want to get people to do things with money, you take half the people who you're going to call and you tell them the IBM stock is going to go up tomorrow and you tell the other half it's going to go down. And then whatever it does, you call them people who you were right to and say, now I'm going to tell you what you should do. I think that is a little metaphor for an awful lot of prediction.

CAPTION: Back in 2001, before Donald Trump hosted The Apprentice, before Facebook and Fake News, and even before the iPod, Michael Lewis made a BBC documentary about how the internet was going to change the world with a prediction of his own.

ML (*Archive: The Future Just Happened, BBC/A&E Networks, 2001*) Power is no longer where it used to be. It's drifted into the hands of new kinds of people, technologists and entrepreneurs, who bring with them their own peculiar beliefs and values. And it's only a matter of time before they inflict those values on the rest of us.

ML: It's true that people think . . . they think too much about the future and not enough about the present. If I said in a BBC documentary in 2001, anything that was relevant at all today and sounds wise, it was by accident.

228. Is your brain your own worst enemy?

An exploration of the world of cognitive bias. Have you fallen into any of these mind traps recently?

Made by The Moment, 1 June 2018

NARRATOR: Filter bubbles and echo chambers. It can be hard to make rational sense of the world. But is your brain your own worst enemy? Here are four of the many ways your brain's processing shortcuts are playing tricks on you. Welcome to cognitive bias. Understanding a bit about it could change the way you see the world. So here goes. A recent peer reviewed scientific study found caffeine consumption is strongly linked with developing cancer. On this scale, to what extent do you agree or disagree with the findings of this study? Relax. This study is fake. However, your answer will be directly influenced by the amount of caffeine you drink. Cognitive bias. Number one, the self-serving bias. Self-serving bias is your brain's strong natural tendency to interpret information in such a way as to unduly favour itself. In this experiment, caffeine drinkers rated the study's validity consistently lower than non-caffeine drinkers. Subjects with a negative personal stake in the outcome of research were less convinced by the data. How irrational. Your brain will reject perfectly viable information simply because it has negative implications for your personal beliefs and behaviours. Likewise, it will tend to eagerly accept information with positive implications, even if that information is flawed or inconclusive. So why does your brain do this? Self-serving bias protects one's fragile ego from threats and injury. That last group presentation you gave was either a success thanks to your brilliant work, or was a failure thanks to everyone else. You've got to look after that ego. Okay. A new thought experiment. Look at this parking. What do you think of the red car's driver? If you thought poorly of the driver's character, you have performed cognitive bias number two: fundamental attribution error. This is your brain's attempt to explain behaviour by placing undue emphasis on internal characteristics of the person rather than external factors. Consider that just moments ago, these cars were parked in a way that left the red cause driver with little option. Does that change your opinion? Fundamental attribution error is often performed when driving. I'm speeding because I'm in a rush, whereas they're speeding because they're an inconsiderate maniac. Your brain has limited capacity to interpret the world. It can observe the badly parked car and understand that someone put it there, but that's it. To theorise about the historical arrangement of the cars or the situational needs of the driver is a complex and potentially unending use of finite cognitive resources. Onto the next one. Here's a famous experiment by Peter Wason. Play along at home. Subjects were given a three number sequence (6, 12, 24), told that it follows a simple rule and asked to figure out the rule. They were allowed to suggest their own number sequences and told to continue until they were confident that they had cracked the rule. Were you thinking of a sequence like this? (2, 4, 8) This follows the rule. And another like this? (5, 10, 20) This also follows the rule. So what is the rule? It's to multiply by two, right? Well, no, your brain just performed another cognitive bias. Confirmation bias. The actual rule is any sequence of numbers in ascending order. So what went wrong? Your brain landed on its first hypothesis. Multiply by two. From there, every suggested no sequence was used to confirm that initial hypothesis rather than actually test it. A rational approach would be to attempt to disprove this hypothesis by suggesting other number sequences that didn't follow it. But your brain isn't rational. It has a tendency to search for, interpret, favour and recall information that confirms its pre-existing beliefs,

numbers or otherwise. Confirmation bias is based on limitations in the brain's ability to handle complex tasks and the shortcuts that it uses. As a result, the brain finds it really difficult to test alternative hypotheses in parallel. It's good, but it's not that good. Okay, so you've learnt a few cognitive biases. You're now prepared to combat them in your own brain. After all, knowing is half the battle, right? Well, not exactly. That's cognitive bias number four - the G.I. Joe fallacy, the action figure and TV character G.I. Joe famously said, 'knowing is half the battle'. When it comes to cognitive bias, he was well out. Knowing is one thing, but habits, situations and other processes still rule the roost. Self-awareness won't beat it. You may know a badly parked car does not make a bad person, but you'll still feel negatively towards them. You may know your brain will take shortcuts to confirm the hypotheses it already holds, but it will still take those shortcuts. You may know that your brain will protect your ego at every turn, but the ego security will still be out in force. So knowing about cognitive biases is way less than half the battle. Even knowing the G.I. Joe fallacy about knowing about combative biases is still way less than half the battle. Funny how your brain can pontificate about its own limitations, but do almost nothing about them. But in the true spirit of cognitive bias, you will be able to point it out in others. Good luck with that.

229. Is your pension contributing to climate change?

Sustainable finance experts Nina Seega and Steve Waygood explore the connection between your investments and the health of the planet.

Published on 18 February 2020

STEVE WAYGOOD: Money is an incredibly powerful tool for change. It can do a huge amount of good and it can also do a huge amount of damage. Climate change isn't just about the pandas and the polar bears or the trees and the fish. It's about your pocket. It's about your pensions, your savings and your investments.

NINA SEEGA: When we talk about transitioning to a sustainable future, all of the focus is on how much is it going to cost us to move to that future? We need to move away that focus to how much is it going to cost us not to move to that kind of future?

SW: It's now got to the point in many countries where the economic activity of that country is greater than the natural environment can support. It said that if we all lived in the way that they do in the United States or we do here in the UK, we would need five planets worth of natural resources to make sure that we were living in a way that met the needs of the present without harming the ability of future generations to meet their own needs. We don't have five planets. To give you an example of that: forest fires. You can draw a direct line from a pension through to, for example, the fires that we're currently seeing in Australia. That line works like this: pensions will invest in all sorts of businesses that are listed. Fossil fuel firms are part of that, extractive businesses from the mining sector and other parts. Now, the fossil fuel firms contribute to climate change. If people paused to think, well,

actually, if you have a pension, if you haven't checked, it is probable that in some way your pension is involved in that problem.

NS: We need to move the financial system so that it finances a more sustainable economy, not financing improvements in the fossil fuel industry, coal-driven power or oil, but rather directing the funds toward more renewable sources. We need technological innovation that will allow us to become more sustainable, more renewable. We need the financial markets to fund the technological innovation, to bring up the battery capacity, that will allow renewables to be used as part of the main electricity grid. If you have a pension that is possibly your biggest contribution to the financial market. Ask for disclosure. Ask for your pension provider to tell you whether your money is invested sustainably and what impact that money is achieving in the market.

SW: What happens if you find a company in your portfolio that you're not comfortable with? Pause and think. The easy thing to do is to just say, 'Oh, sell.' But actually, that's not the most effective thing. If you really want to make the world a better place, before you sell use your voice as a medium of change. Ask them for their voting record. Ask them for a report on what change they've created by using their voice, which is, after all, your voice. It's done on your behalf.

NS: We have seen a number of commitments from a variety of financial firms, including that of the world's biggest money manager, BlackRock. What my hope is, is that those commitments translate into action so that this year becomes the year where we're not only talking about changing our behaviour, but actually taking steps to live different lives, to change our financial system and to change the economy and society as a whole.

230. Is 'happy ever after' just a myth?

The traditional idea of what makes us happy – money, marriage and kids – is a misleading fantasy, says scientist and author Paul Dolan.

Published on 15 February 2019

CAPTION: The happiness myth.

PAUL DOLAN, PROFESSOR OF BEHAVIOURAL SCIENCE, LSE: All of us from a very early age are told how to live our lives. We're given stories about what the perfect life looks like and some of those stories work for some people some of the time but not all of us all of the time. There's no checklist that each of us should tick off in order to live a perfect life.

CAPTION: ONE: BE RICH.

PD: One of the myths is that being rich will make you happy. It's certainly true that being poor makes you miserable. Once you get to about £30-40,000 a year certainly £50,000 at most, you've probably reached the peak of happiness by income

and actually more money after that point, might not just make you no happier but actually might make you more miserable. It's addictive. You get sucked in and you need more and more and more to be happy. So the best approach is not to say: "more please" but just to say: "just enough".

CAPTION: TWO: HAVE A CAREER.

PD: Another myth is that you need a successful career to be happy. You certainly need some status in your life but again you can become addicted and get too much. It's interesting that the jobs that we're told to aspire to, being a banker, being a lawyer, actually don't make people that happy. Certainly no happier than being a hairdresser or a florist where some of the evidence suggests that people working in those jobs are actually happier. Now it might be that happier people go into those jobs in the first place but there are important dimensions and attributes of those jobs that lend themselves to being happy. You're working with people that you like being with. You can see the fruits of your labour. All of these things are good characteristics of a good job. A good job insofar as it makes you feel good and not just how much you earn and how much status you have in it.

CAPTION: THREE: FALL IN LOVE.

PD: One of the things that we need to achieve in order to lead the perfect life is to fall in love by finding 'the one'. What nonsense. First of all, 'the one' doesn't exist. There's many 'the ones'. There's many people that would be perfectly suitable for you. Once you've found them, the idea that you should be in love with them, passionate love with them, forever, is actually dysfunctional. Passionate love in any normally functioning relationship dies after a year or two and that turns to companionate love, and that's healthy because it enables you to then move on and do things in life. Maybe have children, pursue projects. Passion ought to die in functional relationships. It's a massive story that you should still be in passionate love with someone after a decade or two. You should be in love with them but in a slightly different way.

CAPTION: FOUR: GET MARRIED.

PD: One of the stories we're told from a very early age is that we need to get married. It's the checklist of things that you need to achieve in order to grow up. Well again, marriage can make some people happy, some of the time but not all of the people, all of the time. The evidence suggests that the long-term impacts of marriage differ by gender. On average, marriage is good for men we live longer, we earn more money. That's not true for women. Those women with the longest life expectancies are those that have never married. But it's interesting, isn't it, that we often feel sorry for those people? Maybe one day you'll meet the right guy and that'll all change. But many women are really happy and healthy from never getting married.

CAPTION: FIVE: HAVE KIDS.

PD: One of the things that a fully-fledged grown-up does is have children, right? I mean, that's what people are expected to do. And it's true that many people want

children and of course many people have children but some people don't want them. One of the things that's expected of us when we have children is that our children will make us happy. Not just some of the time but all of the time. The evidence tells us, quite clearly I think, that children do bring us moments of joy they can also feel quite purposeful but they bring long periods of stress, anxiety and worry that wouldn't have happened had you not had them. And that's fine - that's what children do.

CAPTION: CONCLUSION.

PD: The myth of these stories is that everybody needs to lead the same life and it leads us to judge other people that live their lives differently to us and we shouldn't. Each of us needs to find our own route to happiness. There's no one-size-fits-all

narrative.

J

231. Jenni Murray: The idea that changed my mind

BBC Woman's Hour's Jenni Murray explains why sleeping in a separate bed to her husband turned out to be a very, very good idea.

Published on 7 March 2018

This video was made by BBC Ideas

JENNI MURRAY: Hello, I'm Jenny Murray and I present *Woman's Hour* on BBC Radio 4. The idea that changed my mind, came from my husband quite some time ago, when our youngest son decided he would throw himself out of his cot, climb along the landing, clamber into the bed, disappeared between the two of us, and scratch his father's back with his toenails. And, of course, my poor husband couldn't sleep at all. So he said, 'Look, what would you think to having separate bedrooms?' And I said, 'Oh no, that's awful. That means you don't love me anymore. You don't want to be with me. That's dreadful.' He said, 'Well, could we please just give it a go?' So we did. Best thing ever. For the past 30 years, we've both been getting a decent night's sleep. The worst idea I ever had was when I was a reporter in Southampton on Saturday in regional television, and I thought it would be a really good idea to have a TR4A sports car. Nothing has ever cost me as much money, because it was always going wrong. Nor have I ever had so many speeding tickets. So I then sold it and got a Renault 5 – much more sensible.

232. Jeremy Bowen: the idea that changed my outlook on life

BBC journalist Jeremy Bowen on the idea that changed his mind - having children.

Published on 24 May 2018

JEREMY BOWEN: The best idea I ever had was to tear an advert off a notice board in University College London in the end of 1981. It was an advert for a graduate school in international affairs, offering a Master's degree with a year in Bologna in Italy and a year in Washington, D.C.. And I got in and it was a life changing experience. In Italy, I realised just how European I am, and in the US I realised that if you want something, all you had to do was try hard. The worst that could happen would be that you'd fail. So for me, that was a real breath of fresh air. I've had a lot of bad ideas over the years. Some of them, in the course of my work, have involved going to the wrong place at the wrong time and getting mixed up with the wrong kind of people and therefore ending up sometimes locked up or even worse, hurt. But I think one of the really bad ideas that I've had over the years is actually spending too much time at work. When I was much younger and building my career, I didn't mind the considerable sacrifices you have to make to be a successful foreign correspondent travelling at the drop of a hat, going off a couple of hours' notice and staying away a month. That sort of thing, I loved it. Now I realise there are other things to life. So I've tried to change my work life balance a bit. So that's what I'd say was my bad idea. Spending too much time at work. The idea I'd like to see introduced is one that involves big restrictions on the use of plastic, particularly in packaging. But not just in packaging. For years now, I've been at the beach. I've tried to bring back, you know, stuff a few bits of stray plastic into a bag that I've picked up just to take them away and put them in the bin somewhere, because I thought I'd try and do my little bit. It's very nice to see now that there's a lot of global concern about plastic pollution. I just hope it's not too late to do something about it. You know, for years, for generations, we managed very well with packaging made of paper or glass or metal, why not go back to that? The idea that changed my mind was the idea of having children. I always thought I might have them perhaps at one point, but I was probably quite capable of putting it off forever. Now I was with my partner who wanted to have kids. And so I thought, why not? And from the moment it started happening, I was delighted with the idea of becoming a father. And it's been a really important thing for me.

233. Jordan Peterson: Why we need more rules

Jordan Peterson, author of 12 Rules for Life, has a huge global fan base – but also many detractors. Here he is in his own words...

Published on 16 May 2018

JORDAN PETERSON: I'm Jordan B. Peterson, a professor at the University of Toronto in Canada. And these are some of my rules for life. They're not the BBC rules. They're mine. Oh, good. Just what we need more damned rules. For more than 50 years, since the hippie days of the 60s, we in the West have fed ourselves upon a steady diet of freedom and rights. We want to do what we want, when we want, and the devil take the hindmost. We want people to grant to us our due, to elevate our self-esteem and to support us in our pursuit of happiness. But we're blind to half the world and we're suffering for it. The meaning that we require to sustain us through

the vicissitudes of life is not to be found in rights, necessary and valuable as they are. That meaning is instead to be found in responsibility, in the care we take with ourselves, our families and the broader society surrounding us. Too much freedom, likewise, is indistinguishable from chaos and too much chaos paralyses and deadens. And rules are not antithetical to freedom, although they do delimit that freedom. The rules of chess enable an infinite variety of games. The rules of harmony enable the limitless production of the music that beautifies and enriches our lives. The rules that differentiate good from bad provide us an ideal at which to aim and the pursuit of that upward ideal lends necessary meaning to our lives. Follow some rules voluntarily and bring some blessed order to the chaos of your being. Why should I listen to someone with whom I disagree? We're all surrounded by many other people, each of whom views the world through a different lens, each of whom we can speak with and, more importantly, listen to. Each of those others brings to a conversation something unique. Listen, instead of proving your point. Question so that you truly understand what you are being told. Help your conversational partners make their arguments even stronger so that you can test your own assumptions before they are direly tested by the vicissitudes of life. Assume an initial position of humility, because then you can learn and become more than you are. With every conversation you have, assume that the person you are listening to might know something you don't. Why must innocent people suffer so terribly? What kind of bloody horrible planet is this anyway? The problem with thinking this way is that it inevitably makes everything worse. All of the problems of the world end up being someone else's fault. That relieves you of your existential responsibility and even more dangerously provides you with someone to hate and to punish. Try turning inward. Instead, ask yourself the most difficult and promising of questions. Have you put your house in order? If the answer is no, as it is likely to be. Try this. Stop blaming capitalism, the iniquity of your enemies or the insufficiencies of creation. Aim instead at the highest good you can imagine. Envision the world you would like to inhabit in detail, then work toward that. Let your conscience serve as your guide. Your judgement will improve. You will begin to face all those responsibilities that you've been avoiding, the resentment and anger you feel toward the world, however murderous initially will recede. Perhaps you will then see that if all people did this, the world might stop being an evil place, stop being a tragic place. Who knows what existence might be like if we all decided to strive for the best. Set your house in perfect order before you criticise the world.

234. Journalism: Why 'fake news' is actually good news

What is the future of journalism in a world of 'fake news', social media and citizen journalism? LSE professor Charlie Beckett takes a look.

Made by Somethin' Else, 29 January 2019

CHARLIE BECKETT: The A to Z of isms... journalism. Journalism is a product of modern history, and it's shaped by the politics of the places where it works. In liberal democracies it's based on the ideals that knowledge is important, that expression

should be free and reliable and that reliable information is good for society. It's been driven by the invention of new technologies such as paper, printing, electricity, photography and now, of course, digital, social media, the Internet. It's changed radically over time from mediaeval scribes recording war and taxes, to paid pamphleteers in coffee shops, waging political battles, to mass market newspapers that used new tech, like trains and telephones, to gather and spread the news, to television and radio that allowed us to see, hear and connect with the rest of the world. The BBC's Richard Dimbleby's radio reports from Belsen concentration camp brought the horrors of the Holocaust to the world. Television journalists like Dan Rather and photographers such as Don McCullin showed America the brutal reality of Vietnam. Reporters from the Washington Post metro desk forced a presidential resignation over Watergate. As journalism became more influential, so politicians battled to control it. Journalism was always about power. Power over information, holding power to account or providing propaganda. It claimed to make and break careers, swing elections and even start wars. It's produced heroes who have revealed scandals such as systematic child abuse by paedophile priests. It's also created monsters who ruined lives and broke the law, such as the journalists who hacked into people's phones. Now it's all changing again. Automatic software programmes are writing block journalism. Citizens broadcast on their phones. Algorithms created by huge technology companies shape the flow of news as people like or retweet the facts and opinions they want to share. That's meant an explosion of content. A tidal wave of information, much of it false, furious and fractious. People are confused about what to trust. Uncertain what is true. Fearful of the anger, conflict and bias they find online. We're in an age when populist leaders and shadowy interest groups use the cliché 'fake news' to attack journalists and deliberately mislead the public. So why did journalism fail to see all this coming? Do we even need journalists anymore? Fake news is actually good news for trustworthy, reliable journalism. It's a chance for the news media to show why they're needed to sort out the truth from lies and speak for the citizen. The digital age is a chance for journalism to reinvent itself with new tools such as virtual reality or artificial intelligence. The Internet provides massive competition for the mainstream media, but it also offers pathways to new business models such as membership, subscription and collaboration. Most of all, it offers an opportunity for journalism to get back in touch, to be more diverse, relevant and engaging in a social world where emotions and values drive our communications, journalism needs to rediscover the human touch and also to get back some key traditional ideals: to be reliable, responsible and to tell the stories that help to explain our complicated and often frightening world.

K

235. Keynesianism: The story behind this key economic theory

Economist John Maynard Keynes has been hugely influential. But what is Keynesian economic theory? The Economist's Anne McElvoy explains.

Made by Somethin' Else, 11 November 2018

ANNE MCELVOY: The A to Z of isms Keynesianism. Keynesianism, the brainchild of John Maynard Keynes, is one of the biggest and most durable guides to political economics that we have today. And the work of a big beast of early 20th century economics is back in vogue. Since the financial crash of 2007-2008, figures as varied as George Bush, Barack Obama and Donald Trump have embraced the central idea of governments stimulating the economy. So did Gordon Brown, as long serving British Chancellor, and arguments over the impact of austerity, turning down the tap of government spending have served to gain Keynes a new generation of advocates like the Nobel Prize winner Paul Krugman. When it got its name during the slumps of the 1930s and the political disasters that followed, popular opinion was that over time, wages would fall, employers could afford to invest in their enterprises and voila, up would go the economic balloon again in a virtuous cycle. Alas, the duration and depth of the Great Depression challenged these assumptions. The human cost in misery was just too high to wait and see, and it fired Keynes to a sweeping remedy. Governments would have to be activists in the economy, increasing expenditure and lowering taxes to get what he called, 'the animal spirits roaring again.' That so-called active stabilisation in the short term would prevent things drifting from bad to worse. So governments should borrow and spend on public projects to employ workers who would otherwise be consigned to the dole and have less to spend to spur growth. And he added, if there was nothing better for people to do, well, the government should pay them to dig holes in the ground and fill them in again. A sceptic might call this spending money you don't have. Keynes's number one entry into the rock charts of economics came with the general theory of employment, interest and money in the mid-1930s. Not the world's catches total, but think about its extraordinary scope. It's like the Book of Mormon for Keynesian believers, a general theory of pretty much everything. After the Second World War, when his star was at its highest, Keynes helped set up the Bretton Woods system, the foundational rock of financial and commercial dealings across the Western world. He valued hands-on economics that go beyond charts and graphs. One day he hoped that economists would be seen as humble and practical sorts, like dentists. After the financial crash of 2007 to 2008, a rapid shift of opinion took place amongst many prominent economists in favour of Keynesian stimulus. And governments followed suit. Having avoided a depression, though, the appetite for stimulus measures waned and the politics of so-called austerity, based around lowering public debt, gained prominence. The arguments around Keynesianism are still broadly similar today. One big challenge to his remedies is that they're a short term fix. They don't address why economies got into a mess in the first place or how to avoid it in the future. Asked what his answer was to that, Keynes issued a famous quip. 'In the long run, we're all dead.'

L

236. Left handed? Right handed? Five facts about you

Left-handed? Right-handed? Here's five facts you probably don't know, courtesy of handedness expert Prof Chris McManus, from UCL.

Made by BBC Scotland and Touzie Tyke, 23 August 2018

CHRIS MCMANUS, PROFESSOR OF PSYCHOLOGY AND MEDICAL EDUCATION, UNIVERSITY COLLEGE LONDON: Five facts about handedness. Are you left-handed? If so, one in ten people around the world is like you. However, nine out of ten people are right-handed.

CAPTION: 1. HUMAN HANDEDNESS STARTS IN THE STONE AGE.

CM: Stone tools suggest that most of our ancestors were, like most of us, right-handed. It's hard to pin down when left-handedness started, but we do have evidence that there were left-handed Neanderthals 500,000 years ago. How do we know this? Well, they were probably eating raw meat, which is tough old stuff. Archaeologists think the Neanderthals would sink their teeth in, and then use a sharp piece of stone to cut the meat near their mouth. Sometimes the stone slipped. And from the direction of the scratches, 10% of Neanderthals seem to have held the cutter in their left hand.

CAPTION: 2. LEFT-HANDERS, YOUR BRAINS ARE MORE BESPOKE.

CM: For right-handers, it's normally the left side of the brain that's associated with speech and language. What though if you are left-handed? Despite using their left hand for writing, two thirds of left-handers are just like right-handers, in having language in their left brain. But, a third of left-handers have language in the right side of their brain the opposite of right-handers. Left-handers are much more variable in the ways their brains are organised. In contrast, right-hander's brains are off-the-peg. Left-handedness is therefore much more of a mixture of strengths and weaknesses, pros and cons coming from having a somewhat differently organised brain.

CAPTION: 3. CHECK OUT THAT ULTRASOUND. Is your baby sucking its thumb? Psychologist Peter Hepper in Belfast studied several hundred scans where the baby in the womb was seen sucking its thumb. About 90% of babies sucked their right thumb. And at twelve years old, almost all of those right thumb suckers were right-handed. Whereas three-quarters of the left thumb suckers would become left-handed. Genes are clearly also important. One left-handed parent, and you're more likely to be left-handed yourself. Both parents left-handed, and you're even more likely. About a one in four chance. Infants often go through a random chaotic phase where they use the right hand one day, and the left the other, perplexing their parents. By about two-years-old, their handedness is usually consistent.

CAPTION: 4. WE COULD ALL BE A LITTLE MORE AMBIDEXTROUS IS WE TRIED.

CM: If you practice long and hard enough, then you can probably do anything equally well with either hand. Concert pianists are a good example, though it does take dedication. In 1797, the right-handed Admiral Lord Nelson had his right elbow shattered by a musket ball. The arm was amputated. Within six months though, Nelson had learnt to write fluently with his left hand. But the motivation was there, of course. Professional sports players are also motivated to practise, as it can give an added edge in competition. Footballers train to kick well with either foot, and when practising they use both feet confidently and well. But under pressure, when the action's hot, they often revert to using their dominant foot. Even if it means taking an extra half-step before shooting for goal. Reversing your natural sidedness does come with a cost. You could be almost equally good with each hand or foot, but the price would be so much time practising, that you probably wouldn't do anything else with your life.

CAPTION: 5. MANY OF THOSE FAMOUS LEFT-HANDERS WERE ACTUALLY RIGHT-HANDED.

CM: The list of famous left-handers seems pretty impressive. Albert Einstein, Beethoven, Bob Dylan, Picasso, Neil Armstrong, Winston Churchill, Benjamin Franklin, Marilyn Monroe, all are claimed, on the internet, to be left-handed. And in each case, it's almost certainly wrong. The evidence of left-handedness is often very dodgy indeed. For instance, there's a book with a painting of Beethoven writing with his left hand, the picture has clearly been flipped. There are many reasons why people may wrongly claim that famous individuals are left-handed. Tribal loyalty and the reflected glory of feeling part of the same handedness club are just two of them. Perhaps when it comes down to it, there is a little bit of the left-hander in each of us.

237. Libertarianism: What is it? A simple guide

What is libertarianism? And why do its proponents want the state kept at arm's length? Philosopher Julian Baggini explores this key -ism.

Made by Somethin' Else, 23 April 2019

JULIAN BAGGINI: The A to Z of isms... Libertarianism. The nine most terrifying words in the English language are, 'I'm from the government and I'm here to help.' - the words of the then-US President, Ronald Reagan, back in 1986. Reagan's mockery of the very government he headed tapped into widespread American support for a political philosophy that grew throughout the 20th century. His most vocal champions, such as Senator Rand Paul and the Koch brothers are on the political fringes. But libertarian thinking has influenced mainstream politics from one of Reagan's attacks on government to Margaret Thatcher's desire to roll back the frontiers of the state. Libertarianisms' roots go back much further, though. As their name suggests, libertarians see their philosophy as embodying the principles of individual liberty, promoted by the European Enlightenment and American independence in the 18th century. Political libertarianism is particularly at home in the USA, which celebrates the pioneer values of self-reliance and rugged individualism. Key among these is the principle of self-ownership: your life belongs

to you and no one else. Hence, the liberty they defend is what philosopher Isaiah Berlin called 'negative freedom' – freedom from interference by others, especially governments. Libertarians regard all government as a necessary evil. They favour a minimal state, which the leading libertarian philosopher Robert Nosik said should be limited to the narrow function of protection against force, theft, fraud, enforcement of contracts and so on. Such a minimal state would not even provide public services such as health and education. For libertarians, welfare states create dependency and stifle initiative. These principles make libertarians very critical of taxation. Nosik went so far as to say that taxation of earnings from labour is on a par with forced labour. Although libertarians tend to be politically right wing, there is also a fairly strong tradition of left libertarianism, such as that advocated by Canadian philosopher Hillel Steiner. He claims that no one has a right to claim ownership of common goods, such as land. With an equal distribution of natural resources for everyone, there would be sufficient equality while leaving people as free as possible to decide how to live their own lives. Critics of libertarianism argue that we are not truly free unless we have access to things like decent housing, health care and education. We could only have this positive freedom, as Berlin called it, in a state that provides services and redistributes some wealth. Libertarianism may not be well-known as a philosophy, but its spirit is invoked every time people attack big government or the nanny state. It's probably the most influential political philosophy most people have never heard of.

238. Living a maximalist life - is decluttering overrated?

In a world obsessed with clean, decluttered spaces, some people still find beauty in an overstuffed apartment.

Published on 3 January 2020

Made by BBC Reel

BRETT LEEMKUIL *Interior Designer*: Hello, I'm a maximalists and the general rule of thumb is more is more.

LISA TSELEBIDIS: I live a minimalist lifestyle. Is it too echoey? You know what I mean? Because it's so empty.

BL: I think they're missing something in their lives. Beige or white rooms. How boring is that?

CAPTION: Minimalism vs Maximalism. Maximalism is an aesthetic that started in the 1970s. It celebrates boldness and encourages excess.

BL: The eye has to travel. Personally, I want to live within a jewel box and live within drama. We have these, you know, textile pieces that have been, you know, just big for the space. This massive mirror. This chandelier is just all out of proportion. You kind of feel like Alice in Wonderland. It's fun. It's unexpected. I don't want to walk into a sad room with, you know, bad lighting. The height of misery is to

have one white bulb in the ceiling and that's it. It's like, 'That's the best you can do?' I think it's hideous.

LT: I prefer this way because it makes me feel calm. So really, only the essentials.

CAPTION: Minimalism is an art movement that started in the 1950s. It values extreme simplicity and its motto is 'less is more.'

LT: And so all my folded clothes are in here. I don't think it's boring. I mean, I not only wear white. I also have black. (*laughs*) It's an original Japanese futon. It's an adjustment sleeping on the floor. But this is something I can pick up and go. So the less stuff, the more freedom in a sense for me.

BL: I just want to enjoy life in general. I guess I am into materialism. We worship at the altar of materialism. They worship at the altar of minimalism. I don't think either are necessarily, probably, a good thing. You have to find that balance.

LT: It's a whole philosophy. These are Marie Kondo's books. So she devises the KonMari method in this book.

CAPTION: "Keep only those things that speak to your heart. By doing this, you can reset your life and embark on a new lifestyle." *Marie Kondo, tidying expert.* Tselebidis is now a KonMari certified tidying consultant.

KATIE STURINO *New York Resident:* I want Lisa to come in and help me because I feel that lately my life has become overwhelmed with stuff. And I was so impressed with the, with the concept of the joy. These I instantly can say, 'thank you, shoes.' These are really, really hard for me. You're the first expensive pair of boots that I bought.

LT: Do you think you will wear them again, or . . . ?

KS? No. So these might be more of a memory box for now.

LT: Okay.

CAPTION: Although minimalism is popular today, maximalists can't embrace it because . . .

BL: I think people are tired of beige rooms. A lot of things bring me joy. (*looking at antiques*) Pretty. This is beautiful. Beautiful painting once restored. I don't want KonMari's consultant to come in to help me declutter. I mean, what's the point? No. Then I wouldn't be living my authentic self.

LT: I don't know. I guess . . . I guess too bare doesn't exist for me.

239. Love and gender - a lesson from ancient Greece?

Sex, sexuality and gender are all themes in the work of the poet Sappho. Is there a lesson for us today, asks Prof Margaret Reynolds.

Made by The Moment, 26 March 2019

NARRATOR: Gender identity, gender fluidity, gender is on everyone's lips right now. We've seen some profound changes like the legalisation of gay marriage in many countries and a more open approach to sexuality. And we're grappling as a society with the idea that gender is not purely biological. But is this really so new? We could learn a lot from the poet Sappho, who lived in the sixth century B.C. on the Greek island of Lesbos. It's because of that we use the word lesbian, which originally just meant someone from Lesbos. "Sweet mother. I cannot weave slender Aphrodite has overcome me with longing for a girl." Her poetry made her famous in antiquity. But the ways in which she and her work have been treated show only too well what it is to be judged and labelled. If Sappho were alive now, would she identify as a lesbian woman? Would she celebrate the freedom of identity choice? What would she think of our debates about gender? Answering these questions is a challenge because much of Sappho's work is lost, but the little we have is remarkable. In her day, it made her one of the few women to be pictured on pottery. The ancient Greek equivalent of appearing on primetime TV. We can't know for sure whether she had sexual relationships with women and if so, whether she was open about them. But in ancient Greece, it would have been no cause for scandal. Although men and women were expected to marry, homosexual feelings and relationships were seen as normal. So all we have to go on is the poems themselves. Sex and sexuality is everywhere here. "May I write words more naked than flesh. Stronger than bone. More resilient than sinew. More sensitive than nerve. Once again, love drives me on that loosener of limbs. Bittersweet creature against which nothing can be done." Sappho's poems, play with our expectations of gender and set up teasing questions about sexuality. Who is speaking? Male or female? Who is the beloved? Male or female? One of her best-known poems is spoken by someone looking at a beautiful girl and envying the man talking to her. "That man seems to me to be equal to the gods. He who sits opposite you and hears you nearby, speaking sweetly and laughing delightfully, which indeed makes my heart beat faster." Translators from the 15th century on have assumed that the speaker, the person who desires a beautiful girl, is another man. But in the original, there's a big hint that this isn't so. There's a line, "Chlorotera de poias emmi' – "I am greener than grass." The word chlorotera in the Greek is the form you would use if it were a woman speaking. Sappho wanted her poetry to make people think about experiences that are transgender or that transcend gender. She wanted them to imagine the feelings of a gender to which you do not or may not belong. Sappho's poems, on her most important subjects, sex and love, are about everyone. They are gender fluid and they are gender blind. Sappho does not care who we love. It is still love. So she might tell us, 'Don't worry about labels. Just get on and be who you are.' After all, she did write, "Some say an army of horsemen. Others say foot soldiers. Still others say a fleet of ships is the finest thing on the dark earth. I say it is whatever one loves."

M

240. Managing your mind at work

When is the 'right time' to discuss your mental health in the workplace?

Published on 20 November 2017

This video was made by BBC Stories

TOM: What I need is respect, and I need you to understand my mental state is not exactly like yours, but I can perform the same way you can perform.

NARRATOR: Over 31 million people in the UK work. You might be at work now. Or you might be home worrying about it.

T: What goes through my head all the time is: 'Don't fall apart. Don't fall apart.' So . . .

N (*to Tom*): It's like trying to keep yourself together all day.

CAPTION: At any one time, one sixth of those people will have a mental illness.

T: For a whole eight hour shift, you have to pretend that you're okay. You have to not let people know that you're a vulnerable person.

N: Attitudes in the workplace are changing. But sharing how you feel can be, well, scary. And how, or if, you choose to share it is your choice.

T: It's like every time I'm trying to make myself better, my own workplace is holding me back.

N: Okay, so most jobs can be hard and they can be pressured. But when does pressure become stress and when distress becomes something more? And what do you do if you are unwell?

T: I understand you've got a store to run, but there would be no store without a colleague.

N: The question is, does your work get it?

EMMA MAMO *Mind, Head of Workplace Wellbeing:* Once you say something in the workplace, you can't say it. And will you be seen through that lens? So that's been a real barrier to people talking openly.

N: Because of a long term mental health condition, about 300,000 people in the UK leave work in a given year.

T: Everytime I go to work I quickly walk up, take my coat off, take my bag off and hide in the toilet, trying to prep myself.

N: When I met Tom, he was working in a phone shop. He's also had jobs in a cinema and a supermarket.

T: I've been diagnosed as clinical . . . suffering with clinical depression, OCD and anxiety. It feels like your life is going to end. It feels like I'm in this body, but I'm not in control of my body. So I feel totally trapped.

N: It's estimated the poor mental health cost the UK economy £99 billion a year. That's things like costs to the NHS and sickness benefits. And it's not good for UK employers either. It cost them around £42 billion a year in sick days, recruitment costs and people just not performing at their best. Talking about at work is daunting. So we've been asking around, who should you tell and how?

GRAHAM: So, I approached my boss about my condition on the very first day I started working for her, which must have been quite a shock.

RICHARD: I first approached my line manager at the fire station. The response I got from them was really good.

CATHERINE: Usually it's been face to face with an email beforehand just to say I'd like to have a chat.

FOYEZ: I used a wellbeing action plan to frame the discussion.

G: As I've kind of reintegrated myself into work, I've just been upfront and honest with colleagues and just said, 'Look, this is me and this is what happens to me.'

T: Daydreaming helps sometimes, but probably you can't daydream at work. Well, I try not to. And . . .

N (*to Tom*) We all do it now and then.

T: Yeah. But some people notice that 'Tom stares at the middle of nowhere.' And the reason I do that is because it's the only thing that stops me from having a panic attack.

N: In his three jobs, Tom has had pretty different reactions when he's spoken about his health.

T: I can socialise. It's just, especially in a new environment or whatever, it can take me time to feel comfortable.

N (*to Tom*) Do you to talk about your mental health at all at work?

T: My first job, I disclosed it a couple of people and it didn't turn out very well. They were very patronising, they were very sarcastic. Basically, they kind of bullied me in so many different ways. And one thing I learned from that is not to tell people, unless I can trust them. Be smart.

N (*to Tom*): Maybe test the water a bit.

T: Yes, exactly.

N (*to Tom*): To see how people are and not just come out with it.

T: Yeah.

N: Telling colleagues is one thing. But what about your managers? Do you have to disclose a mental illness?

T: So, when I got this second job, I spoke to a couple of people, they advised me it's optional to disclose this condition. So I said, 'Okay, I'm not going to disclose at the beginning, but I will disclose it later on.' When I did decide to disclose my situation, I got fired for not disclosing it earlier.

N: To be clear, you don't have to disclose your condition. That's your choice. But it could be necessary to, depending on the jobs requirements or for getting the right support. As always, check what you're signing and get advice. And many mental health conditions are covered under the Equality Act, which is there to protect people from discrimination. Conversations can be hard. So perhaps one way to ease the pressure might be to go with a plan.

EM: Obviously as an individual, if you do need to kind of speak to your line manager, we try and encourage people to come up with an action plan which will capture what you need to do to keep yourself well in the workplace. What might be some early warning signs that you're starting to struggle. But what we often find is once you share it, other people then start sharing it, too. And sometimes you can be a bit of a lightning rod.

N (*to Emma*) What if that works negatively against you, what can you do?

EM: All workplaces should have some approaches around, you know, conflict across colleagues, you know, bullying and harassment and so on. Everyone's circumstances can be quite individual. So I would recommend getting kind of specialist advice. So ACAS, the Mind legal line can give advice to people as well.

N (*to Tom*): Do you think . . . do you think there is . . . I mean, it sounds like you're going to say yes – do you do you think there is a problem, top down?

T: Yeah it is. I think . . . I think there's a serious problem.

EM: Most jobs can include an element of pressure, can have crunch points or challenging periods. What can make an organisation or a workplace quite toxic is where you have a heavy workload, you don't feel valued, you don't get developed, there's conflict with colleagues, there's a blame culture.

N: At the moment, things are looking up for Tom.

T: Now, this third job, I had a panic attack and I had to . . . I walked out. So I did thought (*sic*) about resigning because I thought it wasn't working, but then I thought, 'No, I'm going to stay.' Especially when my management, she was very supportive. Because I told her the reason I stormed out is because there is nowhere to go to

have a breather. And so she said . . . she found me a place, found me a secret room, no one's allowed to use it, but she gave me the access code to use it.

N: So, it's over to you now. What's helped you feel better at work?

CAPTION: Share your tips on the BBC Stories Facebook page.

N: Share your advice, because you never know who it might help. In the meantime, here are some pretty great thoughts people have sent us.

G: Be nice to yourself and communication, that's the key.

T: Exercise your mind, it could be anything, you can read when you're on your lunch break.

G: Don't wait for people to try and read you because mental health issues don't have a face.

R: They never question my time off. Never, never doubted that I was ill.

T: Take breaks. It's like if you've got your two days off. Take those two days off.

F: We decided to go on a run at lunchtime. And it's become a thing now.

T: Be open with the right people. If you feel like you want to open up. Open up.

N (*to Tom*): Great advice. I loved that, thanks Tom. How does it feel talking about it?

T: If feels good actually.

N (*to Tom*): Yeah?

T: My arse does hurt though.

N (*to Tom*) Yeah, this bench is knobbly!

241. Margaret Thatcher - green pioneer?

Comedian Russell Kane explores the different sides of Prime Minister Margaret Thatcher, including her commitment to the environment.
Published on 3 March 2020

RUSSELL KANE: Hi, Russell Kane here, comedian and podcast host. Now, Margaret Thatcher. She's probably one of the most recognisable British politicians ever. She was the first female PM in the United Kingdom, but she certainly divides opinion.

CAPTION: Russell Kane's Alternative Obituaries: Margaret Thatcher

RUSSELL KANE: Born above a shop in Grantham, Lincolnshire, she studied Chemistry at Oxford, joined the Conservative party, was prime minister from 1979 until she resigned in 1990. And in the intervening years decimated mining communities,

privatised all sorts of national institutions, from British Gas to British Rail, and she divided the country down the middle into free market enthusiasts wearing red braces and left-wing student-y Neils from The Young Ones. But get this, Extinction Rebellion, Thatcher was one of the first green pioneers. At the Royal Society in 1988, she told scientists that climate change warranted government action to diminish pollution and promote sustainable development. She also threw her weight behind global efforts to phase out CFCs, those chemicals in fridges and aerosols that helped create a whopping big hole in the ozone layer. Let's not play down the fact that Thatcher was a female prime minister, the first. She really did blaze a trail. She was a woman in charge of some of the most powerful men in the world. In 1979, first year of office as PM, Thatcher travelled to Japan. The Japanese arranged to have 20 female karate experts escort her. Thatcher's Cabinet Secretary, Sir John Hunt, said, 'Mrs Thatcher will attend the summit as prime minister and not as a woman, per se.' The prime minister would like to be treated in exactly the same manner as the other visiting heads of delegation. If the other delegation leaders, for example, are each being assigned 20 karate gentlemen, the prime minister would have no objection to this. But she does not wish to be singled out.' Feminism and martial arts? That's a thumbs up from me. Another really uncomfortable positive: There's a lot of people out there, you're looking at one of them, who benefited from their mums and dads buying their own council house, grabbing the rung of the ladder and pulling themselves up a social class. I was the first person in my area to go to university. Yes, it depleted social housing stock, but it also created a stratum of empowered working class people. But you can't dress this one up, she loved a dictator. She once went for tea with Chilean strongman General Pinochet. In 1999, Thatcher visited Pinochet when he was under house arrest in London. She thanked him for being an ally in the Falkland's War and for 'bringing democracy to Chile', somehow brushing over the fact that he was a brutal dictator whose regime in Chile in the 70s and 80s was known for torturing tens of thousands of its opponents. More tea, vicar? So does the good outweigh the odious? You decide.

242. Match made in heaven? How salt met pepper

Some things just go together. Like salt and pepper. But how did the seasonings get on (almost) every table in the land, asks Annie Gray.

Made by Somethin' Else 8 November 2018

ANNIE GRAY, FOOD HISTORIAN: In much of Western Europe and America, seasonings mean salt and pepper. They are so strong a pairing that we even use them to describe people think of George Clooney and his trademark salt and pepper hair. But where did they come from, and why do they form such a ubiquitous pairing? Salt is essential for life, and it's been used since prehistoric times, either scraped from saltwater deposits, harvested from salty lakes, or mined from underground. It's one of the earliest food industries, and one of the most important commodities in the world. It makes food taste better, but it's also vital for preservation whether of meat or vegetables. Methods for producing and controlling it were developed by all the classic civilisations, most notably the Romans, who left their mark on modern day

language with their word for salt – sal. Roman soldiers received their salary – money to buy salt and salads were vegetables and greens seasoned with salt. In the medieval period salt was expensive, and frequently controlled by the state. Huge, ornate vessels for the table were made out of gold and silver, dominating dinner tables, and indicating very clearly who was of high status. Sitting below the salt - i.e. not on the highest table well, clearly you weren't exactly exalted. Having salt on the table was as much for show as practicality, for dishes were seasoned in the kitchen, but adding salt to one's meat – with the tip of the knife was common practice, and the uncertain noble could buy written advice on exactly how salt etiquette worked along with the even thornier question of how to carve. But how did pepper come to join it? It was one among a wide range of spices available to the medieval cook, and it was expensive in the 1430s one pound of peppercorns cost as much as a pig. In the late 15th Century, the Portuguese took control of Malabar in east India, and started cultivating black pepper on a large scale. Prices fell, in line with over supply, and pepper became more readily available. By the 16th Century the phrase 'peppercorn rent' was in use, to mean a nominal sum. The real boost though, came with a change in culinary fashion to favour the French. They loved black pepper, and their chefs were busy tidying and simplifying medieval cuisine, delineating more firmly sweet from savoury, and codifying which ingredients worked with which. Salt was obviously savoury. Pepper tended that way, and so the fashionable French-style dishes of the next century used both, together, and with fewer and fewer other spices. By the Victorian age, salt and pepper were coming together as standard seasonings. However, other forms of pepper vied with black, and cayenne also appeared frequently in cookery books. Salt was still on the table now in small salt cellars, no longer just for the privileged few. In 1911 the Morton Salt Company of Chicago patented an easy-flow salt and salt shakers could finally take off. During the 20th Century, pepper shakers joined them. Then, as package holidays introduced Brits to freshly ground pepper at the table, pepper mills replaced the shakers. Phew. It's not a ubiquitous combination everywhere though other cultures might still have the salt but replace the black pepper with chilli. And let us not forget the pickles, the sambals, the vinegars, the fish sauces and the salsas. Can I make room on my table and have them all?

243. Meet Britain's first commercial surrogate mother

Kim Cotton describes what it was like to be the UK's first commercial surrogate.

Produced by Witness 28 March 2017

This video was made by BBC World Service

KIM COTTON: I had no idea what furore it would cause or that the laws would change around it. Nothing. So totally naive. It was an extraordinary arrangement because it was anonymous. So to this day, I don't know where Baby Cotton actually went or where she lives in the world. I never met her parents. When I considered doing this, I was just a young mum. I had my own family complete. I'd already had my son and my daughter. So I, I thought, oh, this is something I can do from home. I

don't need childminding. I can, you know, get on with my own life and just be pregnant. So . . . but you can do other jobs and get paid, but this was something that I thought, 'I love this, I would enjoy this, because there's some satisfaction at the end of it knowing that you've changed someone's lives. I have never denied that the payment was a help to me. Absolutely.'

JOURNALIST: Surrogacy agencies are an American invention, but the agency which put Kim Cotton in touch with the childless couple is based in Surrey. It's run by a former health visitor, Barbara Manning. It was her who inseminated Kim with the childless father's sperm, and her agency stands to make several thousand pounds.

KC: The actual procedures of getting pregnant through donor insemination really is very straightforward. And actually to have an insemination in such a clinical cold sort of fashion actually sets the pregnancy because you're detached.

JOURNALIST 2: The hospital has been surrounded in secrecy since Mrs. Cotton was admitted yesterday afternoon. The woman who is due to hand over her baby to an anonymous couple for £6,500 is in a Health Service ward with another patient.

KC: When Baby Cotton was born, I looked down at her, she did look like my own daughter. When you . . . you look at your child for the first time. It's like a blood infusion of love that just pours over you. And I had to stop that happening. I had brainwashed myself throughout the whole pregnancy. 'It's not my baby. It's not my baby.'

JOURNALIST 3: Mrs Cotton and her husband are believed to have been taken to their home a few miles from the hospital. But it was the Daily Star who answered the door and told us that none of the family were available to talk to us.

KC: It was only when I actually came out of the hospital the next day that I was shoved into a car, pressed down to the floor and driven home at top speed. Little housewife from North London. This doesn't happen to me. The headlines were 'Born to be sold', 'baby for sale', 'sold for carpets and curtains', 'no better than prostitution'.

JOURNALIST 4: The government is expected to outlaw them before the end of the year. At the moment, though, there's nothing illegal about surrogate motherhood.

KC: Baby Cotton was born on January the 4th, 1985. The new law was brought in in June 1985. It was so fast. So it banned commercial surrogacy. It banned the pay of a surrogate and it banned advertising for a surrogate. She does spring into my mind, Baby Cotton. I have to close the door a wee bit. I do shut that door because there is some pain.

244. Minimalism: Who needs all this stuff anyway!

Minimalism is not just about having few possessions - it's also a movement in art and music. David Quantick has a brief history.

Made by Somethin' Else, 25 May 2018

DAVID QUANTICK: The A to Z of isms... minimalism. For some people, minimalism just means not owning any stuff. It's a lifestyle choice. It means owning few possessions, living in largely empty space and even eating minimalist food. No chips for the minimalists. They own shiny white tablets, shop at little grey stores and don't have enough black plastic chairs. For some, it's to do with architecture and for others it's a musical movement. In fact, minimalism is a philosophy with roots and branches in many places. The word minimalism first turns up in 1965 in an article by British philosopher Richard Walheim, who wrote about artists with minimal art content. This negative description was turned into a positive by minimalist artists. They saw minimalism as a kind of pure art. To quote the minimalist painter Frank Stella, 'What you see is what you see.' This isn't art that copies something real, a person's face, a nice horse or tries to depict a feeling. A minimalist art object is itself and nothing else. All minimalism is in part a reaction. In the case of minimalist architecture, it's a reaction to decoration, to ornament and to fuss. Minimalist buildings are simple and minimalist architects like Ludwig Mies van der Rohe and Maya Lin create structures full of light and space. Their work can be summed up in van der Rohe's famous statement that 'less is more'. Minimalist gurus like Marie Kondo believe in decluttering, but saying it's not about knowing what to throw out, it's knowing what to keep. A lot of minimalism can appear harsh and inhuman. The exception is minimalistic music pioneered by composers like Philip Glass. Minimalist music features repetition, simple patterns and phase shifting, the movement of a repeating item to create an arresting effect. Despite the often austere simplicity of the music, or because of it, many minimalistic pieces of music are profoundly moving and deeply emotional. Minimalism is, in part a reaction to the increasingly busy and loud world around us. Artists and consumers alike have reacted against the clutter and chaos of life and art and created many disparate forms of minimalism. Sometimes minimalism can seem confusing, as in Carl Andre's famous brick sculpture. Sometimes it can be stark, like a Mies van der Rohe office block. But sometimes, as in the field of minimalist music, minimalism can be beautiful.

245. Monk mode... and five other tips for work-life balance

Bruce Daisley offers his top tips to finding inner calm in a frenetic world of notifications, emails and overtime.

Published on 8 January 2018

BRUCE DAISLEY: Hi, I'm Bruce Daisley, I work at Twitter, but in my spare time, I've been studying work culture and how we can be happier at work. Work's become this sort of colossal game of Jenga where we're trying to add things on top or still keep everything standing up and stable. I've put together some thoughts on ways that we can make our lives a lot less stressful. The very easiest thing you can do to

reduce your stress levels from work is take the number off your email app. That single act is the simplest thing that we can do to reduce our stress levels. Half of all people who check their emails outside of work hours show signs of high levels of stress. So that simple act can be one the most important things you can do. The second best change that anyone can make is take a lunch break. Now, it might not seem revolutionary to step away from our desks and renew ourselves by maybe going out and about. But in fact, the habit of eating Al Desco has become so common now that it's contributing to an increase in our stress levels. And I understand when you're sitting at your desk, you're thinking you've got 100 emails left, walking away and taking a break can feel really counterintuitive. But scientists have found the best way to ensure that you feel energised and able to get on with your work is to take that pause. More and more of us are finding it hard to get things done because of all the interruptions. Well, a guy called Cal Newport, who's a professor at Georgetown University in Washington. He wrote a book called *Deep Work*. And one of the ideas he gave was that we should think about having a monk mode morning. So what's a monk mode? Well, monk mode is where we go somewhere that's silent, where there's no noise, there's no interruptions. Maybe get a block of 90 minutes' work done, maybe twice a week. Then we go to the office as normal, the added advantage is we've missed the commute and we go when we get our e-mails and our meetings done. You might want to try a monk mode morning. Most companies are looking for ideas about how to improve innovation, creativity, improve the ideas in the office. And in fact, some interesting research from the Massachusetts Institute of Technology shows that one of the best ways to increase workplace creativity is to increase the amount of chat. Ben Weber, one of the researchers, said that one of the best ways to increase creativity in your office is to move the location of the coffee machine. By having the coffee machine, the kettle, the water caller in a different place, you'll actually lead to more people having discussions, conversations. And actually, that can be chat about last night's TV. That can be chat about what's happening in sports games, because normally those conversations then lead to work discussions. It's a strange thing that by encouraging people to have more chats, we're actually going to be achieving more at work. But the research seems to suggest that the most creative offices are the ones that chat the most. Scientists have found that one of the biggest barriers to being creative in our jobs for us to come up with new ideas is stress. And all of us, I guess with our phones, feel more stressed than ever before, so finding a way to reduce stress is really important. And one of the most important ways to do that is to have a good break, a good relax of the weekend. You need to give yourself permission to have a digital Sabbath, to take time away from your work at the weekend for a bit of refreshment, a bit of renewal. Discourage your boss from emailing at the weekend because it leads to people feeling anxious when they come back to work on Monday. Anxious people can't be creative. I think in the current world we often celebrate overwork and people working long hours. The magazine profiles we read, the TV profiles we see are about people who work these enormous long working weeks. And in fact, all of the evidence is starting to point to the fact that maybe that's not the best idea. Maybe 40 hours of work a week is the right amount. Use our breaks and our evenings as times to reenergize ourselves. So when we come back to our desks were full of life. Doing 40 hours of work is probably enough.

246. Mother Teresa: Pioneer for the poorest

Remembering Mother Teresa, who helped the poor, the terminally ill and the destitute. (Some viewers may find scenes in this film upsetting.)

Produced by BBC Witness 28 February 2017

This video was made by BBC World Service

MARI MARCEL THEKAEKARA: It was known as one of the poorest cities in the world. You'd see people who were lying in a pool of their vomit, their excreta, in filthy clothes covered in lice. So to go and lift up those people and take them to the home and clean them, it took a lot of kindness to do the kind of work they did.

BBC ARCHIVE: Mother Teresa and her Sisters of Charity live in one of Calcutta's poorest slums. In addition to the traditional vows of poverty, chastity and obedience, the Sisters take one of dedication to the service of the poorest of the poor.

MMT: Mother Teresa's home was a five minute walk from where I lived. And we saw her every morning on the way to school. We had a Mother Teresa's nun who came and she said, 'Oh, if you like, you can come and help in the babies home.' It was quite overwhelming. They had rows and rows and rows of little baby cots.

INTERVIEWER: When you say 'unwanted children', you mean that . . .

MOTHER TERESA: Nobody claims them, they are brought here by the midwife.

I: Who would be their parents normally?

MT: They are mostly teenagers. Very often to get rid of the child they take medicine. So that's why all these children are premature.

MMT: We went and spent a morning helping to give the babies a bath. It was nice to hold a bottle and feed a baby. And these children, they needed affection a lot. So the babies like being cuddled.

I: Do you think that one will live, Mother?

MT: I think so, because there's life in her eyes.

I: Yes, there is.

MMT: My sister went around with Mother Teresa's nuns and they used to regularly visit abortion clinics and pick up live babies from abortion buckets, pails. We actually once saw a baby thrown in a garbage dump. I found the very authoritarian way in which the order was run not something that I would ever be able to agree with. I remember thinking that the nuns lived such an austere life. She said, 'You should suffer for Christ and offer your suffering to God.' And I couldn't bear that because I thought we should try to fight poverty and that people don't have to suffer so much on earth.

I: Mother Teresa, a lot of people are going to save themselves, 'What's the point of trying to keep them alive? Protracting a little longer such sad lives?'

MT: We want to make them feel that, at the end, somebody loves them, that they have lived like animals, but now they die like angels.

MMT: I saw Mother Teresa again many, many years later. She was that much older, a bit more wrinkled. My mother asked Mother Teresa to bless her grandchildren, and my mother said to her, like, 'My daughter used to come and volunteer.' And then she said very . . . quite arrogantly, I felt at the time that, 'Oh, yes, yes, you used to do these things when you were little. Now, what do you do? What do you do now?'

MT: This 40 years, I have never doubted even for a second that I've done the right thing, because the will of God, that was his choice.

MMT: There were millions out for her funeral. Things like saints, that's not my thing at all. But there are millions of people who wanted her to be a saint. I think the work she did was exceptional. And if she has to be a saint she has to be a saint.

247. My father, Charlie Chaplin

In this film, Eugene Chaplin remembers his father - the silent movie pioneer, Charlie Chaplin.

Produced by Witness, 18 April 2017

This video was made by BBC World Service

EUGENE CHAPLIN: Charlie Chaplin, my father. He was a pioneer in silent movie. He understood, he saw the potential of filmmaking. He made about 80 films while he was in America. By the age of 23 he was world famous. This is the house where I grew up, but it's a museum now. I was born here in Switzerland. I'm the number five of the eight kids my father had with Oona. In the 1950s, there was a witch hunt against the liberals in America. And my father, he was accused of being a sympathiser to communists. Plus he had problems with his private life. So when he went to Europe, he received a telegram saying that they revoked his visa and that he had to go in front of . . . in front of a moral committee if he wanted to re-enter America. He was very hurt by that. He said, 'If they're going to treat me like that, I'm not going back.' Switzerland is the last part of his life where he didn't do as many films. But he really had the normal life he always wanted to. We lived in a bubble. My parents were really in love with each other. He was funny at home, but he was very strict on education. He wanted us to do well at school and he wanted us to be well-behaved at home. We would have dinner every night, and if we wanted to get up to go to the toilet, we'd have to ask permission. You know, we all had our turns to be able to speak. With me, he always said, you know, you can do whatever you want, but whatever, you're going to do, do it well. In the 70s, he was invited to go to America to receive an Oscar. He was surprised and bothered about it. He had very

mixed feelings because of all the bad memories he had there. My mother's view, she thought that would be a great opportunity for my father and America to kind of forgive each other. And she was right. The reception in the States was great. Obviously it was much better than what he expected. He was very touched about it. Especially at the Oscars there was a 20 minute standing ovation. All his friends were there. Afterwards, he was in a better mood, I could feel that the pressure of having to go over there was over. I've learnt one thing is that he's not really . . . he's mine emotionally, but he's not mine anymore because he's such a public figure. He's everyone's and everyone has their theories about him. Before I got very mad about that, but now I accept it, but I have my truth.

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248. Necropolis: London's railway for the dead

The Victorian train that carried corpses to one of the world's largest cemeteries.

Published on 2 March 2018

This video was made by BBC World Service

KIM LOWE *Brookwood Cemetry Society:* Decomposing bodies would be getting into the water system. They needed to find somewhere to bury London's dead.

CAPTION: Welcome aboard 'The Necropolis' London's Victorian railway for the dead.

KL: Brookwood Cemetery is here because London was expanding rapidly and its population and they needed space to bury all the dead. So it was decided to find a plot of land away from London, but close enough for relatives still to be able to visit. It had its own funeral railway system. The main terminus from London, at Waterloo Station, would bring the bodies down from London into Brookwood. There was a major outbreak of cholera which really exacerbated the situation. Sometimes graves being reused and the bodies of the existing were exhumed. Sometimes they were taken off on barges up north to be crushed for fertiliser. Back in the day when the Necropolis trains were running, it was quite an eye opener to some of the mourners coming out of the big black city, let's say. It was designed to be like a garden cemetery so that people could wander around at their leisure, even if they didn't have family here, and still enjoy a peaceful environment. I would imagine they must have thought they'd, well, to use an expression, died and gone to heaven, as it is so peaceful.

249. Neoliberalism: The story of a big economic bust up

Neoliberalism... Dirty word? Or foundation of a healthy economy? The Economist's Anne McElvoy assesses its highs and lows.

Made by Somethin' Else, 21 September 2018

ANNE MCELVOY: The A to Z of isms... neoliberalism. Friedrich Hayek, a tweedy Austrian-born economist, had one of those light bulb moments in the mid-1930s and switched on an ideology that unites its enemies in scorn, that has inspired governments and entrepreneurs down the decades: neoliberalism. The idea was built on the classical liberalism of the 18th century and a defence of individual liberty, protecting private property and the freedom of markets from external interference, taxes, regulations, levies as much as possible. Neoliberalism argued that the market wasn't just an absence of interference, it could produce a philosophy or a way of thinking all of its own. That meant looking at the world and our transactions in daily life through the eyes of the market. You can glimpse this, for instance, when I say, 'I'm in the market for a beer' – showing that we've internalised the idea of a market for other values. Nowadays, you probably hear the word neoliberalism used more as a term of abuse hurled by opponents at economic globalisers, nasty bankers, or governments limiting spending on public works or welfare. The word 'neo' or 'new' has morphed into a way of signalling 'I don't like this one bit.' It's the nearest thing economic terminology has to a rotten tomato. But neoliberalism isn't just a dirty word. It's an entire mindset of approaches to the way state and markets interact with our aspirations – emphasising privatisation over state control as the best way to deliver public services. The advent of neoliberalism led to one of the great punch ups of economists between Hayek and his best frenemy, John Maynard Keynes. Keynes argued that governments should get involved in increasing demand to keep productivity up and unemployment down. Hayek dismissed Keynes as knowing very little about economics. And he wrote a snotty book review of one of Keynes's major works. Despite the bickering, though, their competing ideas, Keynesianism and neoliberalism remain the seesaw of big thinking in practical economics. Keynesianism won for a good while after World War Two, but by the end of the 1970s, public sector strikes and worries about stagflation, an ugly combo of stagnation and inflation, persuaded some mould-breakers to look back to neoliberalism as a way to perk up flagging economies. Ronald Reagan and Margaret Thatcher led the way in embracing the notion, and so did a ruthless dictator, Augusto Pinochet, in Chile, which rather marked down the democratic scorecard of neoliberalism. The financial crash of 2007-8 created a more testing mood towards deregulation, and neoliberalism gained a bad rep, because it was taxpayers who had to bail out the banks. But there's a broader cultural reason neoliberalism gets it in the neck right now. Inevitably, it leads to such fast paced, uncontrolled globalisation, because it does away with barriers to trade and to financial flows. It prizes the innovative above continuities. So you could say it puts the corporations above the nation. But the globalised world we inhabit one of start-ups, the ability to move money and borrow cheaply and companies operating across borders owes a lot to the Austrian Friedrich Hayek and his light bulb moment.

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250. Opinion: An ancient betrayal that still resonates today

Author Kamila Shamsie reflects on Antigone - an ancient Greek play she believes has parallels with modern Britain.

Published on 27 December 2018

KAMILA SHAMSIE *Author, Home Fire*: We are living in times that are looking a little bit scary. And the Greeks really knew how to look at horror very directly and say, 'This is what it looks like, let's not flinch from it.' But they also knew how to say, 'Look, if you do a wrong thing, it sets off this series of consequences.' And I think it's possible to ourselves at this moment, living in this world of consequences, that there's one bad decision leading to another bad decision. And we see ways in which it could all be getting much worse. Home Fire is a story that's set in contemporary London, also a bit in Syria, Massachusetts and Karachi, but it's primarily a London novel, as I see it. It's about five British Muslim Londoners. Three of them are siblings, two sisters and a brother. And the brother very early on takes a wrong turn. Let's just say their father was a jihadist who died on his way to Guantanamo and the son is too interested in his father's legacy. So I wrote this novel, which is, you know, set in 2016. But in fact, the idea came from reading something that's about four and a half thousand years old, which is the Sophocles play Antigone. And that play starts with two sisters whose brother has just died. And the brother is an enemy of the state. He's been a traitor. And the ruler Creon has said that his punishment for being a traitor is that his body will not be buried. Instead, it'll be left on the ground, really for the birds and the dogs to peck at. And it starts with the two sisters they've just heard of the death of their brother. And one of them, Ismane, says, 'Well, it's terrible, this law, but what can we do we're girls and it's the law.' So we have to follow it. And the other sister, Antigone says, 'No, I will bury my brother.; And I was reading this play at a moment when the newspapers were full of stories of young British Muslims going off to fight in Syria with ISIS. And I started to think about what it would be to be the sister of such a person, to be the family members. At this point, Theresa May was home secretary and saying those who've gone, where possible, we will strip them of citizenship, it'll never be possible for them to come back. And I start to think about what it means to strip someone of citizenship, you're really saying you have no claim on this land anymore. And I immediately made a connection between Creon saying 'This body will not be buried.' It's the same thing. That story from four and a half thousand years just seemed to me so urgently to also be a story of today. My feeling personally is that a state should be able to deal with its own citizens, whatever they do. And I also believe very strongly that there should be sort of equal punishment for all citizens. Whereas at the moment, the citizenship laws are done in a way that if you have dual citizenship or can be seen to have the right to dual citizenship, then you can be stripped of your citizenship. So there is something about the story of the relationship of the state and its citizens and what citizens should be doing when they're facing unjust laws. That is really, I think, speaking to the world right now. I'm interested in the ways that, you know, we are all many things at one time, so you can be a child, you can be a lover, you can be a citizen, you can be a member of a certain ethnicity or religion. And each one places different claims on you. And I'm always interested in what happens if there are competing claims. And I suppose it's because we live in a world where that, you know, there is so much difficulty, and particularly if you are Muslim or from a Muslim

background, it's something that's really heightened this sort of question of do you back your religion, do you back your nation? Largely, I think there's generally not a an opposition between the two, but it's framed in terms of oppositions. And so I'm interested in that question: well, what does happen, if there's one thing you need to do to be an honourable son, but there's another thing you need to do to be an honourable fiancée, or what you do if the state starts acting in ways that you think are unjust. As a citizen, what is your role then? Do you say, 'Well, I'm a patriot, so I have to accept what the state is doing?' Or do you say, 'Well, I'm a patriot, so I have to resist when the state is doing'? And these are questions that I think have always interested me.

251. Opinion: The super-rich are damaging the environment.

In this opinion piece, Oxford University's Danny Dorling argues that the world's richest 1% are disproportionately damaging the environment.

Published on 17 April 2018

Made with the help of BBC Radio 3

DANNY DORLING: I'm Danny Dorling. I'm a Professor of Geography at the University of Oxford. And in my very humble opinion, one of the worst things about high economic inequality is that it damages the environment. High economic inequality is extremely damaging for the environment because the greedy do not know how to control themselves. Thomas Piketty, who is a brilliant economist from Paris, has done incredible detailed work recently looking at the consumption and pollution patterns of the richest one percent. And he has shown that the richest one percent disproportionately contribute to greenhouse gases and to carbon pollution and are damaging our planet. This is because they buy so many things that they do not need. Because money is not an issue for them. It's because they have so many homes that they travel between. It's because when they travel, they don't travel in a sustainable way. At the extreme, they're flying in private jets. There isn't a better way to heat up the planet and damage our environment than to fly in a private jet. And we need to learn the importance of this, because climate change is the biggest threat that we are facing. And we're partly facing it because we are allowing the greedy people in our societies to carry on being greedy and we're not controlling them for the good of everybody. In more unequal countries in the world, everybody actually buys more. The poor buy more in the United States than the poor buy anywhere else in the rich world. The poor in the UK buy more than the poor in Europe, not because they've got more money – they go into debt, but because in an unequal country, you feel that you have to have these things because the people above you have them or have even more. Look at how the celebrities are behaving, they have even more. And you won't be happy unless you buy more, travel more, have more holidays and get into more debt. And all of this harms the environment more and more and more, because it increases our pollution, it increases CO2. It increases our individual carbon footprints. In those countries in the rich world, where the one percent have less, where they're better controlled, where they're

slightly more like the rest of us, the one percent tend to behave in a far better way than the one percent behave in the UK or the USA. And in societies which are more equal, the overall level of pollution is much lower than in the rich world. The gap between the rich and poor in the UK and the USA is wider than it's been since at least the 1930s or even in the 1920a. But all is not lost. It can feel very bad if you're sitting in the UK or the USA at the moment. But in most countries, most OECD countries in the rich world, inequality is much lower than in the UK or the USA. And in the majority of countries it is actually falling at the moment. And in these countries, people, despite the fact they have more disposable income, are buying less. They are doing less wasteful things with their time. They're taking fewer trips they don't need to take. They are not going to unnecessary meetings just to show their face. If they do travel, for instance in Germany, they travel by train, not by plane. There's no reason to be pessimistic about the future. The UK and the USA are probably at a peak of economic inequality right now. It will almost certainly come down in the years and decades to come, decade after decade after decade. And we will slowly begin to learn what most other people in the rich world know: that having more and more money doesn't make you happier. It doesn't make your country more sustainable. And it doesn't solve the problems of the planet.

252. Opinion: We need to stop oversimplifying violence

We need to think about the context people live in before we label them as 'good' or 'bad', argues poet and activist Suhaiymah Manzoor-Khan.

Published on 30 January 2019

SUHAIYMAH MANZOOR-KHAN: My name's Suhaiymah Manzoor-Khan. I'm a writer and spoken word poet, and in my humble opinion, we would understand violence and the causes of violence much better if we move beyond thinking about it in terms of individuals who are good or bad. We often try to understand the violence in our society through thinking about the individuals involved in it, rather than the context that they live in. So because of that, we end up explaining it as something bad people do and good people do not do. For example, when knife crime is discussed in the UK, we end up talking about the people involved as bad. So bad young people are apparently the ones who listen to the wrong type of music, have taken the wrong path and end up involved in crime. They're contrasted with good young people, innovators and entrepreneurs who are celebrated on news and radio stations. To me, it feels that the aim of such celebration is to prove that not all young people are violent, but by categorising some people as good and others as bad are we actually failing to understand the cause of violence itself? We do the same thing after so-called terrorist attacks. So to pre-empt a backlash against Muslims in general, some Muslims and politicians, news outlets will advance stories about good Muslims to prove the violence is just something a minority of bad Muslims do. People who perpetrate violence should always be held to account for their actions. I'm not arguing otherwise, but the point is, if we explain that violence is due to the goodness or badness of the individuals involved, we fail to see the bigger context.

For example, we might understand knife crime better if instead of blaming bad young people, we asked more context are some young people living in that, they feel they have no choice but to carry a knife? Why has there been no deliberate intervention, support or opportunities to get out of this situation before the knife was used? What happened to the local social services and mental health services? Does austerity, schooling, unemployment, distrust of law enforcement, racial negative stereotyping play a role? The same is true for the type of violence we call 'terrorism.' We might better counter it if instead of labelling some Muslims as bad and radical and others as good and moderate, we asked what context are some people living in that they feel they have no way to voice their grievances except through violence? Why has there been no attempt to consider the social and political context that antagonise, silence and demonise people rather than assuming that the cause of violence is who a person is, we could instead consider factors like state surveillance, British foreign policy, Prevent legislation which strangles free speech, negative stereotyping, distrust of the justice system. Did these things play a role too? We don't often consider state violence as violence. So, for example, we don't think about socio-economic violence like the fact a block of flats could be allowed to burn down or geopolitical violence, like the fact that our government sells arms to countries involved in human rights violations. We don't think about civic violence, like the fact that our government uses secret evidence in secret courts and detains people without charge, or racial violence, like that the fact that ethnic minorities in this country are four times more likely to be stopped and searched than white counterparts. I don't think we'll be able to understand individual acts of violence until we acknowledge this violent context individuals live in. So rather than asking: is this person good or bad? Let's begin asking more important questions like: is the society negligent and unjust? Or is it supportive and healing? If it turns out it is unjust and negligent, then we can decide to invest in people, create space for people and create avenues for people to express their grievances properly. We can redistribute wealth, redistribute power and start to deconstruct the unjust premises that underpin some of the institutions in this country. We can promote narratives that aren't dehumanising about people. In my humble opinion, such contextual changes, rather than simply condemning people as bad, would address the problem of violence in a much more sustainable way.

253. Orientalism: When will we stop stereotyping people?

Orientalism is a term that was coined by the late academic Edward Said. What does it mean? Prof Evelyn Alsultany breaks it down.

Made by Somethin' Else, 19 October 2018

EVELYN ALSUTANY: The A to Z of isms…Orientalism, the late academic Edward Said developed the term Orientalism to describe how Europeans portrayed the Orient as inferior, uncivilised and all around weird. But importantly, Said argued, this was also simultaneously about defining Europe as the Orient's opposite: superior, civilised and all around wonderful. The actual term, The Orient, refers to the rising of the sun

in the east and comes from the Latin word ‘oriens’ so we could think of Orientalism as Easternism or stereotyping of the East. Orientalism, then, is the form of ‘knowledge’, in quotation marks, that authorises and justifies the assertion of Western power over the East. But what does this actually mean? Orientalism acts like a pair of glasses that distort your vision and exaggerate cultural and religious differences. With these glasses, just about everything and everyone seems highly exotic and strange. Or worse, fanatical and dangerous. Women in the Middle East, for example, appear only as exotic: a belly dancer oppressed a, quote unquote ‘veiled woman’ with no nuances in between. And in the early 20th century, you might have seen men portrayed as exotically romantic or more recently, as crazy and fanatical, as terrorists, and missed all the ordinary human beings along the way. Many Arabs, Muslims and Asians embrace this controversial term to describe the unique kind of racism they experience. Orientalism encapsulates for many how their culture, religion and ethnicity are so often reduced to a stereotype, causing their humanity to be overlooked and culture misunderstood. Isn’t this just a form of stereotyping, then? Well, yes and no. Orientalism is about a much broader set of power relations. When the US government views the Middle East through Oriental’s glasses, it creates policies with far reaching consequences from outright war waged on other countries, to imposing a travel ban on whole groups of people. Perhaps the trickiest thing about Orientalism is that it’s not fuelled by ignorance or a simple lack of knowledge. Just the opposite. It has historically been produced as knowledge by those in positions of power, whether government officials, religious figures or the media. For example, when President Trump stated, ‘I think Islam hates us, we can’t allow people coming into this country who have this hatred for the United States.’ He effectively characterised for 1.6 billion Muslims worldwide as anti-American. Even today, Orientalism continues because it is so ingrained in how we see other peoples and cultures that it goes unnoticed. Even the term the Middle East is considered to be Orientalist, because it standardises a Western viewpoint by referring to West Asia and North Africa as the middle of the East. Much of what counts as knowledge about the Middle East and parts of Asia is still produced through those distorting and reductive glasses. And just like in the 18th and 19th centuries, Orientalism remains powerful because it shapes not just how people in the West view the East, but also how they view themselves.

P

254. Plato’s take on democracy and referendums

What is the best form of governance? And where do referendums fit in? Philosopher Lindsey Porter explores Plato’s take on it all.

Made by The Moment, 26 March 2019

Made in partnership with The Open University

LINDSEY PORTER, *Philosopher*: Google “referendum” and you’ll find hundreds of

people explaining why referendums are bad, don't work, aren't as democratic as they seem. But referendums are very much like the way political life worked in the birthplace of democracy - ancient Athens. Ancient Athenians didn't have representative democracy, they had direct democracy, with the electorate voting on pretty much everything - basically, never-ending referendums. Even at the time, democracy - which is Greek for... had its critics, not least Plato, teacher of Aristotle and one of the most famous thinkers in history. Plato thought democracy was terrible - the second-worst form of government after tyranny. About 2,400 years ago Plato wrote one of the first and most influential books about government... In it Plato imagines Socrates, his teacher, concluding that the best form of government is... aristocracy which is Greek for...rule by the best. He imagined a well-educated aristocracy that spent their lives being prepared for leadership, so that they could make wise decisions for society. Though his views were undeniably classist, Plato thought these aristocrats would rule selflessly and virtuously. But Plato believed this ideal society would be in constant danger of breaking down. He thought the sons of the wise, educated men would be corrupted over time by privilege and leisure. They would come to care only about wealth, and the aristocracy would become an oligarchy - Greek for... rule by the few. These new rich, penny-pinching rulers would be obsessed with balancing the budget. Austerity would rule the day and inequality would increase. As wealth and equality in the oligarchy grew, the uneducated have-nots would end up hugely outnumbering the haves. Eventually, the oligarchs would be overthrown and the state would collapse into democracy - meaning endless referendums. Once the people had freedom they'd want even more. They'd want to take back control. Sovereignty - freedom at any cost - would be their single-minded aim. It would be mob rule. So, Plato would probably give referendums a thumbs-down. But we have all sorts of things that didn't exist in Plato's time - a representative democracy, the Supreme Court, the Human Rights Act, universal education. Plato wouldn't recognise any of these checks against thoughtless mob rule. But we do. And we have these safeguards even when we have a referendum. So, is Plato even relevant? Is there anything to learn from a 2,000-year-old democracy-hater? I think there is, if we look deeper and ask why he thought what he did. What was so good about how the aristocrats ruled, and so bad about the people? In his imagination, Plato's selfless aristocrats made wise and educated decisions aimed at virtue. They asked themselves "What would be the just and prudent course of action?" The uncultured have-nots let their passion guide their decisions. Their love of freedom for freedom's sake, with little thought of what was just or best, drove them. So that's the key for Plato - make just, prudent, wise decisions. Let virtue, and not passion, rule.

255. Populism: A brief history (it's nothing new)

Is populism democracy in action, or can it lead to authoritarianism? Philosopher Nigel Warburton mulls it over.

Made by Somethin' Else, 9 January 2018

NIGEL WARBURTON: The A to Z of isms…populism. Populism sounds like democracy in action. It's all about looking after the little guy, hearing what ordinary people want and giving it to them – or at least promising to give it to them. Oddly, though, populist is almost always a pejorative term. No one really wants the label. Most populist leaders would rather see themselves as inspiring grassroot movements. Populism has been around at least since ancient Roman times, with emperors lavishing money on food and entertainment. Bread and circuses to appeal to the masses. The English Civil War. The French Revolution. The Brexit referendum. Donald Trump's rise to power. All these came from populist groundswells of opinion against elites and the status quo. When a populist movement gets big enough and doesn't get what it wants, it gives the mainstream the finger by winning an election. So what could be wrong with a charismatic leader focussing the will of the people and millions voting for what they believe in? When populists choose to vote rather than revolt, isn't this just what democracy looks like when it's working? Well, some people see it that way. But there's more to democracy than voting, at least more to liberal democracy. In functioning democracies, disagreement and dissent are part of the political process. Political debate involves reason, evidence, challenge and arguments. Free speech and a free press are vital to this. Populists, in contrast, love stirring hearts with rhetoric, aren't renowned for using evidence and argument and are keen on dividing the world into us and them. They're prone to scapegoating journalists, elites and foreigners and to conspiracy theories about why the world isn't as they want it to be. Political opponents are dismissed as not understanding what ordinary people want. The real danger in populism, though, is that it can morph into authoritarianism. When populist leaders believe they are in touch with the spirit of the people, heaven help anyone who stands in their way. The fervour of populist politics can be truly terrifying, as the French Revolution demonstrated. The philosopher Jean-Jacques Rousseau, whose ideas contributed to it, provides a chilling warning of where unfettered populism can end up. He declared that citizens who disagreed with the general will of the people should be forced to be free. That's a very long way from sticking up for the little guy.

256. Putting penis envy in perspective

We may be living in a phallocentric world, but penis envy? Balls to that, says comedian Gráinne Maguire.

Made by Somethin' Else, 1 June 2018

NARRATOR: Skyscrapers. Missiles, said cars. War memorials. Postboxes. All examples of the thrusting, virile, long-lasting stamina of male achievement. And all uncannily celebrating a specific part of the male body. phallocentrism is the idea that the phallus, or the penis, is central to the human experience, not just the phallus on its own, of course, but also that luckiest of people in the world, an owner of a phallus, a proper person. A man. Why? Asked Sigmund Freud? Because obviously it's the best part. Men know it and women who disagree are just envious. They probably secretly wish they had one too. Why settle for a fig, he argued, when you can have a

banana or a cucumber or a stick of salami. The actual word phallocentrism was coined by Welsh psychoanalyst Alfred Ernest Jones. He was a close friend and biographer of Freud, but disagreed with Freud's theory. If anything, he argued, his belief that women were so envious of men bits revealed far more about Freud than a secret female plot. 'Relax,' he told his friend, 'no woman is going to sneak up and steal your little Sigmund.' So he created the phrase phallocentrism to criticise his Austrian friend's penis-based paranoia. The phrase was later picked up by feminists to articulate the experience of living in a patriarchal society and its obsession with the male view, gaze and audience. The male experience in our culture is the default. The home screen, the universal, the factory setting, they argued. In reaction to this, female artists began to create their own work that articulated the female experience and created works that celebrate the curves of the female reproductive parts. They also reclaimed earlier ancient works of art that celebrated female power, all to remind the Freudians of this world women are perfectly happy living penis-free lives. Sometimes a cigar is just a cigar.

Q

257. Quietism: Why we all need more of it in our lives

Feeling frazzled? Want to unplug? Have a watch of this. A brief history of quietism, from Julia Hobsbawm, author of Fully Connected.

Made by Somethin' Else, 17 August 2018

JULIA HOBSBAWM: The A to Z of isms… quietism. Quietism is a Christian philosophical concept we should all know about. And, if it's not too much of a contradiction, talk about rather loudly. Why? Well, for something which has ancient historical roots, the essence of quietism's teaching, favouring disconnection and contemplation over frantic action is totally modern and very now. In fact, quietism could be regarded as one important antidote to the age of overload we find ourselves in. Quietism says this: forget worldly affairs and just, well, stop. It's not quite the same as meditation or mindfulness, but there are similarities and there are parallels with other faiths, too. History books will tell you that quietism began, no pun intended, softly and without much fanfare. Back in the 4th century, Eastern Orthodox techniques of good old fashioned Christian prayer started it off. So, think sitting quietly, monastically, lost in the act of religious worship. Ten centuries later, the 14th century Byzantine theologian St Gregory Palamas gave quietism something of a twist which made it flare into widespread use and more contentious territory. There was no name as such for this modern mystical approach back then. But the message was clear. Instead of outward displays like religious chanting and prayer, he encouraged contemplation and stillness of the mind. The actual term quietism was applied later on by the 17th century Spanish priest Miguel de Molinos, a Christian mystic of great influence. Again, it was controversial. He was denounced as a heretic for suggesting that quiet internal reflection and contemplation of God was okay alongside traditional outward and vocal displays of religiousness like chanting and

prayer. He was condemned by Pope Innocent the 11th and died incarcerated in Rome in 1696. But suppression of ideas rarely works, and quietism never really went away. The essence of quietism can also be seen within many other religions. The Buddhist idea of Dharma has distinctly quietistic values with its focus on connecting a person to their being, rather than what they are doing. Quietism is alive and well in modern philosophy, thanks to the 20th century Austrian-British giant of thought Ludvig Wittgenstein. And its influence can be seen clearly these days in the sea of mindfulness apps on offer. In its more secular definition, quietism is simply a state of calmness or passivity. And who in this modern rushing, overwhelming and overloaded world doesn't want a bit of that?

R

258. Ruby Wax's guide to mindfulness

The comedian shares her tips on helping your mind become a calmer, more contented place.

Published on 9 January 2017

This video was made by BBC Woman's Hour

RUBY WAX: If you're going to take on mindfulness, it's like going to the gym. You're not going to get a six pack with just one sit up. You didn't come into the world knowing how to toss a tennis ball or pole dance. You have to do it every day. There is no overthinker, we're all going a zillion miles an hour. That's the nature of the brain. It has to be. It's for your survival that you're thinking all the time. Except now it's not going, 'There's a dinosaur.' Now it's going. 'Oh, my God. I'm not being invited to the office party.' This isn't the reason everybody does it, but I happen to have depression, so I'm just curious how I could maybe kerb that a little bit without having to run to people at two in the morning going 'fix me.' I researched everything. And the greatest results – I had never heard of it – was mindfulness and cognitive based therapy. I hunted down the founder. He was at Oxford and I said, 'Just tell me what happens in the brain. Because I don't want the fluffy stuff.' And he said you'd have to get your Masters at Oxford to find that out.

CAPTION: So she did.

RW: There are certain, let's call them muscles that get stronger and stronger so that when you get the early warning of that, it's coming – because you're more observant about how your, your mind is working – then you can do certain things about it. You know, the normal voices that say, 'I can't. I should have. I didn't. I'm not good enough.' Everybody's got those. But there's a different quality when the illness kicks in. So by hearing it a little bit earlier, rather than it taking me hostage, I

didn't get, you know, depressed about depression or anxious about anxiety. You just got the flat layer.

CAPTION: What can you do to catch these thoughts?

RW: If you focus on something, let's say gardening or whatever, and you really focus, you'll get the feeling that the thoughts just come and go. That's a state you want for a few minutes. You can't live like that. Otherwise, it would take 10 years to brush your teeth. But if you can find something where you're not obeying every thought, that's disciplining your mind.

S

259. Scandal and the rise of 'anti-shame'

How we view scandal tells us a lot about the society we live in. Made with the help of David Nash from Oxford Brookes University.

Published on 21 November 2019

Made in association with Being Human festival

HYACINTH BUCKET: It's absolutely scandalous.

CAPTION: Salacious gossip can be sensationally shocking.

UNNAMED WOMAN: It's all this sex and every wretched thing.

CAPTION: It can make for juicy water cooler conversation. And there are times when scandal echoes around the world.

BILL CLINTON: I did not have sexual relations with that woman.

CAPTION: But it also says a lot about the society we live in. Shame and scandal have always gone hand in hand. Shame has long been utilised to rebuke anyone who stepped outside an agreed moral code. In small communities, the incidents were isolated. But with the growth of cities and the mass media, information spread much faster. Scandal went mainstream. Scandal has long been rife in the world of politics. An affair between cabinet minister John Profumo and model Christine Keeler caused a huge scandal in the UK in the early 1960s.

PANORAMA *June 1963*: On 5th June, without warning, Mr Profumo resigned, saying that he had misled Parliament about his relationship with Christine Keeler in which there had been impropriety.

CAPTION: Profumo retired quietly from public life but others at the centre of scandals have not been so lucky. Lord Lambton, a Conservative minister, resigned under similarly scandalous circumstances in the 1970s. He had previously criticised John Profumo.

LORD LAMBTON: I think, unfortunately, one of the frailties, you might say, of human nature is that one very often sees things in other people which one cannot see in one's self.

CAPTION: Lambton's life was ruined and the woman with whom he had the affair, Norma Levy, died a drug addict. The concept of 'anti-shame' can explain how some people rise above scandal and emerge unscathed.

BBC NEWS *April 1998*: While we've been on air, police in Beverly Hills have confirmed that the singer George Michael has been charged with committing a lewd act in a park toilet.

CAPTION: George Michael's anti-shame saw him successfully negotiate his way out of scandal.

GEORGE MICHAEL: I responded to that, and I can't be ashamed of the fact that, you know, it was there in front of me and I thought, well, why not, you know? It was a stupid, stupid moment and obviously I've suffered for it.

CAPTION: Homosexuality itself used to be viewed as scandalous. But movements like Pride – fuelled by anti-shame – helped to end the stigma. Scandal is not static. Its nature changes as society does.

BILL CLINTON *Panorama 1998*: Indeed, I did have a relationship with Miss Lewinsky that was not appropriate. In fact, it was wrong.

CAPTION: When Bill Clinton had an affair with a White House intern, he was more popular at the end of his presidency than at the start, despite the revelations.

VOX POP FEMALE (*Archive*): Men, unfortunately, have affairs all the time, and it's a matter between him and a wife and children and whatever else, but, like, not the neighbourhood.

CAPTION: Monica Lewinsky, however, faced a backlash that lasted years.

UNNAMED FEMALE SPEAKER *Panorama 1998:* I think Monica's never had it so good. She wanted attention. She wanted the spotlight. And boy, did she get it.

CAPTION: Recent movement have attempted to redress the dynamic of scandal – by shaming those accused of abusing their power.

ROSE MCGOWAN *BBC News 2018*: I have been silenced for 20 years. I have been slut-shamed.

CAPTION: Where scandal was once borne out of a prurient mindset they now often centre on the abuse of power and the anger over sexual exploitation (*images of women holding up photos of Jeffrey Epstein*) And while the nature of scandal is always changing, you can be sure that the next big scandal is just around the corner.

260. Schadenfreude: Why do we feel joy at another's pain?

Cultural historian and author Tiffany Watt Smith says we shouldn't feel ashamed to feel a sense of schadenfreude.

Published on 4 January 2019

TIFFANY WATT SMITH: Schadenfreude is a German word, 'schaden' meaning damage, 'freuda' meaning joy. It means the pleasure that we feel in other people's misfortunes. People all around the world have words for schadenfreude. The Japanese even have a saying, 'The misfortunes of others tastes like, honey.' It can be something as stupid as someone slipping on a banana skin in a TV comedy. We enjoy it when people who have done something bad or who are hypocrites are caught in some way. Maybe it's as silly as the person who pushed past you on the station stairs, then missing their train. But this can also happen in big public ways. The swindler Bernie Madoff, when he was sentenced to 150 years in prison, it wasn't just the courthouse, but everyone in their cars, people doing their ironing, eating dinner. Everyone was elated at this news. I think we have an enormous capacity to enjoy other people's misfortunes. I think we can feel awkward about some kinds of schadenfreude. And it can feel quite shameful. So if you've got your oldest friend from school and they've become very, very successful and you're really genuinely very delighted for them and they go off on some luxury holiday and then you see their status and it rained and you might get a terrible sense of pleasure, you know, sense of smiles spreading across your face. I think you might feel very uncomfortable about that because on the one hand, you are genuinely sorry that their holiday was messed up by the weather, but and yet there's something there that obviously suggests that you have been feeling a bit envious or competitive or perhaps inferior about their fancy holiday versus . . . versus yours. So I think that sometimes schadenfreude can feel very shameful. But I don't think it is. I think it's a very natural and normal response. It's part of how we make ourselves feel better when we are presented with . . . with unfairnesses in life. It's part of how we celebrate justice and fairness, which is part of how human societies are bonded together. I think also schadenfreude can be a really powerful tool. George Orwell said that each joke is a tiny revolution. And I think when we when we use schadenfreude, particularly against politicians, part of what we're doing is restoring the power balance there. I'm a historian of emotions, and my ears always prick up when I hear phrases like, 'We live in an age of . . . one emotion or another', because what that really tells me is it's not so much that people are feeling this emotion more, but that this emotion has become something to worry about. And I think people have been worrying a lot about schadenfreude, over the last 10 or 15 years. Certainly, there's an awful lot of academic research now being published on schadenfreude. And I think the reason why we're worrying about schadenfreude is because we've started to care an awful lot about empathy. And what we find in the research about schadenfreude is that it's defined as the opposite of empathy or counter-empathy or empathy shadow. In fact, there's even quite a well-known psychologist who said psychopaths don't feel empathy, in fact, sometimes even enjoy the suffering of other people. This is what the Germans call schadenfreude. So this sort of suggests that schadenfreude is part of being a psychopath. I think this is a problematic way of thinking about

schadenfreude, to suggest that it's always a very, very negative and antisocial thing. Sometimes we even invite people to feel schadenfreude at our own expense. For example, when we join them, you know, we come to a new place of work, we might sort of tell a self-deprecating story or some story about something terrible that's happened to us, because it puts other people at their ways and means that we get seen as less of a threat. I think it's really important that we see schadenfreude as a much more complex and interesting emotion than simply than the negative of empathy. I mean, most schadenfreude is completely harmless and it's fun and it's just part of being human. But sometimes schadenfreude can be dangerous, when we get ourselves into polarised groups, when we use it as a way of cementing one identity and pushing out other peoples. Schadenfreude can also be quite dangerous, I think, politically, because it's provides such a quick and pleasurable gratification that we might miss the bigger picture. It might be much more fun to laugh at Trump going up at Air Force One with toilet paper hanging off his shoe than it will be to really engage with . . . with some of the actual politics that's in play. I think we are entitled to enjoy our schadenfreude. But I do think it is worth trying to understand it, to . . . just so that we can know when and why it's got out of hand.

261. Scrabble: Five simple tricks to help you win

Who doesn't love a bit of Scrabble? But it's better if you win! Here's five simple techniques to help make you a wizard with words.

Made by Splinter Design, 22 March 2019

CAPTION: HOW TO WIN AT SCRABBLE WITH EXPERT ADVICE FROM NATALIE ZOLTY, ASSOCIATION OF BRITISH SCRABBLE PLAYERS

NARRATOR: Scrabble is not just a simple word game, it requires strategy and an understanding of mathematics and probability. Here are five tips to improve your game.

CAPTION: TIP NUMBER 1 LEARN YOUR TWOS

N: There are 124 two-letter words allowed in Scrabble. Try to learn as many of them as you can - even if they look a bit weird. Then play them parallel to your opponent's word to score big points.

CAPTION: TIP NUMBER 2 GO FOR THE BONUS

N: If you play all seven letters in one turn, you get an extra 50 points. How can you improve your chances of getting a bonus? Keep good combinations of one-point tiles on your rack, especially those in the word... These six letters go with every letter of the alphabet except for Q and Y, to make a seven-letter word.

CAPTION: TIP NUMBER 3 GET YOUR HOOKS IN

N: A hook is a letter that can be added to the front or end of a word to make a new one. S is the most obvious. But there are many less obvious ones you can use to surprise your opponent with a high-scoring play.

CAPTION: TIP NUMBER 4 DEVELOP YOUR ANAGRAMMING MUSCLES

N: Practice anagramming whenever you can. Cryptic crosswords and puzzles can help. Sometimes normal words can be surprisingly hard to spot.

CAPTION: TIP NUMBER 5 CHANGE IS GOOD

N: Don't be frightened to exchange some or all of your tiles rather than playing a word. It can be the best thing to do. High-scoring tiles are not always good. From an opening rack like this, there is nothing you can usefully play. Exchange six tiles and just keep the letter E. Ah now that looks a lot better! Follow these tips and you'll find yourself winning a lot more than you lose. Even though it certainly feels great, winning isn't everything, don't forget to have fun.

262. Seven simple solutions to the surname dilemma

Getting married? Feeling in a dilemma about whether to change your surname? And what to call the kids? There are solutions! Here's a few.

Made by Angel Sharp Media, 17 August 2018

CAPTION: How do we keep everyone happy when getting married, having kids, changing surnames?

PROF TURI KING *Reader, Genetics and Archaeology*:My surname's fab!

ROBERT TAY: Yeah, well it's a big deal isn't it?

CAPTION: 7 simple solutions to the surname dilemma. The Dilemma:

REBECCA TAY: I think we always imagined that all the generations of women before us were perfectly happy to lose their maiden name and take their husband's name, and I'm sure that's not true.

TK: So in Britain, patrilineal surnames go down through the male line, down through the generations. Surname systems aren't the same all the way around the world.

CAPTION: Is there a better way?

ROBERT TAY: Yes, smash the patriarchy.

CAPTION: Smash the patriarchy.

CAPTION: Option 1: Take her name.

REBECCA TAY: I had read about a couple where the husband took the wife's name. And I thought, 'Oh, that's interesting.' You said, 'It's our choice. And if it means that much to you, then I'll take your name.' And I cried. But my dad was really confused. And it's *his* name.

ROBERT TAY: It's his name.

REBECCA TAY: He was like, 'Is that legal?' Like, 'Yes.'

CAPTION: Option 3: Mash your surnames.

BRIAN MACKENWELLS: I was Brian Macken.

RHONA MACKENWELLS: And I was Rhona Wells.

BM: And then, afterwards, we were both Mackenwells, one word without a dash in between.

RM: And I really wanted us to be sort of all one name, a family unit.

BM: I believe there's a rabbit farm somewhere in the north of England that is called Mackenwells.

RM: There's only three of us in the world.

BM: Yeah, exactly. And a rabbit farm.

RM: And a rabbit farm.

CAPTION: Option 3: Mash your first names.

ROBIN CLYFAN *Comedian*: So, my dad is called Clive, my mum is called Anne. Clive and Anne. Cliv..Anne.. Clyfan – that's my surname. Anncliv is a bit gross, isn't it? Anncliv. Whereas 'Clyfan!' that just rolls off the tongue. 'Clyfan, come!' My parents, they didn't just want me to kind of, erm . . . lazily take the surname of my dad, and the second thing is that my mum really wanted people to know that I was Welsh. My first girlfriend, Flora, we thought that if we had a kid that it could be called Flobin. But (*laughs*).

CAPTION: Option 4: The Spanish System.

TK: In Spain, people have double barrelled surnames.

PROF PATRICK HANKS *Editor, Oxford Dictionary of Family Names:* The father's surname is also followed by the mother's surname.

TK: That actually reveals the ancestry, through the male line, but from the mother's side and from the father's side as well.

TANNER EFINGER-WEST *Actor and Activist:* Pablo Picasso, his mum's last name is actually Picasso. And he just used Picasso.

MARTA PABLOS CASTANEDA *Spaniard:* My mum is doing the family tree and she has managed to get to the 15th Century, which is a lot.

CAPTION: Option 5: Gender symmetry in baralled surnames.

TEW: Let's look at gender equality in surnames so everyone has a double barrelled name. And you only pass along the surname according to your gender. That actually solves a lot of problems. Let's take a celebrity example. Let's say we have in the far future, Vivien Jolie-Pitt married to Levon Thurman-Hawke. Vivian, because she's a woman, would take her mum's name, Jolie, and Levon, because he's a man, would take his dad's name Hawke. So you get the Jolie-Hawkes. So this system has loads of advantages. It's really fair to both sides of the family. Half-siblings will always share at least one surname. If you get married a few times, you still retain part of your name, which is really important for a lot of people's identity. It works just as well for same sex couples as it does for opposite sex couples, because really you can just choose whichever of the surnames to keep and pass on. It makes exploring your ancestry way easier.

CAPTION: Option 6: Create your own surname.

UFUK OZTURK *Lecturer in Turkish &* German: In 1934, the law was passed that every Turkish citizen had to adopt a surname. There was a rush on all these fancy names like Yildirim, which means a flash or lightning. You have a lot of these names in Turkish like hawk, wolf, lion, brave or tall. So, Ozturk meaning, 'The real Turk'. I was born and raised in Germany, and my children, they're going to be living here in the UK. So are they really the real Turks? I think maybe my grandfather would have been really disappointed by that. You know.

CAPTION: Option 7: Personal and professional surname.

DR KATARZYNA ALEKSIEJUK: One surname is used for professional communication. The other one is for personal. The online persona, might actually be more significant than our legal documents because it provides much more information about who we are.

CAPTION: More and more people are starting to use two surnames.

PH: People seem to accept a surname, not as a matter of choice. That may be changing. If so that's probably a good thing.

RC: So, it has made me who I am, but that's part of a much broader picture about where the name comes from and the reasons for doing it.

REBECCA TAY: Just the fact that we have a choice. I think it doesn't matter what you choose, but choose actively.

ROBERT TAY: Yeah, there's nothing wrong with having your husband's name.

REBECCA TAY: No.

ROBERT TAY: If you want to.

REBECCA TAY: If you had a better last name, I might well have taken it.

ROBERT TAY: If my name was Tokien Shakespeare, then you'd have had a hard time arguing not to take that name.

REBECCA TAY: Maybe. Maybe.

263. Seven video games that changed the world

Which video games are the most iconic of all time? Aoife Wilson of Eurogamer assesses seven epic titles.

Published on 14 May 2019

This video was made by BBC Archive

TOMORROW'S WORLD 1973: Here's a brand new idea from the United States which can turn your television set into a game that two can play.

AOIFE WILSON *Video Game Aficionado*: Pong, first released in 1972, was as simple as a game can possibly be. Two white rectangles batting a square ball back and forward as players attempted to win points off each other. It tested reflexes and nerves and introduced an exciting new medium to millions. Most importantly, it turned pal against pal or sibling against sibling in a spot of friendly or fierce competition. That's something the gaming industry is still doing to the delight of millions to this day. Video games have come a long way since Pong, though.

SCENE AROUND SIX 1983: Your mother thinks you ought to be spending more time at your homework. What do you think about that?

BOY: I'd rather play this.

AW: This old stereotype of gamers being isolate loners is, quite frankly, boring and outdated. Videogames have long since come out of the bedroom and into the world, shared and celebrated by fans and communities across the globe. Here are six more of the iconic titles that helped make that happen. Around five years after Pong, Space Invaders was launched, bringing with it more colours, more sophisticated music and a distinctive plot and mood. While sceptics dismissed Pong as a passing novelty, Space Invaders proved that videogames were not only here to stay, but they were a massive and extremely profitable global industry. And the little pixelated enemies are still used to this day as an icon of videogames as a whole. Wakka-wakka-ing his way onto the scene in 1980, Pacman was arguably videogaming's his first real character. Urban legend states that his shape was inspired by a pizza minus a couple of slices. Pac-man tried something different. In it, you had to use your wits and strategically evade enemies until you were strong enough to chase them down instead. Pac-man quickly became a pop culture phenomenon, featuring on T-shirts, ties, glasses, bags, balloons, board games, books, caps and any other merchandise that sat around in one spot for too long. Of all the videogame characters to grace our consoles over the years, none have made an impact quite like Mario. The side

scrolling platform game featured a plumber trying to rescue a princess from a fire-breathing turtle and a labyrinth of pipes and platforms to traverse while avoiding razor toothed plants and even odder looking mushrooms. And so, of course, it captured gamers; hearts and became one of the fastest selling video games of all time. Tomb Raider was the butt-kicking action adventure game that sold PlayStation consoles by the bucket load and introduced the world to fictional archaeologist slash treasure hunter Lara Croft. As one of the first ever notable female game protagonists, Lara's launch in 1996 had already caused a media sensation. If Pac-man was gaming's first ever character and Mario its first mascot, Lara Croft was its first icon. Now, you could argue that Lara is really more a source of male titillation than female empowerment. But she was one of the first playable women I remember seeing in a video game, and that representation really mattered. World of Warcraft, launched in 2004, still stands as one of the biggest massively multiplayer online role playing games of all time. Players could create an avatar, assign them a class, race and skills, and then send them out into the world of Azaroth to explore complete quests and meet with other player characters. In its prime, the game had more than 100 million registered users. World of Warcraft played a huge role in legitimising multiplayer gaming for the masses. And I should know. I spent six years on it. Minecraft is an open world game that lets players build, create and alter environments by making, placing and destroying blocks. It's been extremely popular with children and academics alike due to its incredible scope for creating physics and logic based puzzles and to scale replicas of everything from the Starship Enterprise to the British Isles. A large part of its popularity is that it's an incredibly social game with a litany of devoted fans who work together to build entire worlds. But if little coloured blocks. Of course, there were many other titles that changed the world over gaming's long and lustrous history. In the last decade, the rise of indie games, E-sports and mobile games have changed the gaming landscape again as players themselves diversify and look for new experiences they can share with other players. Fans have known this for a long time. But video games aren't just games. They're art. They're fun, they're beautiful. They can amaze, delight, teach, empathise, empower. They're a huge part of our culture and they're here to change the world.

264. Sexism, racism… how should we judge the past?

Philosopher and BBC journalist David Edmonds asks whether it's fair to apply modern standards of morality to the past.

Published on 14 January 2019

This video was made by BBC Archive

MICHAEL PARKINSON: The point about her is that the critics spend as much time discussing her physical attributes as assessing her acting ability. One called her an amorous boa constrictor. Others have called her sensual, graceful and the final accolade, and I quote, 'She's especially telling in projecting sluttish eroticism.' She is Miss Helen Mirren.

DAVID EDMONDS: From today's perspective, many views held by people in the past seem abhorrent. That's true even if the greatest of thinkers. The ancient Greek philosopher Aristotle thought that the male is by nature superior and the female inferior. But you don't have to go back two and a half millennia to see or hear statements that will make you squirm.

MP: But do you find it fact that this, what could be best described as your equipment, in fact, hinders you, perhaps, in that pursuit?

HELEN MIRREN: I'd like you to explain by my equipment . . .

MP: Well, people watching . . .

HM: . . . in detail?

MP: Well, your physical attributes.

HM: You mean my fingers?

MP: No, I meant your . . .

HM: Come on, spit it out.

MP: I meant your . . . your figure.

DE: Not so long ago, it was possible to pose questions that would be entirely unacceptable today.

JACK PIZZEY *Man Alive 1976:* One of the big fears I think many people have about homosexuals is that they're going to molest little boys. Now, Tony Alright, you're a teacher and a homosexual. What do you have to say about that?

DE: And it's not just sexism and homophobia.

GODFREY BARKER *Nationwide, 1976:* One has actually lived next door to them and actually to live next door to Arab servants and people who haven't come here before and to appreciate some of the unpleasant realities of what it's like.

DE: So from a philosophical perspective, how should we think about people from an earlier time who held what most of us now regard as repugnant opinions? Well, we should draw a distinction. There are some things which, even in the past, should surely even then, have been recognised as wrong. Slavery or torture, for example, which in the Middle Ages was seen as an entirely legitimate way for the authorities to extract confessions. The Pope recently argued that we shouldn't apply modern standards to the Catholic Church's past cover up of sex abuse. But shouldn't this always have been acknowledged as wrong? However, there were other attitudes or actions for which we could perhaps be more forgiving. We might want to say that a belief itself was wrong, but the believer was not morally culpable. If a belief or behaviour was mainstream, it seems harsh to condemn an individual for holding it. Some forms of casual sexism might fall into this category.

JANET FOOKES MP *1970*: And I'm very interested in education. And of course, in the position of women.

PRESENTER: I think we ought to say that Miss Fookes, incidentally, is the most gorgeous redhead if you are seeing it in black and white. It is something you are missing.

DE: It's impossible to imagine that on TV today. Opinions will differ about where to draw the line. Imagine being a white person in the US South in the 1950s and 60s. Six decades ago, it was standard for white people there to hold belittling views of African-Americans. Is it reasonable to have expected them to appreciate the iniquities of racism, even though many of their friends and neighbours were racist?

TONIGHT *1962,* VOX POP FEMALE: We are . . . Memphis has a lot of niggers, here in Memphis and if too many niggers take over, it'll be an all-nigger school, that's the way I feel on it.

DE: To a modern ear, this is deeply offensive, but at the time the people interviewed felt their views were mainstream. Some contemporary movements, such as #MeToo, are about identifying wrongs that were once routine. But the #MeToo movement raises some interesting questions instead of just condemning the moral mistakes of the past, should we not also focus on the mistakes of the present? Should we be asking ourselves: what do we do now that future people will find shocking? Factory farms? Our ubiquitous use of plastics? Our reliance on cars. Food banks? Our long working hours? Faith schools? Will we be shocked by how people dying and in pain are denied access to drugs to hasten the end of their life? Here's what we can be pretty certain about. There will be at least some things we do now that in the future will make us wince. Knowing that, don't we have an obligation to scrutinise our current norms and practises? For, some of today's actions and beliefs will come justifiably to feel shameful.

265. Should bin men (and women) be paid more than bankers?

In this opinion piece, historian Rutger Bregman argues that binmen add more value to society than bankers.

Published on 18 April 2019

RUTGER BREGMAN: My name is Rutger Bregman. I'm a historian and in my humble opinion, bin men and women should be paid more than bankers. So a good way to illustrate this point is to look at a couple of strikes that happened throughout history. So, for example, in New York, 1968, there was a big strike of bin men. They were just angry that their wages were not going up anymore. So they said, 'You know what? We're going to go on strike and you'll see just how important we are.' And indeed, six days later, you know, a state of emergency had to be declared. New York really couldn't handle it. Turns out you can't do without bin men. Two years later in Ireland, there was another strike. In this case it was bankers, it's the only strike that I know of throughout history where the bankers actually went on strike. And all the

experts to that point, all the economists, they all predicted disaster. This was supposed to be like a heart attack for the economy. But then the strike started and nothing much happened, really. It actually lasted for six months. In the end. So the garbage collectors were on strike for six days – state of emergency. Bankers go on strike for six months and nothing happens in the economy. Just kept growing. Businesses kept operating. There are nowadays many people in professions in, say, Wall Street or Silicon Valley that, you know, are often described as the visionaries and the whizz-kids who come up with all these wonderful products. There was someone at Facebook who worked there for years and said, 'The best minds of my generation are thinking about how to make people click ads.' You know, that's that's one of the tragedies of our time, is that we're wasting so much talent. There are so many smart people right now in jobs that don't contribute anything. And it's not necessary. It's not inevitable. We need to rethink who the real wealth creators actually are in our society. So there's some fascinating research, actually. New research from two Dutch economists, Max van Lent and Robert Dur, who looked at this whole phenomenon of what they call socially useless jobs. They asked people the question: do you think your job is actually valuable? Do you contribute anything to the common good? It turns out that in modern economies, developed economies, 25 percent of the workforce says, 'I don't know, maybe not.' Or 'Probably not. If I go on strike, no one really cares.' Who are these people is an interesting question. Turns out that, actually, they have wonderful LinkedIn profiles. You know, they have wonderful, excellent salaries. They're often at the top of the pyramid. You know, they're bankers, corporate lawyers, consultants, basically. You know, a lot of people sitting in offices all day sending e-mails to people they don't like, writing reports no one's ever going to read, but still making a lot of money. So that's quite fascinating, right? That the rest of the population is supporting this whole class of people, you know, who don't really contribute anything. Right? What we're doing is we're spending billions of pounds to educate our best and brightest. And they go to Oxford and Cambridge and then they go on and they do jobs that they absolutely don't like. I mean, it's not me saying it, it's people themselves saying it or they don't really contribute anything. What's going on here? Who are the real wealth creators? And the reality here is, I think, is that we're living in an inverse welfare state where most wealth is actually created at the bottom by people who are doing the real work, the teachers, the nurses, the garbage collectors, you name it. This state of affairs, it's not inevitable, we can change it. And I would like to live in a society where we actually pay people according to their contribution, right? Where we have a real meritocracy.

And in such society, I believe in the long run bin men and woman will be paid more than bankers.

266. Should there be limits to free speech?

Should you be allowed to say what you like, even if it is deeply offensive? Prof Michael Sandel unpicks the issues with a global audience.

Published on 19 March 2018

This video was made by BBC Radio 4

PROFESSOR MICHAEL SANDEL: I'd like to see what people think about whether colleges should refuse to invite speakers to the campus who believe that certain races have lower IQs on average than certain other races. Let's start by those who think they should be welcomed. In the United States, Amin.

AMIN A. *Maryland US:* It's a pleasure to be on your show, Professor. College campuses are not a safe zone and no, no speeches should be banned in them, even if they are wrong. Freedom of speech does not mean freedom of the speech that you like. It means freedom of whatever opinion that is out there. So when we ban figures to not being able to speak on college campuses, we are banning an idea to be represented to students. So . . .

MS: Let me let me just press you, Amin. Are there any ideas that you think should not be presented to students?

A: Absolutely not. Since I'm in student in in Pennsylvania, myself. Students are there to learn. So . . . so you need to present ideas to them and contrast and compare them. And a student should figure itself out which one is better and which one is not. You should not just tell the students that, 'No, this is the right thing and this is the wrong thing.'

MS: And Amin, if there's a speaker who wants to come to present the view that certain religions are more prone to violence than others, should they be welcomed?

A: So I might disagree with their views, but I do I do not see any reason, any kind of reason that they should not be able to speak their minds.

MS: Let's hear from people who disagree with Amin, who disagrees with Amin? In Warsaw, Gabriela.

GABRIELA S. *Warsaw, Poland*: We shouldn't be afraid of other . . . of discussing with other people if we have evidence and good arguments. But in my opinion, the universities should be a free zone, should be a safe zone and free from political pressure. And many controversial debaters are connected to very poor, very . . . very different and sometimes very dangerous political opinions. For me, the university is a centre of . . . of knowledge of a very structured nowhere knowledge, and we should kind of defend it.

MS: Thank you for that. Let's turn to David, the BBC. What are people on Facebook saying about this debate?

DAVID E. *BBC:* Well, Ian from the UK says colleges should be an open platform, but only if there's an opposing voice against such views. He says it would be wrong to give someone access without an appropriate response, and that helps the search for truth. Davey says we need bad ideas to help clarify our own ideas. And Ruth from the UK says if you have abhorrent views, the student body has no duty to invite you to express them. Debating an opinion validates it in a way that ignoring it simply doesn't. We don't invite flat earths to campus to debate their position.

MS: Well, what about that? I mean, flat earthers too? Would you invite them?

A: So . . . so, I absolutely disagree with them. But I also give them the platform to be able to debate. If everybody was going to think like everybody else, what would be the point of the university?

MS: (*interrupting*) Let, let me ask you this, Amin. One of the comments . . . one of the comments from Facebook said, yes, admit people with far out or controversial ideas, but only on the condition that someone be invited alongside to challenge those ideas. Would you be happy with that stipulation?

A: Definitely. That's . . . that's why I disagree with speeches, but I agree with debate, because if you are just putting one idea, you're not presenting the opposite idea, so people cannot intellectually think which one is the right one. But what I want to just mention real . . . one thing really quick. The one person said that universities are safe zones. And I am quite disappointed that people do not know the meaning of universities. Universities are the opposite of safe zones. You go there to express yourself and to be . . . to be able to hear other people express themselves, to be able to open your mind to new ideas. They are not safe zones.

267. Should we all try to be less angry?

Is anger really a useful and healthy emotion? Historian Thomas Dixon thinks it would be better if we kept it under control...

Published on 24 May 2019

Made with the help of BBC Radio 3

THOMAS DIXON: My name is Thomas Dixon and in my opinion, anger is not quite as healthy as some people think it is. When I think of anger I think of myself losing it. Growling at the radio, shouting at the cat. Feeling homicidal rage towards the person next to me in the quiet carriage on the train eating their crisps noisily. It's not a healthy or happy feeling. For me anger is a thwarted tantrum-like howl of protest against the world's inexplicable refusal to cooperate with my perfectly clear wishes. And for that reason it's not something that I think is a great basis for moral or political decisions. Today I know that individual men and especially women are likely to be criticised and perhaps patronised when they express anger in their everyday lives. "Calm down dear." they might be told. But I detect in our culture a rising celebration of anger on all sides. People wearing it as a badge of pride. Announcing that they're proud to be angry and that others should be too. I don't buy into any of this. I think there's a real danger that boasting about anger becomes a generalised licence for hate. I'm also afraid that people use the language of anger as ... a thinly-veiled threat of violence When you hear a politician saying that if a decision doesn't go their way then they fear there could be civil unrest and public anger. I take it that what they're really saying is if you don't do what I want then there might be riots and there might be violence. And again, I'm not sure that's a

healthy way to conduct political discourse. One of my favourite works written against angry emotions is a book called De Ira, or On Rage, written by the Roman philosopher and Stoic Seneca. I think there may be some things that we can still learn from it. For the Stoics, passions were diseases. They weren't just harmless emotions that we should get in touch with and express but they were things that were seriously bad for us. Another central idea that the Stoics gave us about passions and emotions was to think of them as choices. When I think of my own experience for example of anger, I have to confess that there is a moment when I agree to let it happen. I choose to lose it. I allow myself to become enraged and that if we're honest, I think we have to agree with the Stoics that our emotions are choices, even when those feelings do feel quite hard to resist. But for those of us who do want to try and follow in this difficult path and restrain rather than express our anger and outrage, Seneca had some very useful practical tips. People with a bad temper should avoid getting drunk. People should avoid the forum, advocacy, the courts and all pursuits that irritate us. Twitter perhaps. Or for me The Today Programme. Finally, Seneca advises us always to wait before responding to any perceived injury. He said that the greatest remedy for anger was postponement. And I think that any of us who has ever responded too hastily and in anger to an annoying email from a colleague will appreciate the power of this advice.

268. Should we all write in Chinese?

What if the whole world used the same writing system?

Made by Angel Sharp Media, 11 January 2018

NARRATOR: Most of us know what these emojis mean and these numbers. But what if everyone in the world always used the same writing system while still speaking completely different languages?

It is actually not a myth to say that writing unified the Chinese coaches.

BI HU *Institute for Chinese Studies:* There are many small groups of dialects in China, but we all use this one written system, which are the characters. That makes things easier for people speaking different language.

DR ANNIE HONGPING NIE *Oxford University China Centre: How* do they understand each other? By written language, which is great.

NARRATOR: Just like emojis and hieroglyphs in ancient Egypt. Chinese doesn't use an alphabet based on sounds, but symbols denoting meaning. So how does Chinese work? Well, each character represents a word or a concept. And you stack them together like Lego bricks to build more words, some of them also look like what they represent.

N: A mountain may look just like a mountain with a peak in the middle.

AHN: And fire resembles some blazing logs. Put them together and you get volcano. And lots of the writing is the same between China and Japan, too.

XIAOCHU *China:* I know this bit, like 'dog' – so, 'my dogs are really cute', I guess?

MIDORI *Japan*: (*nods head*)

N: Chinese is the most concise written language in the world, so we'd use less paper. And it looks beautiful. For centuries, people have tried to invent the perfect universal written language. And Chinese has actually been considered before.

DR DAVID CRAM *Lecturer in Linguistics:* Universal language schemes were particularly popular in the 17th century, where people would have assumed that the origin of language theologically was in the Garden of Eden. So the whole world would have spoken one language. But then with the Tower of Babel, languages were broken into a multitude of languages.

N: They reckoned it would take a universal language to get us all back to heaven.

DC: And Francis Bacon assumed that a language like Chinese and its writing system would have qualified because of the special relationship between the sign and what it symbolised.

N: But there's is a problem because Chinese characters often represent whole words. There are a lot of them. Tons. How many are there Hongping?

AHN: Oh, I'm sorry. I don't know.

BH: Obviously it's too many.

M: Two thousand?

BH: Eight, nine thousand?

UNNAMED CHINESE MAN: A million?

N: Not quite. But it is very hard to say.

DR DIRK MEYER *Associate Professor of Chinese Philospohy:* The dictionary has around 64,000 characters. If you know 5,000 characters, you're doing very well.

N: And while some of them kind of look like what they represent, most of them don't really. In fact, some of them are incredibly complicated. This one has 57 strokes.

X: No!

M: Oh my god. What do you think it means?

N: It's actually the name of a kind of noodle.

M: What?

X: Oh!

M: This one word means that noodle?

N: Yeah. In fact, Chinese is so complicated that since the 1950s, a simplified system of characters has been used in mainland China, along with a romanised alphabet called pinyin. So Chinese characters might not become a universal writing system anytime soon.

DC: The trouble is not just inventing one, but getting people to use it.

N: And it wouldn't be easy for the whole world to agree on the same set of meanings

AHN: Language needs a culture context. You cannot really just borrow or create.

N: And maybe it's actually our different languages that make us special.

DM: Every year we lose hundreds of languages from . . . from this planet. And I would fear that a universal language might lead to cultural impoverishment.

N: For now, perhaps we should just stick to emojis.

DC: I use very simple like and dislike. And then I design my own sometimes.

N: So how do people know what they are then, David?

DC: They have to guess.

269. Should we be able to choose our own death?

In this opinion piece, philosopher Nigel Warburton imagines a future world where we choose how we die.

Made by Somethin' Else 6 April 2018

NIGEL WARBURTON *Philosopher*: Imagine a world where we get what we all deserve: a good death. Nothing seems much different. The world is much the same as it is now. People do the same sorts of things, have much the same joys and pains. They're born. They grow up. They work. They play. Have families. Love arguing. Enjoy their brief time on Earth and die. It's just that if you go to the outskirts of any town, there's a new facility there. It looks like a medical centre. It is, in a way, a well-designed building with a nice landscaping and a free car park. If you go inside, you'll discover what's going on. The receptionist can explain. There are leaflets too. Everything is well ordered and calm. Doctors, psychologists, counsellors and nurses work here. So, too, do specialist lawyers. This is the Good Death Centre provided on the National Health Service. Those who don't want to descend into the indignity of extreme dementia or doubt the ability of palliative care to ease their exit from life will come here when the time is right. They'll choose the moments of their own deaths. Most of us have a death plan and a living will now. It's a great comfort to

know that the option exists if the going gets too tough. We've had euthanasia for pets for a very long time, but before the Good Death Centres, we forced our friends and relatives to endure months and sometimes years of agony and indignity against their will. For what? It now seems so cruel, so unnecessary, so pointless. Of course, there are safeguards. No one gets to use the facility without thorough psychological examination and counselling. This choice is only for the sound of mind. And those who've demonstrated a genuine desire to die by these means. You need a good reason, such as a painful terminal illness or the first signs of dementia. Consent has to be informed. Life is much better now. It's reassuring to know you don't have to endure it even when you've lost the power to take your own life. I have my own death plan. If I don't die in my sleep, I expect to die in a Good Death Centre. It's a comforting thought. You should think about it.

270. Should we stop flying?

Flying is a growing source of CO2 emissions. So should we stop doing it? We brought together two people with very different views.

Made in collaboration with BBC Briefing

Published on 16 September 2019

CAPTION: Paul hasn't flown for 14 years and thinks we need to radically cut back on flying. Natalie believes travelling and experiencing other cultures is of huge benefit, if it's done thoughtfully. We brought them face to face, to see if they could find common ground.

NATALIE MALEVSKY: The world is going global and we can't deny people the pleasure and the happiness of visiting and exploring an increasingly globalised world.

CAPTION: Natalie Malevsky is from the travel and culture company Culture Trip.

PAUL CHATTERTON: I've not flown for 14 years, the last time I flew was I took a group of 30 university students on a field trip to Mexico.

CAPTION: Paul Chatterton is professor or urban studies at the University of Leeds.

PC: I think in my professional career as a professor of sustainability, I realised I had to practise what I preached. I couldn't stand in front of the lecture theatre every day and tell students about sustainability and lead a high carbon lifestyle.

CAPTION: Should flying be rationed?

PC: We've got unchecked growth of aviation. Every country's planned massive growth in aviation, flight numbers are going to go from four billion passengers now to eight billion in the 2030s.

NM: Travel and particularly experience-led travel makes people happy. It would be extremely difficult to pitch something to people that actually prevents them from

being happy. It is not just about airlines and travel. It's about experiencing other cultures.

PC: One or two flights every one or two years seems about Okay. What I would personally like to see is very heavy taxation on any flights beyond that, I've heard arguments that your second flight should be so prohibitively expensive that you wouldn't be able to take it, unless you were super-rich. Say, for example, a tax of ten thousand pounds on your second flight.

NM: With most taxation schemes, those who wanted to fly will fly and those who will not be able to afford to fly will be . . . will be disadvantaged because they will be denied the cultural exploration.

CAPTION: Flying and inequality.

PC: Eighty per cent of all the flights are taken by twenty per cent of the people. And so there's vast swathes of the population who have never been near a plane. Most people in Africa have never flown. Vast swathes of people, still, in the United States, in Britain and Asia have never flown. So aviation is an interesting one. It's what we call a wicked problem, because it's a problem which is being generated by just a small group of the population. One of the real problems we're going to face is the growth of middle class consumers, high income consumers in China and India, because that's going to far outweigh the amount of middle class consumers that we've ever had in the West.

NM: We can't deny the populations of these developing countries to explore the world themselves. But I wonder whether the way that they're going to do it is going to be a lot more conscious and thoughtful, because the ethics of travel do change and the ethics of our approach towards our environment and the planet change, too. And perhaps they change faster than we think.

PC: If we want to talk sensibly about other parts of the world reducing their carbon emissions and their flying, we have to take that leadership role. We have to show concrete action in terms of reducing our own aviation habits and carbon emissions.

CAPTION: Carbon budgets.

PC: I think what we're working towards now is that each individual on the planet has a personal carbon budget. And if you exceed yours, you're taking somebody else's. If we all emitted this amount of carbon, which would allow us to stay within the limits of the world, we'd have to emit about two and a half tons a year each each. Now, people in the West typically emit, I don't know, 10 tonnes. If you were vegan and a cyclist, and you don't fly, it may be one or two tonnes, you're there already. If you're a frequent flyer, you've got a big SUV, you like to go on fancy holidays four times a year, it would be 20 or 30 tonnes.

NM: Well, it sounds like the first step to take, though, is to actually make the individuals that you've just described aware of, of their own consumption of CO2 emissions. I myself have a Nest in my house and we do turn the thermostat down as

a result of knowing, simply knowing, how much energy we consume. So perhaps technology will be able to help us to just make the first step of making people aware of the miles that they're making and potentially the impact they're having on the environment.

CAPTION: The personal challenge

PC: The last 14 years has been a wonderful time. We've had some great holidays within the UK, within Europe. We get the train everywhere. We have annual cycling holidays in the Netherlands with my two sons and we have a great time.

NM: I fly for work and that's the fastest way to get there because I would like to limit the time I spend away from my family. I'm really keen, on . . . on my son to explore the world as early as possible and in some ways connect to his multinational roots as well. I do take him away to holidays abroad to really broaden his horizons as early as possible. But we have to do this with the constraint of a working family and school holidays. And there's always limited time in which you can do that. So there's always that challenge of balancing the right amount of time off and the effort and the impact that you make.

PC: I do realise I'm in a privileged position. I'm a professional. I work at a university. So I have a higher salary and I have free time and I have control over my time. And that's the important thing, because I do realise that many young people these days work in precarious and high stress jobs and they don't have the wiggle room within their professional lives to say to their boss, 'Look, I'll go to that meeting in Berlin, but I want to take two days getting there, so I'll see you next week,' because that's not going to happen. So what we need is structural change in the economy.

NM: There are structural things going on in society as well, where the social kudos of experience-led travel is something that we value and is a reflection of ourselves more than the possessions that we have.

CAPTION: Final thoughts.

PC: What I've learnt from you is the real importance of travel and cultural experience and authenticity and how important it is, how fundamental it is for us as humans to connect, to travel and to experience.

NM: Paul, I found your point fascinating and very eye-opening. You basically make the point that we can and should take personal responsibility for the . . . for the carbon footprint that we generate as a result of our desire to travel, and that the impact is drastic and long-term and that collectively we do have a role to play in understanding just how much travel is impacting that environmental future.

271. Socialism: A very brief history

What is socialism? How does it work? And where is it heading? Stephen Bush, political editor at the New Statesman, shares his view.

Made by Somethin' Else, 2 April 2019

STEPHEN BUSH: The A to Z of isms… socialism, Socialism as an idea has been around since antiquity, with some arguing that the teachings of Jesus Christ and the Prophet Mohammed were themselves socialist. Socialism is, in essence, the idea that when a business does well, the workers, not the owners, ought to receive the rewards. That holds whether the business in question is a farm, a high street bank, an online retailer, or a social media company. But how to achieve that? That's where it gets complicated. For some socialists, the best way to do that is for the workers to become the owners. That might mean through a co-operative where a firm's employees collectively own it and all share the profits. Or it could be the government steps in and nationalises it, as Prime Minister Clement Atlee did when he nationalised the commanding heights of the British economy, from the railways to the post offices in the late 1940s and early 50s. For others, who owns a business isn't that important. Through taxing the rich and using the proceeds to pay for schools, hospitals and transport and through setting minimum levels for how much workers should be paid, the benefits of a business can be redistributed from the owners to those who put in the hard labour to make it happen. Or, as the French socialist Ségolène Royalput it, for wealth to be redistributed, it has to be created. Socialism really only acquired a concrete theory in the 19th century when the philosopher Karl Marx laid out what he saw as the driving force behind the revolutions that were sweeping Europe. That helped to inspire the formation of a number of political parties throughout the continent, including the British Labour Party. After that, socialists split into two different groups, social democrats, who wanted to moderate the global economic system so it works in a broadly similar way, but benefited workers, not bosses, and communists, who wanted to replace the global order with an entirely new way of running the economy. Some say the problem with the socialist ideal is human development is based on the profit motive. We do things to benefit ourselves and our families, not other people. By taking the benefits of enterprise away from the bosses, we disincentivise everyone from working and we all get poorer, workers and bosses alike. Some socialists thought this criticism had more than a grain of truth. They wanted a new form of socialism that benefited workers and bosses alike. They called this the third way between traditional, supposedly unfashionable socialism, and the unrestrained markets favoured by right wing parties in the 1980s. Socialism, at least as far as Karl Marx understood it, was dead and gone forever. At least until the global financial crisis, when the costs fell on workers and most bosses escaped unscathed. In the wake of the financial crisis, voters got very angry, and supporters of the third way took a lot of the electoral pain. Many voters, particularly the young, started to think that perhaps a return to old style socialism, not social democracy, was the way forward. Socialism is back - and political supporters have gone back to its roots, advocating for four day weeks, a basic income and government control over much of the economy. Ten years after Marx's version of socialism was declared dead, there are whispers of a resurrection.

272. Spoiler alert.... Humpty Dumpty wasn't an egg!

Many of our favourite nursery rhymes are not at all what they seem.

Published on 25 April 2018

This video was made by BBC Archive

CAPTION: Nursery rhymes evoke a feeling of carefree fun and innocence. But do they have sinister hidden meanings? We asked Albert Jack, author of *Pop Goes the Weasel: The secret meanings of nursery rhymes.*

DAVID BOWIE 1982: Ring a ring of roses is about the Plague and we're all going to drop down dead.

CAPTION: The popular theory about this rhyme is that it's about the plague of the 1600s. But no instances of the rhyme were recorded in print during this century. Nor was it mentioned in the diaries of Samuel Pepys, who wrote a great deal about how the plague was affecting London. Another theory from the same time period is that when the puritans came to power in 1649 they banned many forms of entertainment, including Morris dancing. In order to get around this, villagers would put up a maypole and dance around it in circles. No published instances of the rhyme were recorded until 1881, leaving its origins in doubt. Baa Baa Black Sheep was about the wool tax of 1275. This saw the Crown introduce a tax on what had been a free trade. Wool was the most important commodity exported from England at that time. The value of one bag of wool would now go to the King, who was the 'master'. The same amount would go to the Church, or the 'dame', leaving only a third of the produce for the farmers themselves. The tax would have dealt a serious financial blow to small tenant farmers and merchants. Three blind mice. The Marian persecutions were a series of religious trials and executions that began in 1555 after Mary I became Queen of England. It was an attempt to turn England's religion back to Catholicism after the reformation of the 16th century. She targeted her father Henry VIII's allies, who had sided with him against her mother, Catherine of Aragon. The allies of Henry VIII were all given the chance to reconvert back to Catholicism and be forgiven. Three of them refused. The archbishops Latimer, Ridley and Cranmer were tied to stakes, blinded and burned alive. Humpty Dumpty. In 1649 during the English Civil War, there was a siege of the King's army at Colchester Castle. On top of the castle, a cannon named Humpty Dumpty was damaged during the battle. 'All the King's horses and all the King's men' refers to the cavalry and infantryman who tried to fix the cannon . . . to no avail. So, the song Humpty Dumpty may really have been about an enormous gun, a military failure and nothing to do with an egg. Not all nursery rhymes have hidden meanings. Pop Goes The Weasel wasn't about an explosive forager. It was in fact named after a popular dance in the 19th century. Mary Had a Little Lamb was just about a little girl who had a lamb (funnily enough). And the Muffin Man was merely a man who sold muffins. Does it matter if some nursery rhymes are not what they appear? Perhaps they'd sleep sounder at night if they didn't know the full truth.

273. Start-up millionaire on the event that changed her life

Martha Lane Fox, founder of lastminute.com, shares her top life and work tips.

Made by BBC Studios, 21 November 2018

MARTHA LANE FOX: So one of the great things about being an entrepreneur is that you don't have to pretend to be someone you're not. You can build the culture around things that you care about. Build your own value system. You don't have to pretend to be a suit in an office. The funny thing is that I don't really feel very successful. I know I've been lucky to build a company and that company got sold for a lot of money. In my own head, I still beat myself up and I think, come on, haven't actually contributed something to the world. I'll do something that's more meaningful. Make sure we don't screw up the next 10, 20 years. I think that's quite a good tension. If you can make sure that you channel it in a positive way and not something that whirs away in your head feels like a negative thought. Last-Minute dot com was really one of the first e-commerce companies in Europe. We had to convince people back in 1998 that they were going to buy stuff with their credit cards on the Internet. Can you imagine that?

INTERVIEWER (*Archive*0 There's an awful lot of pressure on you now, because this has become a major company.

MLF (*Archive*) There's always been a pressure on us, but it's no worse than it's been for the last couple of years.

MLF: It's so hard when you're in a start-up because your personality is part of how you market and communicate. But if I look back, I think I put myself out there a bit too much. When the stock market collapsed and our share price went from £5.35 to about 19p I got a lot of attention in the media and I got a lot of handwritten letters. I got 3000 letters, people writing to me telling me I was an awful person for taking their money. I was naive in dealing with the media and I was naive a bit in thinking we could attract all this attention and not reap the consequences of that. So be yourself. Build things around the values that you have, but hold a little bit back. So in 2004, I'd just left my company lastminute.com, and I was taking a few months off. And I was in Morocco with my new boyfriend and I fell out of a car. I wasn't wearing a seat belt. We skidded off the road, I broke 28 bones and I had a stroke. I had to then spend pretty much the next two years in hospital and the next probably two years after that in hospital in my own house, recovering from that cataclysmically bad event. I was pretty out of it for a long time in hospital, but I had decided I was going to start another business before I had the accident, called Lucky Voice a karaoke business. And the guy I was going to start the business with used to come to me in hospital and start showing me kind of designs and drawings and all the things we were going to do. I was completely high on morphine and I don't remember anything that I said to him, but it actually was pretty important for me because trying to rebuild your body, but at the same time, you want to get your brain back a bit, too. And I didn't want to be slowly wasting away, just focussing on whether I could stand up. I'd built an online e-commerce business, pretty much the most techie thing you could do. And then all of a sudden it's building bars in the real

world. But I think being imaginative in how you build your life and your career is really rewarding and actually quite important in terms of how we build resilience as human beings. I am the worst karaoke singer you can possibly imagine. I pick things which you can't really massacre and now, post the accident, I often sing Elton John. *I'm Still Standing* for obvious reasons. Inspiration and things can come from all kinds of surprising places. I've never really had a plan, don't tell anyone, but I would really urge you to be open minded about how you build your career and about opportunities. So always take the call. Always be opportunistic. Always be open minded and talk to people and meet people. And don't feel like you have to have a set way of doing things. The incredible thing about being an entrepreneur and understanding a bit about technology is that you see how quickly things can change and how innovation is possible. You don't have to be the person doing the coding. You can be the person working in any aspect of technology. So don't shy away from technology because it can help us solve the big problems.

274. Stephen Hawking: 'He set the bar very high'

The theoretical physicist Stephen Hawking has died at the age of 76. Professor James Bullock remembers his life.

Published on 14 March 2018

This video was made by BBC World Service

JAMES BULLOCK *University of California, Irvine*: He is one of those figures that inspires us to look deeper, to think of the grandest questions and to attempt to tackle them. You know, he set the bar very high, even in his public books and in his public talks. And I think that that's an inspiring thing.

INTERVIEWER: He's got this remarkable public persona, inspirational for yourself and those of your generation in terms of his work. What is going to live? What was it that remains and will remain sort of readable and vital and interesting in his work?

JB: I mean, I think there are a number of really fundamental and vital things that he's done. I mean, I think for me in particular, it's the phenomenon that's called Hawking radiation? The idea that black holes can actually evaporate. But actually, the mathematics of that phenomena have important implications for what was going on in the very early universe. Perhaps what seeded all structure in the universe. So there are a lot of related aspects to what he's done that I think that'll stay with us in cosmology forever.

275. Surviving nuclear war (with mattresses and baked beans)

Protect and Survive - the handy government pamphlet that offered some novel advice on how to survive a nuclear attack.

Published on 10 January 2018

This video was made by BBC Archive

CAPTION (*Archive*): This booklet tells you how to make your home and your family as safe as possible under nuclear attack. (*shots of school children in Sweden*)

CAPTION: Fear of nuclear annihilation was once very real. At the height of the Cold War, nations around the world were preparing for life after a nuclear attack. Back in the UK, things were being approached a little differently.

JASPER CARROT *Comedian*: It's a well-known government nuclear comic. It tells you how to survive in a nuclear war by unscrewing the kitchen door off its hinges.

CAPTION: Protect and Survive was a public information series produced by the British government which informed citizens how to protect themselves during a nuclear attack. For those lucky enough to survive the blast instructions were provided for dealing with fall-out. The handy pamphlet established that the trusty mattress would be the first line of defence in the event of nuclear fall-out. The whoel family would have to hide under it, including Bruno. But first, the home itself had to be fortified and an inner refuge room would need to be constructed within the house itself. If you had time to nip to the shops before the blast, there was a stack of provisions you were instructed to acquire. Baked beans were recommended eating for all. And there were some ominous warning sirens to be learned. Confusing the similar sounding 'attack' and 'all clear' sounds could have ended tragically. The real fall-out of Protect and Survive was that much of the advice wasn't very handy at all. Clearly, closing the curtains wasn't really going to protect anybody from a nuclear blast.

VOX POP MALE: You've had it, ain't you? You've had it, ain't you?

INTERVIEWER: Would you take any preparations at all?

VPM: Well, what preparations have you got? You've had it, ain't you? You've had it, ain't you? No point messing about, is it? You've had it, ain't you? No point crying over spilt milk, is there?

CAPTION: The wealthy were buying submarine-like structures, digging holes in their back gardens and imagining a life of comparative luxury underground. This enraged the Left.

ALISTAIR DARLING *Labour (Archive):* So the government has attempted to justify its policy by producing a ludicrous document, which I'm sure many of you have seen Protect and Survive, which has got nothing to do with protection and nothing to do with survival.

CAPTION: The Prime Minister remained coy about what her own plans would be in the event of an attack.

MARGARET THATCHER (*on Children's TV phone in*): Hello, Alison.

ALISON: In the event of a nuclear war, where will you be?

MT: Oh, my goodness me.

CAPTION: By the mid-1980s, the Cold War had thawed and threat of nuclear war receded. With tensions never far away on the border between North and South Korea, could it be time to dust off an old copy of Protect and Survive?

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276. The 'condom king' who launched a safe sex revolution

Mechai Viravaidya is known in Thailand as the 'condom king', for his work in changing the way people thought about sex.

Published on 19 June 2017

This video was made by BBC World Hacks

CAPTION: This is not your average school trip.

THAI WOMAN: This is free condom for you.

CAPTION: It's called 'Cops and Rubbers.' It's the latest idea from the man known in Thailand as The Condom King. Whose safe sex revolution has saved millions of lives.

MECHAI VIRAVAIDYA: In Thailand, the name Mechai now means condom, since 1973 it's in the dictionary.

CAPTION: Mechai has spent his life campaigning for women's reproductive rights and reducing HIV transmission in Thailand. He's been a politician, a Thai soap opera star, created a sexual health foundation, and founded a school. In the 1960s, Mechai realised that Thailand's rapid population growth was pushing families into poverty.

MV: I wanted to make contraceptives as accessible as possible. The idea was that if family planning was to succeed, then contraceptives have to be as easily found as vegetables in villages. So we make the condom visible and said, look, the condom is clean if your mind is not dirty.

NANDA KRAIRIKSH: *Former UN Director:* As a Thai, growing up in Thailand, everyone knew who Mechai was. We knew him as basically the condom king.

CAPTION: Mechai got local shopkeepers and hairdressers selling contraceptives. He founded a restaurant chain called Cabbages and Condoms to raise funds. Created 'Miss Condom' pageants.

MV: People are normally embarrassed when you talk about sex, generally around the world, but if you can bring in humour to it, when they laugh, they forget about the embarrassment.

MV *Archive*: And we have many, many uses for the condom. As you can see, you can of course put coins and change into here. Or Coca-Cola if you like. And of course, you can use it as a balloon for young children.

CAPTION: The number of children per family dropped from 7 to 2. But then, in the 1980s, HIV hit Thailand with devastating speed. Mechai was called in to run the government response.

MV: So the condom again came to the fore from birth control to be death control.

CAPTION: Some Thais worried that Mechai's outspoken approach to HIV would damage the country's tourism industry. But the World Bank credited Thailand's prevention measures with saving 7.7 million lives.

NK: And that was largely in part to the initiatives and leadership of Mechai.

MV: HIV has come down immensely in Thailand, new infections excepted. But while the numbers are low, the types of people getting it have changed to be the younger generation. So that's what we have to address.

CAPTION: Now he's passing the revolution on to the next generation. The students of Mechai's school are all trained sexual health advisors.

MV: In earlier days, I was the rooster in fighting HIV. But today I'm just a feather duster.

UNNAMED FEMALE: People shouldn't be embarrassed by condoms or afraid of them. Because when you use them you protect other people and you protect yourself.

MV: What I'm trying to save lives, I'm trying to save opportunities, save futures, and we must deem it a privilege if we can work in something that makes the world a better place.

277. The Greek myth that gave women a voice

Author Colm Tóibín on why the Greek play Antigone, written in the 5th century BC, still has huge relevance in today's world.

Published on 5 September 2018

Filmed at the Man Booker 50 Festival at the South Bank

COLM TÓIBÍN: I think ancient Greek myths are relevant today because the actual structure of them, that the conflicts are still with us, we still live in a world of civil strife, of strife within families, of strife between countries. The most performed play

in the world anywhere is not one of the Harry Potter adaptations, and it's not Hamlet and it's not by Shakespeare. It is Antigone. That story speaks once more to this idea of people in a time of strife. There has been a war between two brothers. In the end, both brothers were killed. And the new king, who is their uncle Creon, announces one brother will be buried with great honour. The other brother's body will be left in the sun for hyenas, for vultures. And Antigone, who is the sister of both brothers, says, 'No, I will bury my brother, because that idea for us of honouring the dead is so fundamental that no edict, no law can actually change that. I am a woman and as a woman, our job is to wash the bodies of the dead. That is our mission in the world.' So what we have to think about is in any time from, for example, the #MeToo movement to the Mothers of the Disappeared in Argentina, the women against nuclear power or against nuclear war. The number of time where women have stood up against governments and against power, saying, 'We represent something older and more true than edict or legislation or mere parliamentary power or indeed dictatorship.' This play allows a woman to speak. And it allows a woman to accuse. And as allows a woman to say, 'I know something you don't know about power. I will defy your power, because the way you are using your power is a form of abuse. You may be king, but you're wrong.' In the case of Antigone, we live in a time where it is eminently possible someone could change the world, or at least change our political situation by speaking out, what happened two and a half, three thousand years ago, we still live in that world. That still is our world to some extent.

278. The Heartland theory - part two

Is Victorian geographer Halford Mackinder's Heartland theory still inspiring geopolitics today? By the BBC's Phil Tinline.

Published on 26 February 2019

AMERICAN PROPAGANDA FILM: Conquer Eastern Europe and you dominate the Heartland.

PHIL TINLINE: In the 1940s, America became fascinated by the idea that the Nazi plan for world domination was based on a perversion of the ideas of this Victorian geographer.

APF: Deep in its mountains lay thick, rich veins of gold and silver.

PT: Halford Mackinder had argued that with the advent of railways, the vast resources of the Eurasian heartland could become the basis of a great land power that could defeat any seapower. And American propaganda films told audiences that this was the basis of Hitler's strategy.

APF: Conquer the world island and you dominate the world.

PT: So Halford, now in his 80s, was dismayed at the idea that he'd influenced the Nazis. And then in 1943, Foreign Affairs magazine got in touch with him from New York and asked him for his thoughts on the geopolitics of the allies' coming victory.

And Mackinder proposed a way that they could stop Germany, once defeated, from rising yet again. To Germany's west there should be a reserve of trained manpower, agriculture and industries in the eastern United States and Canada. A moated aerodrome in Britain, a bridgehead in France. And to Germany's east, if the Soviet Union, he wrote, emerges from this war as the conqueror of Germany, she must rank as the greatest land power on the globe. But by 1945, Germany was broken. The Nazi regime had surrendered unconditionally, and the country was divided into zones by the allies. With Germany out of the picture, Mackinder's model came to foreshadow the emerging East-West standoff of the Cold War. The West and the Soviets were enemies once again. After pro-Soviet forces absorbed Poland and Hungary and Romania and more. The power who ruled Eastern Europe and the Heartland was not Germany but the Soviet Union. In America's Ivy League universities, academics had already been spurred by Mackinder's work to confront the risks of one power dominating the world island and to map out the conflict zones along its coastal Rimlands. Now, as the Soviets' reach expanded Mackinder's ideas reach this man, a diplomat called George Kennan?

GEORGE KENNAN: Imperialism often involved the advancing of the actual formal borders of your sovereignty.

PT: And Kennan proposed to prevent it dominating the Eurasian landmass, the Soviet Union had to be contained.

GK: What they want to do is get puppet communist regimes in power in other areas.

PT: On the 6th of March 1947, Mackinder died, but his ideas were very much alive. Six days later, President Truman told the US Congress that America had to contain the Soviet Union by helping countries threatened with communist takeover.

PRESIDENT TRUMAN: It is necessary only to glance at a map to realise that the survival and integrity of the Greek nation are of grave importance in a much wider situation.

PT: The United States was declaring itself ready to protect democratic ideals by using the threat of military force to stop a single power from dominating Eurasia.

NEWSREEL: America has decided that her true frontiers are in Europe.

PT: As the mainly Democratic West and the Soviet-controlled East dug in for decades of Cold War, America established a ring of bases around the Soviet-dominated bloc from West Germany to Italy to Turkey and on to South Korea and Japan. Critics see containment as part of America's aggressive and imperialistic foreign policy. Others argue it protected democracy. Either way, it was still going 40 years later, when this happened. In 1991, moves towards democracy in the Soviet Union had unleashed demands for independence in the Soviet republics. A last ditch coup by hard liners failed to stop all of the republics from the Baltic to Central Asia splitting away. But all this and the trouble that followed gave Mackinder's Heartland Theory a new appeal. With communism abandoned, the Russian economy was caught between broken down old Soviet systems and the sudden introduction of

Western-style capitalism. The shock nearly killed it, even as well-meaning Westerners flew in to offer their medicine.

BILL CLINTON: We are going to be friends.

UNNAMED RUSSIAN POLITICIAN: It produces very bad feelings here. That United States interfere in our internal affairs.

PT: And amid all this chaos and humiliation, new political thinkers began to emerge. One was a right wing ex-dissident called Aleksandr Dugin. He managed to get a job teaching strategy at the General Staff Academy to the future leaders of the Russian military. Dugin drew deep on Mackinder's ideas to cast traditionalist Russia as locked in an internal struggle for power with the liberal West, which throughout the 1990s seemed to be encroaching ever deeper into Russian life. In 1997, Dugin set out his ideas in a book called *The Foundations of Geopolitics*, which became an unlikely bestseller. And here he is lecturing recently in Shanghai, outlining his Mackinder-influenced take on antagonism between Russia and the West.

ALEKSANDR DUGIN: In geopolitics there are two absolute opposite poles there is seapower, that is the West . . . Western world, there is land power that is Russia. And the fight to control all the Rimlands, in order to control the Heartlands. That was the famous idea of Mackinder, who controls Eastern Europe, that controls Heartland; who controls Heartland rules the world.

BBC NEWSREADER: Now, the final countdown to the European Union's biggest ever expansion is only 11 hours away. The EU will officially expand at midnight tonight.

PT: In the wake of their liberation from Soviet dominion, Eastern European countries queued up to join NATO and the European Union fearful of future Russian aggression. But if Eastern Europe worried about Russia, Russia worried about NATO.

BBC NEWS 23 OCTOBER 1995: Seen from here. NATO's expansion sends all the wrong signals. It tells the Russians they're still not really accepted by the West.

PT: Dugin followed Mackinder's theory to conclude that Russia should move to dominate once more the breakaway republics of the old Soviet Union or Eurasia. And some writers have argued that Dugin's Mackinder-influenced themes have proved useful to Russia's leaders, keen to reassert their country's standing in the face of what they see as Western over-dominance. In 2011, President Putin proposed the formation of a Eurasian Economic Union. And in 2014, at this ceremony in the Kazakh capital, a treaty was signed by Kazakhstan, Belarus and Russia. They were soon joined by other ex-Soviet republics. But the idea of Eurasia as a counter to the European Union came into sharp focus in Eastern Europe. In 2013, Ukraine was in talks with the EU, but then Ukraine's president Yanukovych withdrew under Russian pressure.

BBC News 11 December 2013: The barricades are being built by protesters fighting to keep alive their dream of joining the European Union.

PT: Pro-EU protesters occupied the centre of the capital, Kiev. Yanukovych sent in armed police and the situation to generate bloody violence. In eastern Ukraine, there were pro-Russian protests which became a Russia-backed insurgency. And in southern Ukraine, Russia sees its chance to annexe Crimea, which, like the east, the country has a high ethnic Russian population. But though Russia may rule the Heartland, it does not control the world island. Eurasia is now home to another great power. In 1904, Mackinder worried about trains uniting in the heartland. Today, China is stretching its railways across the Eurasian supercontinent. Relations between China and Russia are warm. But will Chinese expansion into Russia's old sphere of control in Central Asia start to cause tension? Mackinder-minded analysts think it might. The lagoon is teeming with ships and the South China Sea, vital to world trade, is becoming the focus of a new geopolitical struggle for dominance. China has built whole islands to assert its claims to control. America is pushing back.

MILITARY: China has sovereignty over the Nansha Islands and adjacent waters. Leave immediately and keep far off.

PT: And there are signs that America's strategic thinking in the region is coloured by Mackinder's ideas. Mackinder argued that those ideas could help to stop a single state from dominating the world. As the great powers square up more and more will his insights helped keep them in check, or is it time to consign the century old ideas to the past?

279. The Holocaust twin who forgave the Nazis

Eva Kor tells the powerful story of her time in Auschwitz, and why – many years later – she decided to forgive those responsible.

Made by Studio Panda, 14 February 2020

Made in collaboration with Crossing Divides

EVA KOR: One day in 1944, my family and I were arrested, packed into cattle trains, with no food or water. We were taken to Poland and left on the selection platform in Auschwitz. A Nazi guard spotted me and my identical twin sister Miriam clinging to my mother. He tore us from my mother's arms and led us away. I remember looking back at my mother. I did not know at that time, but I would never see her again. On the filthy floor were the scattered corpses of three little girls. Their bodies were naked and their eyes were wide open. It was a horrifying look. I had never seen anybody dead before. So that hit me very, very hard and I made a silent pledge that I will do whatever is within my power to make sure that Miriam and I will not end up on that latrine floor. And that we somehow will survive, and walk out of this camp alive. We were naked for hours, and every part of our bodies was measured. It was horrible and humiliating. "Too bad, she's so young, she has only two weeks to live." I knew he was right. But I refused to die. If I died, Miriam would have been given a lethal injection so he could cut open both of our bodies and

compare the autopsies. For the following two weeks, I was between life and death. And all I remember, crawling on the barrack floor because I no longer could walk. And as I was crawling, I would fade in and out of consciousness and I kept telling myself, “I must survive, I must survive.” Nine months later, we returned home only to find that nobody else from our family survived. To find only three crumpled pictures. And that was all that was left of my family. In 1987, I donated one of my kidneys to save her, but she died in 1993. And I was devastated. She was the only one from the family who was alive. I was angry. I was heading to Germany to meet a Nazi doctor - I was unbelievably nervous, and scared. Dr Münch at the time was 82 years old. He greeted me with kindness, respect and consideration. I was blown away - a Nazi treating me with respect. Dr Hans Münch was a bacteriologist at Auschwitz, but he also had a secondary job that he was stationed outside the gas chambers. And when people were dead, he would sign one death certificate. No names, just the number of people who were murdered. And he said to me, “This is my problem, this is a nightmare that I live with.” I asked him if he was willing to go with me to Auschwitz and make the same statement that he made to me, and he said he would love to. I knew that was a crazy idea, to thank a Nazi - a survivor of Auschwitz to thank a Nazi. People would think that I have lost my mind. I tried to figure out how to thank him and after 10 months, a simple idea popped into my head. How about a letter of forgiveness from me, the survivor of Auschwitz? I knew that that was a meaningful gift for him. But what I discovered for myself was life-changing. That I had the power to forgive. No-one could give me that power. No-one could take it away. To challenge myself, I decided I could even forgive Mengele - the person who had put me through hell. It wasn’t easy, but I felt an enormous weight had been lifted from me. I finally felt free. Who decided that I as a victim must be, for the rest of my life, sad, angry, feel hopeless and helpless? I refuse it. You can never change what happened in the past. All you can do is change how you react to it. My sister and I were made into human guinea pigs. Our whole family was murdered. But I have the power to forgive. And so do you.

280. The Viking club where men fight their demons

The Viking clubs which help men who have been scarred by violence.

Published on 11 October 2017

This video was made by BBC World Hacks

CAPTION: This isn’t Game of Thrones. These are modern Viking warriors. They’re not recreating a battle, they’re trying to win it. And for some men, it’s turned their lives around. These are the Viking clubs, where men fight their demons. Wolin Festival, Poland. Igor has been organising Viking battles for 20 years. He realised something: Viking clubs can be a solution for some men who struggle with violence or lack direction in their lives.

IGOR JOMSBORG *Viking*: You know, the modern society tells that any kind of aggression is bad. If a society tries to cut it down, squeeze it, it will find a way to express, to explode.

CAPTION: He says battles can release aggression in a controlled way.

IJ: It's only a week or a bit longer time needed to drop the social barriers.

MAX *Leader, Ulflag Vikings*: A lot of these people are adrenaline junkies and they really want to take part in something where they feel alive.

CAPTION: When Max lost his father, his Viking club saved him from a dark place.

M: I've got nothing left to live for at this point in time. I feel so vulnerable. Life had lost its meaning. Let's find new meaning.

QANUN *Chief Trainer, Ulflag*: I was abused as a child and had quite a lot of anger issues. An angry child doesn't know how to deal with emotions but by being violent. Being able to let out my frustrations and aggressions in a controlled manner are very, very beneficial. It sort of healed me and allowed me to let go of that anger. A lot of Vikings have come into it from biker gangs, they've come from normal gangs. They've needed to find something where they feel like they belong, for want of a better word, loved by people around you.

CAPTION: The Scene attracts many military veterans struggling to adjust to civilian life. Boris was involved in hooliganism and had brushes with the law.

BORIS: I fight a bit, like a bad boy. Re-enactment saved me from something, even there is aggression, aggression is controlled.

CAPTION: Weapons are blunt, marshals ensure safety. When hit on certain parts of the body, you play dead or leave the field of play.

B: It appeared in the right moment in my life to show me the way which I want to go.

CAPTION: There are no scientific studies about all this. But Dr Carol Holliday and arts psychotherapist at University of Cambridge says it fits with a well-known theory.

DR CAROL HOLLIDAY: That we have three psychological needs. One is the need for affirmation. So we need people around us to validate our experience. And I think I see that happening in these Viking re-enactments. Another is a sense of belonging, of having an identity like those around us. And finally, we have a psychological need to idealise people, to have people we look up to, perhaps heroes.

CAPTION: Viking identity isn't just about fighting. It's also about recreating the wider culture.

CLINTON DALE *Jomsborg Viking:* So you're able to, like, do this physical thing, but you also have this intellectual and cultural velvet curtain to go along with it.

IJ: All of this, combined with aggression, makes a Viking.

CAPTION: Viking identity continues off the battlefield.

NORMAN: This one, this is the very first Jomsviking ring and the inscription on there, I think it says 'Law'. Wherever we went, we was the law.

CAPTION: In his youth, Norman was caught up in the world of football hooliganism. The Viking world offered him a different identity.

N: We are brothers no matter what happens, if one of us are in trouble somewhere and we're called upon, we have to do our best to try and help that brother out.

IJ: I see hundreds of people who had some problems in their life and they became a good Viking citizen.

281. The amazing Maya Angelou

Joyous and haunting, mysterious and memorable - this video pays homage to the poet and activist Maya Angelou.

Published on 15 June 2018

This video was made by BBC Radio 4

NARRATOR: Maya Angelou, prolific, powerful, a polymath with a life story that is uplifting but terrifying, as hopeful as it is harrowing. "You may not control all the events that happened to you, but you could decide not to be reduced by them" After being raped at the age of seven, she was completely silent for many years until she found words, the words of Dickens, Shakespeare and Edgar Allan Poe. Then her own words came flowing, words that healed. Her first autobiography, I Know Why the Caged Bird Sings, speaks to silenced children everywhere. It gives them a voice. Words mean more than what is set down on paper. When President Bill Clinton was inaugurated, Maya Angelou recited a poem to the crowds of thousands. She was the first black woman in history to do so. Tupac, Nicki Minaj and Kendrick Lamar all cite Maya as an inspiration. That's what she does. She inspires. The written word is just the tip of her talents. "Music was my refuge." She danced on Broadway, recorded a Calypso album and told the world that the opera Porgi and Bess. 'You can't sing too good,' Billie Holiday told her, 'but you're going to be famous.' Billie knew there was so much more to Maya. She knew Maya would become an icon. "If you don't like something, change it. If you can't change it. Change your attitude." Change wasn't something Maya was a stranger to. She embraced it. She fought for it. Ingrained in the civil rights movement, she worked for Dr Martin Luther King and befriended Malcolm X. She fought for a world free of injustice and full of equality. "We may encounter many defeats, but we must not be defeated." In her incredible lifetime, she was nominated for a Pulitzer Prize, won one Tony, three Grammys and received more than 50 honorary degrees. She was an ambassador of compassion with her unbreakable spirit she overcame the unspeakable and did the unthinkable. She

chose activism over aggression. Mercy over cruelty. And belief in humanity over savagery. She was a force of nature. In the words of Maya herself, “Love liberates.”

282. The ancient history of the modern hamburger

The story of the hamburger goes back further than you might think - right back to the Romans. Food historian Annie Gray gets stuck in.

Made by Somethin’ Else, 9 November 2018

ANNIE GRAY: We tend to think of the hamburger as a quintessentially American invention, the fastest of fast food and a relatively recent innovation. But the idea of grinding up leftover meat and forming it into a handy patty goes back hundreds of years. The Romans were the first to write their version down in the shape of Isicia Omentata – a mixture of minced port wine, pepper and garam, an umami-rich rich fish sauce ubiquitous in Roman cuisine. Each was wrapped in caul fat – the delicate, tasteless inner lining of the thorax of cows, sheep and pigs. This was high end cookery, and it survived the collapse of the Roman Empire, with these proto-burgers finding their way into mediaeval recipe collections under various names. There were rissoles, patties and pompeys, and they could be flat or round, more like modern meatballs. They could also contain anything from fish to meat and occasionally fruit and vegetables. Variations on the theme were also found in the Middle East and beyond. Some of which, such as kebobs, were brought back by travellers to join the European repertoire. By around 1700, the fried flavoured mincemeat concept had become established as part of the British culinary repertoire. As oval or round balls, they were very popular for garnishing large, spectacular dishes such as roast meats. The Georgians also came up with a thing called the Hamburg Sausage, which was based on minced beef and isn’t a million miles distant in flavour from its eventual successor. And they decided to use tomatoes to make catsup, later called ketchup, another fundamental element of the modern dish. By the end of the 19th century, all of the elements were in place, but it was in the US that they finally came together. By the 1870s, American restaurants were serving Hamburg steaks named after the German port where high quality beef was shipped across the world. This version was a dish of fried flattened meatballs, though, made from offcuts from the more prized and expensive actual steaks. By now, the mincing machine had been invented, making it easier than ever before to turn bits of random meat into tasty, cheap meals. By the 1890s, the flat meatballs were being served in bread rolls to hungry workers at factory gates across the US with relish an optional edition and pickles on one side. The Hamburger steak was shortened to the simpler hamburger and a classic was born. Of course, it could have simply stayed as an urban curiosity and died out like other street foods, such as dried apples and pickled oysters. But it was very practical, very easy and very popular. In 1921, the White Castle fast food chain was founded, marketing their hamburgers as pure and hygienically produced, something somewhat lacking from the average street version. By the 1930s, hamburgers had become simply burgers, and White Castle had competition from the first Wimpy and then McDonald’s. In 1954, the first Wimpy reach the UK, tucked into

a Lyons Corner House, injecting some American glamour into a Britain just released from rationing. They were initially served on a nice plate with knife and fork. Things changed rapidly, however, and burgers gained a dual purpose as a cheap, forgettable takeout and barbecue fodder. In 2013, the UK's horsemeat scandal revealed just how much bad burgers relied on cheap offcuts and filler to keep the price down and posh burgers boomed along with the brioche band and homemade sauces. Worldwide, despite slowly decreasing beef consumption in the West, burger consumption is going up. And while Australia, the UK and the US lead the pack, France and Russia are catching up. L'Hambergeur, anyone?

283. The ancient mystery of the 'skeleton lake'

In 1942, an Indian forest ranger discovered a remote lake, high in the Himalayas, full of human skeletons. Who were they?

Published on 4 August 2020

Made by BBC Reel

NARRATOR: During the Second World War, in a remote valley deep in the Himalayas, an Indian Forest ranger in Hari Kishen Madhwal made a morbid discovery. At an elevation of 48,00 metres, he came across a small glacial lake with something strange, visible in its clear water. The lake was full of human skeletons. He had discovered the now infamous lake Roopkund, the Skeleton Lake. The authorities feared the remains belong to a group of Japanese soldiers who tried to infiltrate British-controlled India. However, it turned out the roughly 500 skeletons were too old to be Japanese invaders. In the decades since, a variety of theories have tried to explain the mysterious origin of the bones. Some have said the remains were those of an ancient Indian army returning across the mountains from battle. Others have suggested an epidemic was responsible for the dead. An intense hailstorm has also been blamed. A popular local folk song tells the story of a disrespectful group of pilgrims travelling to the nearby Hindu shrine of the Mountain Godess Nanda Devi. Incense by their behaviour, the goddess is said to have hurled balls as hard as iron at the deviants. Some of the bones have signs of trauma consistent with being hit by a round object. No weapons were found, but bits of religious jewellery and clothing were. The skeletons were a mix of men, women and children in good health, meaning warfare and epidemic were unlikely. Thus, researchers concluded that the dead were probably pilgrims of South Asian origin that died in the 9th century. However, a recent DNA sample of 38 skeletons showed they came from three genetically distinct groups. 23 had ancestry related to people from present-day, India. One had Southeast Asian ancestry and most shockingly, 14 had Eastern Mediterranean origins. This could be explained by the existence of a Grecco-Indo kingdom in the area between the first and second centuries B.C.. However, carbon dating concluded that none of the bones are from this period. Those with South Asian ancestry date from a variety of different events between the seventh and 10th centuries, while those of Mediterranean origins date from one event in the 18th century. The differences in timing also suggest that the causes of death were likely

varied. It is possible that the lake was actually a makeshift graveyard, which would explain the diversity of the bones. Ultimately, there is still no conclusive evidence explaining how the skeletons of Roopkund came to be. Every year, with the arrival of spring, the frozen lake melts once again, revealing the bones but not the origin. For now, the mystery skeleton lake prevails.

284. The ancient story of the modern handshake

Why do we shake hands? How did it start? These days it's a sign of trust - but it didn't start out that way.

Made by Dayglow Media & Pencil & Pepper, 5 March 2019

NARRATOR: Why do we shake hands? We shake hands when we meet. Or seal a deal. It's a sign of trust. But the handshake may have its roots in mutual suspicion. It's thought that extending an empty right hand was a way for strangers to prove they were not holding a weapon. Romans, so it is said, grabbed each other's forearms to check that neither man had a knife hidden up his sleeve. Perhaps Julius Caesar, who we see here being assassinated, hadn't heard of this custom. The ancient Greek poet Homer made several references to clasping of hands in his work. And it shows up in art too, like this funeral stone, two and a half millennia old, which shows two Greek soldiers shaking hands. The shaking part of the gesture is believed to have originated amongst knights in medieval Europe, who would shake the hand of another to dislodge any hidden weapons. In the 17th century, it is thought that Quakers adopted the handclasp as a greeting because it felt more equal than a bow or tipping of one's heart. Here's early Quaker, William Penn, clasping hands with Tamanend, chief of the Delaware Indians. By the 1800s, etiquette manuals included handshaking techniques, suggesting that Victorians preferred a firm but not overly strong grip. Newspapers and photography multiplied images of handshakes between the great and the good. Soon it became the required photo op pose. Research suggests that handshakes allow us to pass chemical signals to one another and that people often sniff their own hands after shaking them with another person. It's a socially acceptable way to communicate via the sense of smell as well as passing on germs. Donald Trump, a self-confessed germophobe, has admitted in the past how much he hates shaking hands, describing it as 'barbaric'. While it is still ubiquitous around the world, there are suggestions the fist bump could be on the rise as a more hygienic alternative. After all that history we're still suspicious of each other.

285. The animation genius you've (probably) never heard of

We've all heard of Walt Disney. But what about Lotte Reiniger? Meet the unsung heroine of early animation.

Made by Infocandy, 10 January 2018

NARRATOR: This is Lotte Reiniger, the unsung heroine of early animation. This amazing woman pioneered early filming techniques in Germany, but her achievements remain largely unknown. As a child, Lottie was fascinated with silhouette puppetry. She cut a hole in her dining table, snipped perfect puppets out of paper and turned her house into an animation studio. She had a very distinct style on film and filmed the puppets having great adventures. Her early work got her accepted to an exclusive group of artists, where she met her future husband and creative partner Karl Koch. It was Lotte Reiniger, who invented the first multi plane camera in 1923. This groundbreaking filming technique involved layering sheets of glass underneath the camera to give the illusion of depth. She used her multiplying camera to create the first animated feature film in colour, *The Magical and Hypnotic Adventures of Prince Ahmet* in 1926. This innovative new technique was studied closely by Walt Disney. He then made a more sophisticated multiplying camera, which he patented as his own studio's invention. Disney released his first feature film, *Snow White and the Seven Dwarves*, in 1937, over a decade later. Due to the power and influence of Hollywood, it's widely believed that Snow White is the first animated feature. But it's not true. When Hitler and the Nazis took power in Germany, Lotte and her husband fled the country. They continued to make films with anti-fascist undertones dotting between different countries until their visas ran out when they were forced to return to Germany. She had to make films for the Nazis to survive. Eventually, when the war was finally over, Lotte settled in London. She loved animating fairy tales for children like this brilliant adaptation of Thumbelina. She spent the rest of her life making over 40 beautiful animated films. When Lotte Reiniger died in 1981, her genius was still little known. Overshadowed by the fame that Disney enjoyed. It seemed her achievements had been written out of history. But if you look carefully, many secret homages to her work can be found in modern films by people who know the truth.

286. The app fighting food waste

Strangers are sharing unwanted food in a bid to save money and reduce food waste.

Published on 2 June 2018

This video was made by BBC World Hacks

NARRATOR: Meet the millennials fighting food waste by sharing food.

POPPY: Nothing tonight. Okay. We'll see you next week.

N: Poppy trawls cafes in her north London neighbourhood like this, once a week.

CAFÉ OWNER: Three large loaves, a seeded bread and a focaccia is in there as well.

P: It's something to do that makes me feel connected with everyone around me, like the community that I live in. It makes me feel like I'm making a difference. I get 10 percent of it, or one portion out, which is why I started using Olio in the first place.

N: There are around a thousand so-called food waste heroes like Poppy using the Oleo app. They collect food that businesses would otherwise have thrown out. In the UK alone, seven million tons of food and drink are thrown away each year. Poppy takes the recovered food to her home, but it won't remain here for long. She uploads pictures of each item onto the Oleo food sharing app. Locals using the app can then request it for free and come and collect it. It attracts a wide variety of people.

P: Just finished school age people, through to like really old people, elderly persons. If I upload something really good, like fresh doughnuts or something like, it's literally like a matter of minutes.

N: If people like the food, they see they message Poppy and get her address.

SIOBHAN: Hi, are you Poppy?

P: Yes, you must be Siobhan, here you go, that's the loaf.

S: I'm quite an environmentally conscious and obviously food waste is a huge environmental problem. So I feel like this is like the little bit that you can do that makes a difference. Also it's really nice way to meet people and, like, feel like you're part of your local community.

N: People are also sharing food they've bought for themselves. If they no longer need it, they upload it. Polish student Gosia arrives to collect some unwanted ice cream.

GOSIA: I think it's really crucial to fight against food waste. Also, I'm a student, so this way I get the free food so I can spend five pounds a week for my groceries.

N: Olio is run from this London flat by a small team. The app is used in 32 countries. More than half a million items of food have been exchanged on the app in the last two and a half years. When the company surveyed its UK users, it found that one third fell under the UK government's definition of poverty. But for the system to work, a basic human fear has to be overcome. [*to Tessa*] Food is such a personal thing. Do you think people can really trust strangers to look after it?

TESSA COOK *Co-founder of Olio:* So food, you're right, food is a really personal thing. We have built into the Olio app all the same checks and measures you would expect from any other sharing economy. So users have profiles, they have user ratings. Any listing can be reported to us. But at the end of the day, it's up to you. You can choose to request the listings that you think look nice and from the people that you want to share with. And you don't have to if you don't want to.

N: People looking after the food also have to be happy, of course, letting strangers into their homes.

P: Unless they want to come and steal a lot of bagels, like I'm not really worried to be honest. Like, you know, I feel like, if anything, it means that I get to know the people in my community and I feel more secure.

287. The art of privacy in the digital age

How can you stop leaking information about yourself online? Advice from an ethical hacker and a former MI5 intelligence officer.

Published on 10 October 2019

SCOTT HELM: I think most people would be surprised at how much information they unknowingly give away online and how that can leave them vulnerable when people like me come along and collect all of that information.

ANNIE MACHON: It's incredibly easy to track anyone with any modern technology now. It's incredibly difficult for anyone to try and avoid detection. When I went on the run back in the 1990s, there was still just about a chance to do it, because it was very resource-intensive for either spies or corporations to track people who went on the run.

SH: I'm Scott Helm. I'm a cybersecurity researcher and an ethical hacker.

AM: I'm Annie Machon. I'm a former intelligence officer with MI5 UK domestic security service.

SH: So I think many people would be very surprised about what we can find out about them online. I met someone recently where we demonstrated this and with just their name and knowing the general area where they lived, we were able to narrow down their social media profile. We have things like the births, marriages and deaths register in the UK where we can look at your marriage certificate or your birth certificate. From there, we can see parents and spouses and we can start to spread out this net of information that we can gather about you from very simple resources.

AM: Social media over the last decade has become the spy's dream. Back in the 1990s. My job as an intelligence officer was to build up profiles and investigate targets, and that could take weeks trying to get a shape of someone's life, their contacts, where they work, their relationships, their views, their activities, their hobbies, everything. Now, of course, with social media, we just offer it all up for free, voluntarily.

SH: I think privacy has changed so dramatically in the last 10 years. If we go back 10 years, it would have been very difficult to gather information about someone very analogue, very off-line. We may have to collect pieces of paper or documents. And now in the digital world, it's a click of a finger and a search on the Internet. And we can have a lot of information about someone. Social is really easy, we can pick up Twitter, send a tweet. You know, my Internet has stopped working so I might tweet my Internet company or more recently, my water supply stops working and the water company will have status updates and people will comment on them. And we now know that all of these people are users of this company services. So, you know, if I wanted to impersonate them, I could call one of those individuals, if I had their number and say, hey, Sarah, you know, I'm from the water company. You know, just regarding your complaint, can we go through account security? Could you confirm

your postcode for me, please? And I'm then extracting more information using the original tweet as the leverage to get you to trust me.

AM: It's interesting to ask who might be spying on us. I mean, obviously, for someone who worked in the intelligence agencies, I think of espionage and spying and surveillance in a particular way, where you are given targets to investigate. First of all, yes, it might be the law enforcement intelligence agencies, depending on what you're getting up to. It could be political activism as simple as that. Two, it will definitely be the big social media corporations because we are their product. And the question is then to realistically say, 'Okay, what might be the threat to me personally? How can I best protect myself from those threats?' You don't have to be on the run from the government or from MI5, you might just want to be privacy smartphones are little spy phones in your pocket. Turn off your smartphone. Ideally, leave it at home.

SH: Another really good thing for people to look at is the privacy settings on applications on their smartphones. So maybe you don't want an application to be able to look through your photographs and you can go into the settings on your phone and disable these things. So go into your devices settings, have a look through those and just think, you know, this app doesn't need my microphone, so I'm just going to turn it off and make sure it can't listen to me. It doesn't need my location. I'm just going turn that off as well and just start to take a little bit more control over all of the information that you're sharing.

AM: One thing you can do, of course, is to invest in older technology, get an old burner phone that you might just use for phone calls, and that's it. Use an old laptop and then a whole suite of privacy software on that laptop as well.

SH: Another really great way of protecting yourself if you're travelling a lot using public Wi-Fi at an airport or a train station, they commonly ask for your first name and last name in order to log in. What you can do is give them a different first name and last name to log in and you will still be able to use the Wi-Fi network afterwards.

AM: This may sound a little paranoid, but when I was in Berlin a few years ago, at the height of the Snowden disclosures, if you went to parties you were expected to put your mobile phones in a tin of biscuit tin, which then went into the fridge to stop signals going in, coming out to stop the phone, snooping on you.

SH: I think it's really important that people make conscious decisions about the information that they share, because often when we share this information you can never guarantee to be able to take that back. If I send a tweet to a company and, you know, I want to make a complaint about their service, I may be able to delete that tweet later. But everyone's already seen that and knows that I had that interaction. So I'm making this conscious decision before I take those actions would help me prevent leaking that information later.

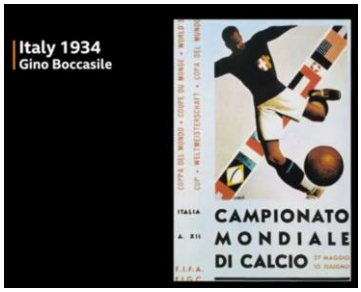
288. The best (and worst) World Cup posters

From fascist aesthetics to communist nostalgia, graphic artists Andrzej Klimowski and Jeff Willis discuss the most iconic World Cup posters.

Published on 14 June 2018

This video was made by BBC Archive

CAPTION: The World Cup is upon us. And with every tournament, there's an official poster. We spoke to two world renowned graphic artists at London's Royal College of Art and asked them what makes a good World Cup poster.



ANDRZEJ KLIMOWSKI: We both like this poster, don't we?

JEFF WILLIS: Yeah.

AK: We must admit that even though we're not fascists, we like some fascist design and fascist design in Italy and Germany were very similar. You know, they they elevated the strong athletic man, the worker.

JW: Yeah.

AK: And this Italian poster follows that aesthetic. Great composition, these kind of diagonals which form an X almost. And the elegant typography. It's very much of the 1930s.

JW: Yes. Yeah. It's very nice.

AK: This Argentinian one isn't bad.

JW: No.

AK: It's not brilliant. It's got a kind of documentary feel, I think, those dots are meant to sort of relate to . . .

JW: Process, isn't it.

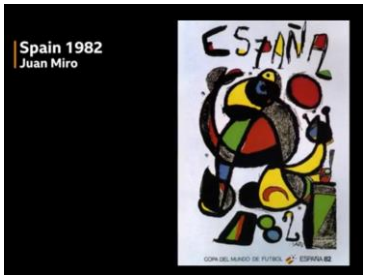
AK: . . . the half-dot screen of a newspaper blow up.

JW: And it's active. But it's very much about the Argentinean colours, isn't it?

AK: Those uplifted hands, they're kind of celebratory of a goal, but they also look as if he's been arrested. And that's kind of . . .

JW: (*laughs*) Yeah.

AK: . . . ironic because, of course, we know that Argentina was, at that time, a dictatorship that was ruled by generals.



JW: The Spain one of 82, is the one that is, for me, the standout one. It doesn't struggle with the clichés. It doesn't struggle to depict a football.

AK: It's just lively.

JW: It's just colour. It's got fizz, it's got energy in an abstract way. It makes you. It challenges. It makes you want to.

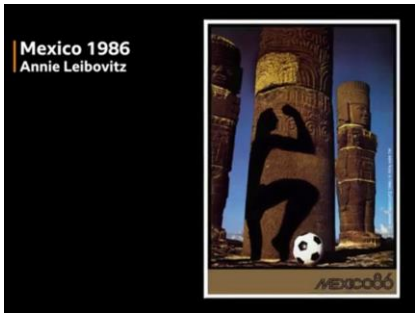
AK: And it's kind of festive as well.

JW: Yeah.

AK: It didn't really say football so much, but there was that energy that you get with playing football. So in a way, it kind of doesn't matter. It's a . . . it's a painting which arrests the eye.

JW: So that one gets a good . . .

AK: A good one.



AK: A missed opportunity.

JW: Yeah, I was more disappointed . . .

AK: . . . with the Annie Leibovitz one.

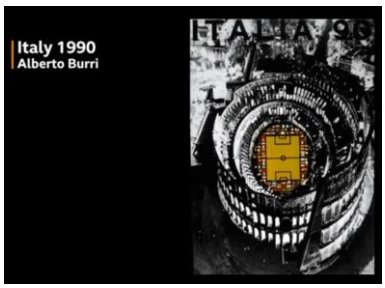
JW: She's an amazing photographer.

AK: (*speaking over*) A great photographer, yeah.

JW: But it just lacks graphic design sensibility, really.

AK: Yeah.

JW: It's a poster that lacks a focal point. Yeah, it's very odd. Very odd.



JW: The Italian one 1990, it was a good tournament.

AK: Yeah, yeah, very good tournament.

JW: But the poster looks like a dystopian future.

AK: Doom and Gloom.

JW: Yeah. Where the only life is round the football pitch in the middle, which is a conceptual approach, but typographically you can hardly read it.

AK: I must say, I like the Russian poster for the present World Cup. It's very dynamic. It's engaging. But having said that, it's very much a pastiche of . . . of the kind of style of posters that were being produced in the Soviet Union.

JW: Yeah, it's a poster that's got a kind of visual tension as well. I mean, those kind of lines moving towards the football and Russia on the map.

AK: Yeah, it's huge. Russia is the biggest country in the world, we can see.

JW: And it is Lev Yashin, isn't it?

AK: Yes, yes.

JW: The old . . .

AK: They had one of the best goalkeepers in football history, Lev Yashin.

JW: It becomes abstract again, with the circular motif, which is Green that represents, possibly, the pitch. So is it nostalgia?

AK: Certainly it's nostalgia, yeah.

289. The bikes you can rent and leave anywhere

An app launched in Shenzen, China, allows users to rent bikes and leave them wherever they please (within reason).

Published on 21 March 2017

This video was made by BBC World Hacks

CAPTION: Imagine you could take any bike in the city. Ride it and leave it anywhere no docking. Just ride. Start-ups in various Chinese cities have launched a bike sharing scheme, that allows users to rent and return a bike, anywhere they want.

VOX POP MALE: When we need to commute for a short distance and the traffic is buy, we would use this service or just walk, because it's convenient.

CAPTION: There are around 200,000 of these bikes in Shenzhen alone. And to use them you just need an app.

VOX POP FEMALE: First I open the app on my phone. And then I would scan the code on the bike and it just opens the lock automatically like this.

CAPTION: Once you are done with it, you lock it again. Several companies offer the service which can cost as little as $0.15 an hour. But there are problems, like people damaging or leaving bikes literally anywhere.

VOX POP MALE 2: I know that bikes get damaged very often. We should be more aware of this.

CAPTION: A small fishing village only 40 years ago, Shenzhen has become a mega city of around 20 million people. And while the car has been crucial in the city's development, the bike seems to be making a comeback.

290. The birth of beauty?

This mammoth ivory carving is one of the earliest known representations of the human face.

Published on 28 February 2018

Made by BBC Two

SIMON SCHAMA: La Dame de Brassempouy, the Lady of Brassempouy, found in a cave in southwest France in 1892. She's between 22 and 25 thousand years old. With this intensively carved female head, we have for the first time something immensely and movingly momentous. We have the revelation of the human face. It's a tiny thing. It can just go in the palm of your hand. This is exquisite. There are downward strokes and sideward strokes. There is carving and gouging and polishing and scraping. Every kind of extraordinary craft is applied to give this face what we have to say is its personality. One example, a dig is made below the forehead to suggest the presence of eyes. Those eyes are hauntingly vivid. They only become eyes when a shadow falls over that passage in the head, so that this little piece would have been turned into the light. And as it was turned into the light, the shadow would have fallen. And suddenly we have eyes as well as that beautiful nose and this extraordinary hair falling down the nape of the neck. Now, we are not supposed to say, us amateurs in this field, we're not supposed to talk about art. We're not supposed to talk about things like the birth of a refined sensibility. I'm going to that nonetheless, I don't care how anachronistic it is. With this tiny piece from Brassempouy, it seems to me that we have right in front of us the dawn of the idea of beauty.

291. The blueprint for world domination that spooked America

The BBC's Phil Tinline on an idea that has shaped world politics for more than a century. Part one of two. [Note, part 2 is: The Heartland Theory, Party 2]

Published on 7 February 2019

PHIL TINLINE: We used to live in a world that was dominated by America but governed by international agreements. But now that's breaking down.

DONALD TRUMP: We reject the ideology of globalism.

PT: The world's great states are asserting their power and making their own rules.

AIR TRAFFIC CONTROLLER: Philippine military aircraft! I'm warning you again. Leave immediately.

PT: And so who controls what territory matters more and more? Which means we're going to need to know about geopolitics. But what has all this got to do with this long dead Victorian geographer? You might not think it to look at him, but

Halford Mackinder came up with an idea that has helped shaped geopolitics for decades and is back at work again today. In 1904 in this building in London, Mackinder set out a new theory. He drew on geography and political history to argue that something had happened that could transform the world. Out at sea, Britain's Royal Navy ruled the waves, which was crucial to a small island with a huge empire, but Mackinder thought all this faced a new threat. He focussed in on what he called the Heartland of Euro-Asia. This began in the farmlands of European Russia and swept east for thousands of kilometres, all the way across the steps of Central Asia and onto the forests and plains of Siberia, all rich in untapped resources, timber and coal and minerals. Now that the railway was reaching right across this vast landscape, one great power could master this territory and its riches and the empire of the world, he wrote, would then be in sight. 15 years later, after the First World War, statesmen gathered at the Peace Conference at Versailles to redraw the world's borders, spread democracy and end war forever. But Mackinder thought that to do that, they had to face up to geographical reality. If not, he feared, they would leave the way open for Russia or Germany or both to dominate the Heartland and turn it into a huge military base. From there, that Heartland power could build an unbeatable fleet, defeat British sea power and finally dominate Eurasia plus Africa – what he lumped together as the world island. All that meant that Germany and Russia had to be kept apart. So now Mackinder rushed his theory out in a book called *Democratic Ideals and Reality*. He wrote that each statesman at the talks should have a cherub on his shoulder, whispering this warning: *Who rules East Europe commands the Heartland. Who rules the Heartland commands the World Island. Who rules the World Island commands the world.* No one listened, except in defeated Germany itself. In Munich, another geographer, a war veteran, called Karl Haushofer was devouring Mackinder's work. He feared and hated the victorious British Empire, which he saw as a world-strangling octopus. So Haushofer twisted Mackinder's Heartland Theory from a warning into a strategy. His humiliated country could form a grand alliance with Russia and Japan and hack at the tentacles of British sea power. This intrigued one Haushofer's students, another veteran called Rudolf Hess, who was a member of a new party, the National Socialists. In 1923, they tried to seize power. Hess went to jail and Haushofer travelled out to tutor him there and his fellow prisoner, the Nazi leader, Adolf Hitler. By 1933, the Nazis were in power.

NEWSREEL: The war of nerves moves a stage further.

PT: And then in 1939, the Nazi foreign minister and his Soviet opposite number shocked the world by signing a non-aggression pact. Haushofer was delighted. This, he thought, was the birth of the great German-Russian land power he'd dreamed of. Hot on the heels of the news about the pact. The New Statesman magazine published an article which claimed to show how the Nazis had taken their geopolitical plans via Haushofer from Mackinder. Whether or not this was really true, the idea that Mackinder had inspired the pact went viral in America. Life magazine ran a major story mapping out Mackinder's ideas for its readers, explaining how his concepts were being used by the Nazis and was something Americans needed to study. And the star foreign correspondent Dorothy Thompson of the New York Herald Tribune had been doing just that.

DOROTHY THOMPSON: They would have a land base of such proportions that they could rapidly outbuild all the rest of the earth seapower.

FROM 'PLAN FOR DESTRUCTION' 1943: We can easily close all the ports of this enormous World Island to the British fleet, one by one.

PT: And then Hollywood weighed in too. This short film dramatised Haushofer's meeting with Hess.

HESS (Dramatised): You should be associated with a man of action. A friend of mine, in fact, a man I would like very much for you to meet.

PT: It cast Haushofer as the evil genius, running a vast institute for geopolitics that was supposedly behind the Nazi's plan for destruction.

FROM 'PLAN FOR DESTRUCTION' 1943:

With unlimited funds at his disposal, Haushofer presently had over a thousand employees responsible only to Adolf Hitler.

PT: Haushofer actually fell out with Hitler in 1938.

FROM 'WHY WE FIGHT: THE NAZIS STRIKE, 1943: Hitler's step by step plan for world conquest can be summarised this way, conquer Eastern Europe and dominate the Heartland.

PT: And in this propaganda film produced by the great director Frank Capra, Mackinder's geopolitics become the whole basis of Nazi aggression.

FROM 'WHY WE FIGHT: THE NAZIS STRIKE, 1943: Conquer the World Island and dominate the world. That was a dream in Hitler's mind, as he stood at Nuremberg.

FROM 'HITLER'S CHILDREN' 1943: This is a real opportunity for you. Not every girl is invited to study geopolitics at the university.

PT: By this time in America, geopolitics had become another word for Germanic fanaticism. This movie attacking Nazi indoctrination of teenagers was a huge hit. Our German-American heroine is trapped in the Reich. And what finally drives her to denounce Naziism? Being offered training in geopolitics?

FROM 'HITLER'S CHILDREN' 1943: And fortunately, Dr. Graf, I must decline the honour.

FROM 'HITLER'S CHILDREN' 1943: What did you say?

FROM 'HITLER'S CHILDREN' 1943: I said I don't want any part of the diseased new world you're planning for mankind.

PT: In 1947, Mackinder died, but his ideas lived on and still play out in the world even now. Find out how in part 2.

292. The child who tried to save the world... in 1992.

In 1992, when she was just 12, Severn Cullis-Suzuki warned the world about the environmental crisis. Here she tells her story.

Animated by Peter Caires, 9 January 2020

SEVERN CULLIS-SUZUKI: In 1992, I was 12 years old, and I had the opportunity to speak to the United Nations plenary session of the Earth Summit in Rio de Janeiro. I remember that moment very clearly. I think it's burned into my memory. I remember just such a clear sense of purpose. I knew exactly why I was there. I knew exactly what I had to say. And I knew that I could talk directly to them. I knew what I was there to do. "Coming up here today, I have no hidden agenda. I am fighting for my future." If you look at the video, you can tell how focused everyone was. People were really moved, even the security guards were really paying attention. So it was amazing. "Losing my future is not like losing an election or a few points on the stock market. I am here to speak for all generations to come. In my life, I have dreamt of seeing the great herds of wild animals, jungles and rainforests full of birds and butterflies. But now I wonder if they will even exist for my children to see. Did you have to worry of these things when you were my age?" In this last spike of media attention that I've received, I have constantly been compared and asked to reflect on Greta Thunberg, which is a huge honour for me. I think she's just this incredible young warrior, she's just taking it on, on this whole other level because she's a child of the 21st Century. And so the way she's using her Instagram, the way she has really catalysed a movement - I think is totally incredible and it's really specific to her moment and who she is at this time. But I also really always am kind of taken aback, because there have been so many youth activists before me, after me, before Greta, and who will continue to come up. Young people are always the people calling for social revolution, historically. Adults have been beaten down, "Well, we know that actually if we wanted to create change, well we'd have to do this, that and the other." There's so many reasons that we know of why things can't change. Those take us away from thinking about the bigger picture. And that's what youth have to offer. All they see is possibility. And right now with this huge, colossal existential challenge that humanity has, we have to harness that attitude of possible rather than impossible. "I'm only a child and I don't have all the solutions. But I want you to realise, neither do you. If you don't know how to fix it, please stop breaking it." Back in 1992, climate change was on the horizon and it was identified as going to happen - but it was on the horizon. And today, it is here. Climate change, I think, is the most quintessential example of intergenerational crime or intergenerational injustice that we have. If we don't end pumping tonnes of carbon into the atmosphere we will have in a very short order a planet that is not habitable, or not habitable to comfortable human life. So we have to essentially, everyone all hands on deck, focus on how we can, in our own sphere of influence, in our own skill set, in our own industry, we have to become experts for how to get off carbon. And luckily, we have all the answers. Now we just have to do it and we have to do it now. My favourite line of the speech. which I believe can sum up the entire speech, is in the last sentences or in the last sentence, which is simply... "I challenge you, please, make your actions reflect your words." "Thank you." "I ask you to make your actions

reflect your words." And that really sums up what I think the young people today are, and in past times, are asking of our older generations in power. Young people are simply asking adults to be who they say they are and to make their actions reflect their words.

293. The children who could predict the future (kind of...)

In 1966, a group of children was asked if they could predict what the world would be like in the year 2000. Their answers were uncanny...

Published on 10 January 2018

This video was made by BBC Archive

GIRL: I think it's going to be pretty boring.

GIRL 2: I think it will be very dull.

G: I don't think it will be so nice.

CAPTION: In 1966, a group of schoolchildren in London was asked to predict what life would be like in the year 2000. The children showed vivid imaginations.

G2: There'll be so many people that have to have an overflow into the sea. And so there'll be houses underneath the sea and houses above the sea.

BOY: I think it'll be people will be regarded more statistics than actual people.

CAPTION: Some predications were pretty accurate.

GIRL 3: People can't live . . . wouldn't be able to live in ordinary houses, because that would take up too much room. It'd have to be flats, piled on top of one another. Everything would cramped up, very cramped.

GIRL 4: First of all, these computers are taking over now computers and automation. Other people are just not going to have jobs, there just aren't going to be jobs for them to have.

BOY 2: Animals as they have here, sheep and cows and livestock, but they'll be kept in batteries. They won't be allowed to graze on pastures, they'll be kept in buildings all together, all in one big building and artificially reared, so they'll be bigger and give more food.

CAPTION: The spectre of the Cold War was never far away.

BOY 3: All these atomic bombs will be dropping round the place.

G4: There's just nothing we can do to stop it. The more people get bombs, the more . . . well, somebody's going to use it one day.

BOY 4: Someone mad will get the atomic bomb and just blow the world into oblivion.

CAPTION: Not all of the children were convinced nuclear annihilation was inevitable.

BOY 5: I don't think there is going to be atomic warfare.

CAPTION: But . . .

B5: I think there is going to be all this automation. People are going to be out of work and a great population. And I think something has to be done about it, to do something about the population problem. Try and try and sort of temper it somehow. I don't know how.

CAPTION: The children's thoughts may not all have been sweetness and light. But perhaps every generation feels the same.

GIRL 5: I'm not looking forward to living in that year, about 50 years' time. I mean, the world seems to be in such a terrible state now, let alone in 50 years' time.

CAPTION: So really, what's there to worry about for the next 50 years?

294. The country making sure women aren't underpaid

Iceland is on a mission to eradicate the gender pay gap by ranking jobs, ensuring that those with matching scores are paid the same.

Published on 6 October 2017

This video was made by BBC World Hacks

NARRATOR: Last year, women across Iceland left work at 2:38pm and took to the streets. They were protesting against the gender pay gap. Women there earn, on average, nearly 30 percent less than men. So they took 30 percent off their day and left work early. But now that could all change as Iceland has become the first place in the world to force companies to give out equal pay by law. The gender pay gap is a global problem. On average, around the world, women are paid just over half as much as men. There are lots of reasons for this. Women often do jobs that are less well paid, such as teaching or caring for the elderly. They may work part time or take time off to have children. But even when they're doing similar jobs, men still get paid more. This is true even in Iceland, which is ranked as the best place in the world for gender equality. Here, men doing similar jobs for the same hours take home almost six percent more money. So the government has brought in a set of guidelines called the Equal Pay Standard. This is how it works. Every job within a company is analysed. The bosses calculate how demanding and valuable each role is by looking at things like education, physical strain, mental stress, responsibility. And each job then has a score. If there are two people doing jobs with the same score, but not the same pay, then the employer has got to fix this, usually by giving the lower paid one a pay rise.

So does this raise women's pay to match men's? It's been piloted at Iceland's Customs Office. Audur is a statistics analyst and Gudmundur is a legal adviser. Audur was being paid less than Gudmundur. Then they did the review. It found that their different jobs were of equal value to the company. So Audur got a pay rise to match Gudmundur.

AUDUR: In my case, a man would have probably . . . he would have noticed it sooner. He maybe he would have been more aware of his wages. I was just kind of happy. It paid all my bills.

GUDMUNDUR: People were pleased. This is the way it should be done. We should be paid equally.

N: In all, 10 percent of staff at the Customs Office received a pay rise. Most of them were women, but one percent were men.

UNNUR KRISTJANDOTTIR: We have generally a more happy workforce knowing that their salary system is something that they can trust and in our recruitment process it's going to help us a lot as well, because now we are an employer and have a certification that we're paying equal wages for equal jobs.

N: From January, the government will force companies to implement the Equal Pay Standard. If they reduce their gender pay gap they can have this nice logo. But companies that don't will be fined. Not everyone is happy. Some Icelanders think by making it mandatory, it's going to create layers of bureaucracy. And while it won't end the gender pay gap entirely, more men still do better paid jobs, Audur thinks the Standard is a big step forward.

AUDUR: This is a really good tool to use because then you have transparency and you have paperwork. They can't say, 'I'm just going to pay this man this much and I'm going to pay this woman a little bit less and expect them to do the same job.'

295. The curious era of death photography

An insight into the Victorian practice of memento mori, where loved ones were photographed soon after death as a tribute to their life.

This video was made by Boom Cymru 11 May 2018

CAPTION: This film contains images that some viewers may find upsetting.

CAPTION: The Victorian era was full of trends that seem ghoulish to modern sensibilities, but made perfect sense at the time, like taking photos of a loved one, just after their death. The practice was called 'Memento Mori' which is Latin for, 'Remember, you must die.'

PROFESSOR EDWARD HIGGS *Historian, University of Essex*: Death is ever present in the Victorian period. To cope with it, people needed momentos, not so much of death, but of their loved ones in a state of repose, In a sense it's an attempt to keep the dead in the present world. They took photographs which gave the illusion that their loved ones were still alive. Perhaps sleeping. And this is a way of coping with the inevitability of one's own mortality.

CAPTION: In the 1850s photography became more affordable. People began to commission photographs of their families. Including portraits of the recently deceased. These were usually taken within around 24 hours of death.

DR KELLEY WILDER *Director, Photographic History Research Centre*: Post-mortem photography extended from the very beginnings of photography. We know that the first post-mortem photographs were taken in the 1840s and the taking of post-mortem photographs went right up until the First World War. You have to remember that photography is very seasonal. If there isn't a lot of light, you do less photography. In the winter, you have less business. And necessarily photographers would take on sideline jobs and/or jobs that would pay a little bit better if there were fewer jobs going. One of those that would be fairly consistent, you can imagine, would be the photography of deceased individuals.

EH: Many photographers themselves found the whole business very distasteful. But on the other hand, people felt in a sense that they were recognising the importance of their loved ones.

CAPTION: Queen Victoria kept a photo of Prince Albert – taken soon after his death – over her bed for decades.

EH: In some ways, it's quite a normal natural thing, and there's a whole culture of death, of course, in the late Victorian period, extensive mourning carriages, monuments and the like. So death is ever-present, but also it's present in life as well as something that's put aside. I think that photographs like this are used to keep a person alive in the present day. We see this, of course, in stamps, which have the faces of Princess Diana, or if you go to Iran, huge, great portraits of Khomeini. They're there to allow us to think that these people are still there.

KW: In the last two decades of the 19th century, we had two things that became more prevalent. One was the rise of personal photography and more and more people owning cameras. People were able to photograph themselves, their children, their family life much more often. And you had many more photographs of living people. Also, we had many more photographs taken by soldiers and journalists going into war zones. Many soldiers took their own cameras into combat zones, and those kinds of photographs came back with much more frequency. And these two combined to effectively kill off the wish to have post-mortem photography, or the idea that this was a good likeness of someone.

EH: I don't think people in modern Britain would take to it very well. Of course, it all depends on the individuals. But there's a great fear, I think, of death and an

unfamiliarity with death today. That's why people like to go to the cinema, to be frightened by zombies.

CAPTION: Although it may seem shocking to modern day sensibilities these photographs were a tribute – a way of honouring the dead and keeping their memory alive. Momento Mori: remember, you must die.

296. The curious origin of the high heel

High-heeled shoes weren't always worn by women – the very first heels were actually designed as military footwear.

Published on 5 November 2019

Based on a series from Radio 4

HEATHER MORGAN, SOCIAL SCIENTIST: The first high heel ever was a piece of military footwear.

CAPTION: THE ORIGIN OF THE HIGH HEEL

GREG JENNER, HISTORIAN: People in West Asia had been tremendous horse riders, and that's how they fought, they rode in the saddle and they stood up to shoot their bows and that meant you need a heel to keep you in the stirrups, nice and stable. The Shah of Persia, he's called Abbas the First, he sends off some emissaries into Europe and they turn up wearing high heels and everyone goes... "Oooohhh... Oooohhh..." ...so suddenly this military clothing becomes adopted in Europe.

CAPTION: Men wanted to wear heels to emulate the strength of the Persians. and Queen Elizabeth I started wearing them to appear more manly.

GJ: But it's a little bit later on, in the early 1600s, that we start to see heels coming in, and it starts with the blokes, it's for being manly and butch. But what happens quite quickly is women start to emulate male fashion, and part of that is they start wearing men's shoes. The real big moment is when Louis XIV of France starts wearing heels, because he's quite a small man, and he famously has red heels - that Louboutin mirrored later on in the 20th Century. Suddenly everyone at the court is wearing heels. Heels go through a bit of an up and down history and the 1700s, philosophers are talking about the rationalism of men, by contrast, women are said to be emotional and sentimental and can't be trusted to do important things like think. And so men are being advised to wear rational shoes and high heels are not rational. The 1860s, this is when women's heels start to become sexy. We have photography, a brand new technology, and quite often in pornography of this period, you're seeing women still wearing their boots, their shoes with the heels on, so it becomes erotic.

CAPTION: This trend develops with pin-up girls wearing heels during World War II, and with the invention of the stiletto heel in the 1950s.

GJ: Hollywood had a huge influence on the rise of heels as the symbol of sexiness. In the 1950s, Marilyn Monroe famously quoted, I can't think of the exact words but she said you know... "We owe the man who invented high heels so much..." she was speaking on behalf of women. For Monroe, who was about glamour and beauty and sexiness, she felt that that was an asset.

CAPTION: The power of a heel. Research shows that high heels can make a person appear more attractive. Lewis et al. 2007.

HM: People can tell whether women are wearing high heels without actually seeing their feet, so it is that posture, change in the gait. But a more recent study has shown that actually it's changing the shape of the spine that is actually the attractive thing.

CAPTION: How do heels affect your health?

HM: We looked at all the research on high heels and they are not healthy, there was increased risk of musculoskeletal conditions, bunions and pain.

CAPTION: The higher the heel, the more it forces the body into an unnatural posture to maintain its centre of gravity. this can significantly increase back pain. [Pennsylvania state university, 2001] Are they here to stay? Celebrities are certainly still fond of a towering high heel, but in 2016 for the first time more women bought trainers than heels in the UK. [Mintel, 2016]

HM: I think they're too iconic and too much a part of aesthetics and imagery and history and power and sex to ever go away, and I think they'll always be there. "I'd rather go through quite a lot of pain and wear them and look nice, and suffer for it, I think." "I'm crazy about fashion, I think we all are. And I think any smart woman would go on wearing them, irrespective of what the consequences are."

297. The curious world of blood

Did you know your blood travels 20,000 km in your veins every day? This and other fascinating facts about blood from author Rose George.

Published on 11 March 2019

Made in association with Being Human festival

ROSE GEORGE: My name is Rose George and I am an author and journalist and I am fascinated by blood, and here's why. We are stardust in sea water. The iron in our blood comes from the death of supernovas like all iron on our planet. And it contains salt and water like the oceans we came from. The circulatory system of veins, arteries and capillaries is about a hundred thousand kilometres long, twice the circumference of the earth. Most of that is the capillaries, tiny blood vessels and holloways that reach nearly every cell in the body. You may know that your blood is A, B, O or a AB, but there are other types you may not have heard of, including Duffy, Kid, Okay and the epically named Landsteiner-Weiner. Animals have blood types too.

Dogs have eight. Cats have three. When humans first tried to transfer blood between bodies, they used the blood of a lamb and a calf. Now we stick to a carefully chosen human blood. Blood transfusion is so common, every three seconds worldwide, someone receives a stranger's blood. We don't have the same supply sloshing around our veins all our lives, our blood is in a constant state of decay and renewal. Red blood cells live in our body for about 143 days. Decanted into a blood bag, they have a shelf life of between 35 and 49 nine days. Blood last longer than milk, but not as long as cheese. In a resting human, the heart pumps a litre of blood every 10 seconds and it beats on average 75 times a minute. A blue whales heart, the size of a small car, beats five times a minute and less on deep dives. A shrew's: a thousand times a minute. The average human contains eight to 12 pints of blood but can usually survive, losing up to 40 percent. After that point, the organs begin to shut down because they are not being fed oxygen by blood. Blood has always been thought powerful. The mythical figure of Medusa symbolised human fear and awe of blood. Blood from the right side of her body was fatal, while that from the left side could restore a life. We may not believe in Greek myth anymore. But the force of blood remains in language. Blood brothers, blood feud, bloodlines. Blood is essential for human life, but there is still plenty we don't know about this exceptional substance. Scientists can now grow red blood cells in the lab, but they are extremely expensive. For now, the only way to get this life saving, life enhancing liquid is out of the goodness of someone's heart and the veins in their arm.

298. The dangers of idolising successful people

Trying to emulate very successful people can be perilous - and it comes down to something called survivorship bias.

Made by Brendan Miller, 6 April 2020

Made by BBC Reel

NARRATOR: We love successful people and we love trying to learn from and copy them to try and understand the qualities that fuelled their success. Steve Jobs, for example, many of his biographies highlight his passionate temper as being one of the factors in Apple's success. Or take Bill Gates and Mark Zuckerberg, neither of whom finished university – a fact that has attracted a lot of admiration in the media, but trying to learn from and copy the successful can be dangerous. And it comes down to something called survivorship bias. One of the most famous examples of survivorship bias in action was during World War Two, when a statistician named Abraham Wald was asked to study how best to protect aeroplanes from being shot down. At first, the approach of his research group has been to look at the planes coming back, see where they were hit the worst, and then reinforce those areas. Walter, however, realised this approach missed the valuable part of the picture. The planes that were hit but that hadn't made it back. The planes they were looking at were just the survivors. The bullet holes they were looking at actually indicated the areas a plane could be hit and keep flying. These were exactly the areas that *didn't* need reinforcing. In other words, if you don't want to be misled by survivorship bias, you

have to look at the whole picture. Survivorship bias can turn up in lots of places. A gym will share examples of people who have successfully changed their body shape in a short amount of time, but won't discuss with the other people who keep up along the way. Or, a 40 year old car that's still running will have people saying, 'They don't make them like they used to', ignoring all the other cares from that period that broke down and had to be scrapped. Even in science, there's currently a worry about how journals prefer to publish studies with significant results, with studies that fizzled out or showed insignificant results left unpublished. The result in all these examples is a skewed picture of the world. And it's the same with the examples we were looking at earlier. If you only look at people like Gates and Zuckerberg when it comes to higher education, you're ignoring all the other people that didn't go to university. And the data, if you include them, show that average earnings for this group are lower. While you don't have to finish university to earn a lot, if you look at the whole picture, it's clear it does help. And what about those entrepreneurs with a temper that didn't succeed? It's the same with all the remarkable qualities successful people tend to talk about, without looking at all the others who took big risks or had the courage to ignore conventional advice, we don't know if these qualities help or, another option, they're relevant and the success of the people you're looking at is the result of other factors or just dumb luck. In his 2012 book, Michael Mauboussin describes a man inspired by a succession of dreams to believe he'd win the Spanish lottery if he could purchase a ticket number whose last two digits were 48. After getting hold of such a ticket, amazingly it turned out to be a winner. Later, when an interviewer asked why he'd picked that number, he said, 'I dreamed of the number seven for seven straight nights and sometimes seven is 48'. Maybe success can be helped by a temper. Maybe a lack of higher education can give you an advantage. Maybe innumerate dreaming can make you rich. But until you consider the whole picture, you might want to think twice before trying to learn from the successful.

299. The dark history of the bunny ears sign

The bunny ears gesture dates back to medieval times - but back then it was a pretty serious matter.

Made by Dayglow Media & Pencil & Pepper, 22 August 2018

NARRATOR: Bunny ears, the classic photo bomb pose of two fingers stretched out like rabbits ears behind another person's head has been a popular prank for decades, but it has a darker history. Also known as cuckold's horns, it goes back to the Middle Ages, where the gesture was used to mock and shame a man whose wife had cheated on him. Cuckolds were sometimes made to wear antlers on their heads. It's also said the gesture symbolised ass's ears a common insult in mediaeval times. The word cuckold comes from the French word for cuckoo, a reference to that bird's habit of laying its eggs in another bird's nest. The cuckold was a figure of fun in the works of Chaucer and Shakespeare, and he was still being mocked, even in Victorian times. We don't know who the first person was to make the bunny ears joke in a photo. Perhaps it began around the 1950s when people started taking photos of

friends and family. But in any case, the idea caught on and spread. In Italy, the gesture is made using the index and little finger and is known as the Devil's Horn. But the effect is the same. Now it's a common feature of selfie culture around the world. But watch out because you could be the bunny.

300. The dark side of children's author Roald Dahl

Comedian Russell Kane shares a side of author Roald Dahl you might not have been aware of.
Published on 12 February 2020

RUSSELL KANE: Think of an author you really love and then imagine they're a total git. There's no denying it, Roald Dahl was one of the most beloved and popular children's writers of all time.

CAPTION: Charlie & The Chocolate Factory, The BFG, Matilda

RK: These books and their film adaptations have been loved by generations. He was also a great short story writer for adults who remembers Tales of the Unexpected and it's TV adaptation? But, and there are two massive buts, and when I'm talking about icons from history, I like big buts and I cannot lie. Was he also a domineering bully and a misogynist? Two labels you wouldn't want on your Tinder profile. He once published a series of stories in Playboy with sadistic and misogynistic themes, including one which ends with a gynaecologist raping the love of his youth. He began to dominate his wife after her illness, making her give a press conference where she vowed to return to work as an actress within a year. He was also a prolific philanderer and had a series of affairs and eventually divorced his wife Patricia to marry Felicity Crosland. Oh, and I forgot, he was an anti-Semite. According to his biographer, Jeremy Treglown, Roald Dahl was out having dinner at the Curzon House club when he started loudly complaining about the number of Jews that were present. He was subsequently deprived of his membership. Does the good outweigh the bad on Roald Dahl? Was he evil or was he a genius? You decide.

301. The day cyclists rule the roads

Roads in Santiago are closed to motor traffic once a week to allow people to ride their bikes freely.

Published on 31 May 2017

This video was made by BBC World Hacks

CAPTION: Santiago, Chile, where cars rule the roads. Well, most of the time. Meet the man taking cars off the streets, replacing them with bikes.

GONZALO STIERLING AGUAYO *Director CIclo Recreo Via Santiago*. [*gives name and title*]

CAPTION: Every Sunday until 2pm many roads are closed to motorised traffic, creating a 40km cycle path through the city. Gonzalo and his wife founded the scheme 11 years ago. Now, 40,000 people take part every Sunday.

MALE CYCLIST: As you can see, it makes a great contribution to the city. You see families, kids, people doing exercise. It's totally positive for the city.

FEMALE CYCLIST: It's about making the most of our free time, our time off work coming to a different neighbourhood and having fun.

CAPTION: For Gonzalo it's about bringing people together.

GSA: There aren't enough places for families to go out where people can do exercise. Where neighbours can get to know each other. So every time a new street opens up for this project, it's full of people.

CAPTION: 7 boroughs are currently participating. Including Parque Metropolitano. The largest urban park in South America. Gonzalo got the idea from a similar project in Colombia. The concept spread across Latin America. Now cities in Mexico, Venezuela, Ecuador, Peru, Chile have their own versions. But it's been an uphill struggle. The Chilean version receive no public funding. They rely on corporate sponsors to keep it running. What do drivers think?

DRIVER: It's a good thing since it's about doing sport. But when cyclists leave the area they've been allocated and do things like riding without using their hands, as if all the streets belong to them, I'm against that.

CAPTION: Now Gonzalo is focused on expanding the scheme to include more roads.

GSA: There's a long way to go before we cover Santiago, but that's the idea, that someone can grab their bike, go running or skating and go from the very south of the city to the very north. Thinking even bigger, we hope it can have an effect on weekdays too and not just in terms of recreation but transport as well.

CAPTION: But until then, see you next Sunday.

302. The devious art of disinformation

Phil Tinline explores the history of disinformation - and examines techniques that are back in use today. Based on a Radio 4 documentary.

Published on 18 July 2018

PHIL TINLINE: Why has fake news or disinformation become such a live issue today? After the Iraq War in 2003, public trust was already shaky. And since the 2008

financial crash, old political certainties have fallen apart. New technologies have made information a free for all. Some worry it's harder to know what to believe. So this is a great time for a new war on truth. But we've been here before.

UNNAMED MALE (*Archive*) The KGB gets assignments to do disinformation.

PT: So what can the past tell us about old disinformation techniques that are back in use today?

CAPTION: Muddy the atmosphere.

POLICEMAN: Gentlemen, can you press away from the front of the premises, please?

PT: Disinformation doesn't always have to tell convincing lies. Sometimes it's enough to cause confusion. In 2006, former Russian spy Alexander Litvinenko was poisoned in a London sushi bar and the then British ambassador to Moscow encountered a striking technique.

SIR TONY BRENTON *UK Ambassador to Russia, 2004-2008*: Once we made the accusation, what we got was denial. But following denial, a whole spate of false stories. It was the British intelligence. It was Berezovsky. He committed . . . absurdities, but enough to muddy the atmosphere quite a lot.

PT: Brenton was speaking after news broke of the poisoning in Salisbury of another former Russian spy, Sergei Skripal.

TB: And I would expect if we come to make the accusation against the Russians, we will get exactly the same.

PT: And so in the wake of the British government accusing Russia of the Skripal attack, claims began to appear that the accusation was to make Russia look bad or to spoil the World Cup or to divert attention from Brexit or that Ukraine did it or Sweden or MI6. Or it was to interfere with the Russian elections or it was the lab at Porton Down, or it was to distract from Russian peacekeeping in Syria. Or the Skripals weren't poisoned at all.

CAPTION: The germ of truth.

PT: If you do want your disinformation to convince people, it's always pay to base it on a germ of truth, in 1924, many in the British establishment were aghast at the arrival of the first Labour government led by Ramsay MacDonald. Labour, they feared, was getting too close to Russia's new revolutionary government. If workers rebelled, there was always the army. But what if, as in Russia, the army rebelled? Then, amid a general election campaign, a letter came to light from the leading Bolshevik, Grigory Zinoviev, pushing British communists to recruit revolutionary cells in the Army. The letter was a forgery, but Zinoviev did want to stir up revolution abroad. And that was the germ of truth that made it convincing. And so, assured by MI6 that it was real, the papers gleefully ran with it. Labour held up. But a Liberal collapse swept Stanley Baldwin's Tories back to power. And fully 75 years later, the former Labour leader, Michael Foot, still blamed the media.

MICHAEL FOOT: I heard Ramsay MacDonald speak in Reading Town Hall. He denounced it all as a fraud, and a trick of the worst kind. And the way the Tories had scrambled back to power on it was a terrible defeat inflicted upon the party in quite false ways.

PT: But the germ of truth technique remained in use. In the 1980s, the Soviets spread rumours that the AIDS virus had been deliberately created in this American army base.

HORIZON 'AIDS – A STRANGE AND DEADLY VIRUS' *BBC, 1986*: US Army Fort Detrick, once renowned for its biological warfare experiments.

PT: To some, the base's history and the CIA's real record of subversion in the Third World made the KGB's disinformation all too plausible.

HORIZON: Today, more AIDS virus is produced here than anywhere else in the world, but it's being grown for an entirely peaceful purpose.

PT: The Fort Detrick scientists were working to combat AIDS, but the KGB disinformation that they'd started it ran for years.

CAPTION: The Truth.

PT: If you dare, you can go further and turn the truth right back against itself. In the 1930s, Stalin, all-powerful but paranoid, felt his rival old revolutionaries like Zinoviev and Karl Radek threatening his position. He wanted to destroy them, so he had them put on trial for conspiring to destroy him.

FILM, MISSION TO MOSCOW *1943*: Citizen Radek, take the stand.

PT: The show trials were a vicious form of theatre, stage managed and rehearsed to be as convincing as possible. And a little later, this was helped by Hollywood, which made the show trials the centrepiece of a movie.

MISSION TO MOSCOW: Our eventual aim was to take over the government of the Soviet Union.

PT: Mission to Moscow presented these confessions as true and freely given. But backstage in Stalin's jails, defendants like Zinoviev were subjected to terrible pressure to coerce them into admitting to fabricated charges. But why was Hollywood doing all this? The movie was made at the request of US President Roosevelt as a kindness to Stalin, his wartime ally. It was based on a book by the president's former ambassador to Moscow, Joseph Davis, one of many Westerners who couldn't believe that the Stalin regime was the real killer and the defendants were actually the victims.

MISSION TO MOSCOW: In the meantime, our newspapers are going crazy. We can't send them a line.

The way they're inventing it, you don't need to worry. Maybe when the truth comes out, you'll find it stranger than fiction.

PT: Davis is willing to give the Moscow leadership the benefit of the doubt, while dismissing the sceptical American press as fake news. An approach that might sound familiar. (Footage of Donald Trump at a rally) These techniques are not only available to totalitarians. President Trump was democratically elected and in no way is a murderous tyrant. But he, too, has form for reversing the truth.

DONALD TRUMP: If the media's job is to be honest and tell the truth, then I think we would all agree, the media deserves a very, very big, fat failing grade.

PT: Faced with media accusations that he was spreading fake news, he neatly turned this back against his accusers and even claimed he invented the term.

DT: You know, we call it the fake news. Not all of them. Do you notice now they're using . . . everybody's using the word fake news. Where did you hear it first, folks?

CAPTION: The Big Lie.

PT: Shameless audacity dismays and disorientates. It's a disinformation strategy in itself. Hitler maintained that a big lie always carries more credibility with the masses than a small one.

CAPTION: It would never come into their heads to fabricate colossal untruths, and they would never believe that others could have the impudence to distort the truth so impudently. *Adolf Hitler, Mein Kampf*

PT: Hitler was a master of the big lie. And yet, reversing the truth, he blamed it on the Jews. Just as Hitler's propaganda minister, Joseph Goebbels, ranted against the supposed international conspiracy of Jews and Bolsheviks. This all chimed with the Nazis malignant fantasy, a big lie that would have terrible consequences: that there was a Jewish plot to conquer the world. And when Hitler started the Second World War, guess who he blamed? As the war began to turn against them, Goebbels's secret weekly directive to Nazi writers and speakers on politics gave them the line to take.

CAPTION: Jewry is firmly decided to exterminate all Germans. International law and international custom will be no protection against the Jewish will for total annihilation. *German Weekly Service, 5 February 1943*

PT: And so the big lie and the reversal of truth were combined to help make that malignant fantasy of oppression all too horribly real. There had never been the slightest threat of Jews exterminating Germans. But all the while, the Germans were exterminating the Jews. No one today has descended to those depths, though the big lie remains popular and effective. But why does today's disinformation matter? Because if you can corrode trust in information, you can scramble the circuits that democracy depends on. That's why the great disinformation innovators were so often dictators.

303. The doctor who pioneered water births

In the 1970s, obstetrician Dr Michel Odent helped bring about a revolution in how women give birth - using water.

Published on 1 August 2017

This video was made by BBC World Service

DR MICHEL ODENT: There is something special about the relationship between human beings and water.

MALE DOCUMENTARY NARRATOR *Archive*: As soon as it's lifted into the air, its lungs start to work normally. Dr Michel Odent, obstetrician. This is his maternity unit run, according to his deeply felt beliefs about women and natural childbirth.

MO (*Archive*): The right place to give birth would be the right place to make love.

MO: When I arrived in Pithiviers in 1962, the way women were giving birth was the same as in any hospital on a table with legs in stirrups. It was (*laughs*) But gradually, gradually we reconsidered everything. We have introduced the concept of home-like birthing room, a small room with no visible medical equipment to help women to feel more at home in the hospital at a time when they still have the . . . the vision of hospital, a place where you come when you are sick or to . . . to die.

MDN: 1 AM and a young couple have driven 150 miles to have their first baby here, in an ordinary state hospital in northern France.

MO: By changing the environment, we have attracted more women to our maternity unit, women coming from far away. And that's why I became an obstetrician from 200 births a year to 1,000 births a year.

FEMALE DOCUMENTARY NARRATOR *Archive*: A pool to help mothers ease the pain of labour. Babies are occasionally born underwater.

MO: We have painted the walls of the aquatic birthing room in blue. Dolphins on the wall. Many women in labour could not wait, they wanted to enter the birthing pool before it was full. They could not wait. The main objective was to break a vicious circle by replacing . . . replacing drug. As all medication, all drugs have side effects.

MDN: After being in the womb in warm fluid for nine months, the baby emerges happily into the warm water with its life support system from the mother still intact.

MO: I remember the visit we had with this British obstetrician.

FDN: What do you think thin of the pool, Mr Loeffler?

MR LOEFFLER: Well, I don't think we'd have room for it in our hospital. And I find Dr Odent's views about it a wonderful mixture of mysticism and science.

MO: I don't think the word mysticism is appropriate. It's sure that I tried to consider in a scientific language some emotional states.

MOTHER *Archive, translated*: It felt like a family atmosphere, very reassuring. It gave you confidence in yourself. And that's what I needed.

MO: I am pleased when I heard women talk in a positive way about the birth of our babies. We have to learn from positive experience such that's the way forward.

304. The downsides of positive thinking

Illusionist and writer Derren Brown on whether optimism and positive thinking actually have a harmful effect on our wellbeing.

Published on 4 June 2019

Made by BBC Reel

DERREN BROWN: Hello, I'm Derren Brown. And I think we can rethink our concepts of happiness. I think we're sold an idea that we should be believing in ourselves and setting our goals and thinking positively. But the reality is that thinking positively can actually have quite a negative effect. Optimism as an idea doesn't serve us very well when things go badly. Seeing bad situations in a positive light, looking for the good, that's okay. That goes back to the Stoics. But when we're feeling like we've failed, that's the problem. And the problem with optimism is that it just tells us that if things don't go right, that we've failed, that we haven't believed in ourselves enough and we should blame ourselves because there's nowhere else to go. And that's fundamentally where it's wrong. You need a system that works for you when things aren't going well. That's the real test, as to whether something holds up or not. There was a psychologist called Daniel Kahneman, who came up with this idea of the experiencing self and the remembering self, like two sort of selves at work within us. The idea is that, for example, if you are given the choice between going on a roller coaster and having a fun afternoon at a theme park vs. looking after a sick relative, which one's going to make you happier? The chances are you'd think, 'Well, I'm going to go on the theme park.' So you're experiencing self is being catered to by the experience of, you know, happiness and excitement. But your remembering self, which is the other part of you, will look back on the experience, looking after your sick relative, actually, as a more meaningful experience. So the chances are you'll take with you more of a sense of happiness and satisfaction from doing that. So we have a terrible understanding what actually fulfils us. I think an interesting thought experiment which was given by a stoic, a modern stoic, called William Irvine, is imagine that you woke up one day and everybody had disappeared from the world. So there were still buildings and cars and everything, but there were no people. Everyone had gone. It's just you. What changes in terms of the sort of things that you'd acquire for yourself? You wouldn't bother having a big, great big house to go and live in. Bear in mind you could live in any house. You

could just go and, you know, walk in and live wherever you like. You'd probably find somewhere that was just comfortable and practical. You obviously wouldn't bother with fancy clothes. You wouldn't bother with so many things. And then when you really follow that thought through. It's amazing how much we acquire and want only to impress other people, even if we don't feel we're that sort of person. So rather than just wanting things that we don't have, which are probably not going to be very good for us anyway, shifting our desires, so we want the things that we already have. Stoicism was born in a time of strife. There was lots of war and lots of reasons why you'd want to hang onto a feeling of tranquillity. So what they said, which is such phenomenally good advice, is there are things in your life that you're in control of. And then there are things in your life you are not in control of. The only things you are in control of, they said, and this is true, are your thoughts and your actions. That's it. Everything else – so, what other people do and what they think of you and what goes on in their lives and how well other people do their jobs or do the things you want . . . whatever – everything else, you have no control over. And you can actually decide that everything on that side of the line is fine. I find myself doing this a lot, that when something's really bothering or frustrating me. I just think, 'Hang on, which side of the line is it on? Is it my thoughts and actions or is it something out there. But it has to be a real thought, 'What if it was fine and that has to drip in and and really kind of drip into the soul and make sense.' You have to feel. It's no good just saying, 'It's fine, it's fine, because that doesn't have any effect. It has to be a real thing. It's a very helpful thought.

305. The everyday lives of the non-monogamous

Erika Kapin is trying to reduce stigma around consensual non-monogamy through photography.

Published on 8 February 2018

This video was made by BBC World Service

CAPTION: The Open Photo Project aims to reduce stigma about consensual non-monogamous relationships. An increase in less conventional relationships is making some question their romantic options. Erika Kapin explains why she wanted to photograph everyday lives of the non-monogamous.

ERIKA KAPIN: I think the reality of monogamy is that it's as varied and diverse as monogamy is. Non-monogamy could be multiple adults raising a child together, it could be a person living on their own with many different loves in their life all over the place. You can think of a possibility in the human range of relating, and it can exist in non-monogamy similarly to monogamy. A lot of people are not comfortable being out about monogamy in their lives here in the United States. There's laws protecting against discrimination for gender and sexual orientation, but not-monogamy and polyamory are not considered a sexual orientation. So people actually could be fired from their jobs if their employer does not approve of their non-monogamy. So being concerned about job security, being concerned about

family acceptance and then social stigma, a lot of times other parents who don't approve, if you have children, they might not want their kids coming to your house thinking that it's an unsafe space because it might be over-sexualised, kind of related to all these preconceived ideas that people might hold, because they just don't know that the lives of people who love multiple others might look very similar to their own. I love speaking with people who have children about it, because I really do think this is true: with children growing up to them, their normal is normal. Another thing that I found really charming that Kevin Patterson spoke of when he was talking about raising kids with his wife, Antonette in their poly family is that the kids basically think of the other adults in their lives as more people that might get them snacks upon request. It's just more support, really, in the family. And I think any concern that I've heard from polyamorous people around raising children really comes from a stigma that might exist around their family coming from other people in the world around them. In addition to reducing the stigma of non-monogamous lives, so many people struggle with monogamy and they just think that that's the only ethical and the only viable relationship option. And they might really struggle with happiness and continued disappointment in their romantic and sexual relationships. And it might help them live in a way that fits them if they know that this is an option.

306. The fabric that changed the way we live

From your socks to your singlet - the stretchy fabric that changed fashion forever.

Made by 7digital, 2 July 2019

KAORI O'CONNOR *Fashion Anthropologist:* What if I told you that Lycra is responsible for changing the world and setting you free and you had no idea Lycra is actually a brand name that's become shorthand for the material also known as spandex or elastane. You don't need to be saying 'namaste' while silhouetted against the no filter sunset. You are wearing Lycra right now. It's in everything from your socks to your t-shirt to your wrestling singlet. It's tougher than rubber and virtually indestructible. And given that Lycra the fibres can be stretched almost 500 percent more than their original length, it's the reason you can wear skinny jeans and still have that last slice of pizza. It's hard to imagine now, but our clothes didn't always stretch. In the 1930s, women wore rubber girdles to keep their bodies in place. These girdles were horribly oppressive, physically and socially. They were so inflexible that even sitting or bending down was a struggle. Literally and figuratively, women were stuck and crying out for change. That change arrived in 1958. An American chemical company called E. I. du Pont de Nemours decided to invent a synthetic fabric that would revolutionise girdles. They blew a whopping $10 million on development before launching their new miracle fabric. And for a while, it took the fashion world by storm. DuPont's glamorous streamlining girdles for so popular, even Barbie had one. But just as Lycra looked like it was going to be a commercial success, the swinging 60s arrived. If bras were going up in flames, you can only imagine how women felt about girdles. The unloved and unwanted garments were

packed away, leaving DuPont with warehouses full of colour-popping stretchy stock waiting for the right time to shine. Fast forward to the late 1970s and an unlikely Lycra ambassador: the actress Jane Fonda. She created an at home workout video for women, ushering in the dawn of the aerobics craze. It was the hot yoga of its era and all that brightly coloured Lycra was the official uniform. The look adorned the most iconic pop culture of the decade. After the Lycra for revolution, there was no going back to the stiff, tailored fabrics of the past. Designers couldn't ignore the demand the fabric created for comfortable clothes, first in sportswear and before long in streetwear. Suddenly, the material was everywhere and for everyone. With similar fabrics now manufactured by different companies across the world. Its stretchiness meant that finally, everyday clothes were designed to fit ordinary people and not the other way round.

307. The first fight scene in European art

Simon Schama introduces us to Pylos Combat Agate - one of the finest works of prehistoric Greek art ever discovered.

Published on 28 February 2018

Made by BBC Two

SIMON SCHAMA: One of the objects found in the grave. Tiny. Not quite one and a half inches long was crusted in mud and minerals. Once cleaned, it forces us to rethink everything we thought we knew about this moment in history.

CAPTION: Combat Agate Sealstone, Pylos, Greece, (c. 1500 BCE)

SS: High resolution photographs show the extra ordinary achievement. We see the long hair flowing free that would have been combed before battle. We see a sword lying on the ground. Exactly like the swords discovered in the grave. But that is just the beginning. This is the first fight scene in all of European art, for all I know, in all of world art. Yes, there are occasional moments of combat and battle in other cultures, but they're flat, they're very stylised. They don't feel like a smash of bone and bronze and metal and the spout of blood. This does. This go straight from 1450 B.C. to action movies. Look at those rippling biceps. Look at those muscles. Look at those tense bodies, this cross of locked together fighters. A spear that's about it to try and impale the body of its enemy before it's too late. The sword that's about to plunge down. It's 3D, folks. It's coming at you. And inevitably, there is already a dead body. Perfectly modelled. An arm bent back. Homer speaks of such bodies with a hand or a face writhing in the dust. But, people, Homer is seven hundred years *later*. Seven hundred years later. The time between Chaucer and us. Somebody out there with Incredible hawk-like eyesight is drawing on the body of combat literature that goes all the way down to those beautiful Homeric inventions. It sets something running in the European culture. This Mycenaean love of guts and glory. And the Mycenaeans themselves, along with the Minoans, will pass into history. This doesn't pass into history. It passes into poetry. It passes forever into the world.

308. The freaky world of never-ending fractals

What is a fractal, and how can they help us understand the universe? Written by Brandon Pestano. Consultant: Professor Christopher Budd.

Animated by Christopher Brooks 19 November 2019

NARRATOR: What do galaxies, cloud formations, your nervous system, mountain ranges and coastlines all have in common? They all contain never ending patterns known as fractals. A classic example of a fractal in nature is broccoli in that the whole stalk is a similar version of one of its branches. So cut off one piece and you're left with a smaller version of the entire broccoli. Snowflakes are another example. It's often said that no two snowflakes are ever the same and fractals offer a fascinating explanation as to why nature works in this way, why nature continuously creates new, self-replicating yet unique structures and how the smallest things in existence are necessary components of the greater whole. The term fractal was coined by Benoit Mandelbrot who was working at computer giant IBM in 1980. Mandlebrot had been fascinated by discoveries of mathematicians from the early 19th Century who were attempting to define their understanding of what a curve is. Experiments such as Georg Cantor's discovery that a single line could be divided forever and Helge von Koch's triangle a shape that has an infinite perimeter but a finite area resulted in the term 'monsters'. Mandelbrot used the modern computing powers developed by IBM to run these monster equations millions of times over. This process led him to a breakthrough equation combining the patterns found in previous monsters resulting in his own set of numbers. This would become known as the Mandelbrot set an infinite geometrical visualisation of a fractal. One of the most amazing things about the Mandelbrot set is that theoretically, if left by itself, would continue to create infinitely new patterns from the original structure proving that something could be magnified forever. Fractal geometry is currently applied in many fields. For example, research into climate change and the trajectory of dangerous meteorites, helping with cancer research by helping to identify the growth of mutated cells. It's even believed by some that the universe itself may be a fractal and as you zoomed in you would discover it's made up of billions of galaxies. Inside of those galaxies, you would find trillions of stars and billions of solar systems and planets. And on one of those planets you would find Earth. On Earth you would find continents, cities and a human. And inside of that human you would find a brain made of millions of cells in which you would find trillions of synapses firing away. And inside of those you would find DNA Inside DNA you would find atoms, electrons, protons, neutrons. Deeper still you would find quarks, neutrinos and so on and then, just maybe, continuously deeper into infinity. Some believe that, due to their highly complex and mysterious nature, the greatest use of fractals is yet to be discovered.

309. The freedom to be topless (whilst drinking tea)

Micky and Bee from campaign group 'Free the Nipple' explain what freedom means to them.

Made by Tiger Lily Productions, 30 May 2019

BEE, CAMPAIGNER, FREE THE NIPPLE: I feel great when I'm naked. I feel natural and normal and safe and comfortable.

MICKY: We are Free The Nipple, Brighton.

BEE: Freedom to us means a world where women and trans folk have full autonomy over their own bodies. She's bigger than you would normally see.

TITS AND TEA ATTENDEE: She is.

BEE: I bet they're making a thing about it though. So the idea behind "tits and tea" was to find a way to be topless together in a really relaxed and non-confrontational way. All of these magazines talk about feminism so that the women reading them feel like they're choosing to buy into all of these things so I don't feel like its legitimate feminism.

MICKY: "Smooth wrinkle-free skin." Urgh!

BEE: We don't want that.

MICKY: Do you know what, I think that a couple wrinkles is really sexy.

BEE: Well it's just normal, it's just a product of being alive isn't it having wrinkles. Nudity is sort of teased and hinted at in film and magazines and in art but it's always in a sexual context. When a mother tries to breastfeed her child in public it makes people so uncomfortable that she can't actually use her breasts in the way that they were designed to be used. I remember being young and skinny-dipping a lot. I lived in the countryside and me and my sister would always take our clothes off and go swimming and it was so innocent and it was so lovely and the idea that our bodies were sexualised or commoditised just wasn't really part of our reality. It was only probably until I went to secondary school that I understood that I was being taught that I had to take responsibility for how other people would interpret my body even though I was still a young child.

MICKY: We believe we are not sexual objects. We believe we have the rights to feel safe whilst being nude. We believe that we should take ownership back of choosing when our bodies are shown.

BEE: Freedom is showing your body without fear of harassment or danger. It would be nice if we could chill on the beach and just feel that sense of freedom without it being a massive political statement.

310. The funny thing about... PTSD

Comedian Tom Ward shares this honest insight into life with a type of post-traumatic stress disorder, known as complex PTSD.

Made by ITN Productions, 30 April 2019

TOM WARD: It's true what Larkin says about parents. They do mess you up. They don't mean to, usually, but they do. By the time I'm eight, dad's mania and anxiety are kicking in. And that, mixed with a newfound fervour for Christianity makes things lively. By age 11, bedtime stories are out and tales of hellfire are in. According to Dad, me and everyone I know are going to suffer eternal agony, unless we turn to Jesus. Oh man, I could save myself. What about all the people on TV? All the players on Match of the Day? Would I have to wait in the car park after games? 'Mr Cantona - kicking people is a sin. Yes. Even if they do support Crystal Palace.' By now, Dad is relentless and the panic attacks are regular, running around the house screaming delirious and things deteriorate. By 12, 13, I'm crying constantly, struggling to get out of bed. And by 14 I'm starving myself. At 15 I have to have a year off school and be treated at a psychiatric ward. Complex PTSD is a variation on post-traumatic stress disorder. We associate that with people affected by specific incidents, in war or after an assault or car crash. The complex variety refers to those who endured repeat abuse, usually at the hands of caregivers. It may have been a religious parent, a violent parent, one that drank, sexually abused you, scapegoated, shamed or just ignored you. One common sign of complex PTSD is an intensely critical inner voice that just won't get off your back. You know, the one that says things like, 'You're useless, you've achieved nothing.' One negative thought will kick in and it'll all come out to play. 'Oh, and you look rubbish naked. Oh, by the way, everybody hates you. I can't believe you just stood on that snail and you like snail.' Another sign is flashbacks. And these are often more subtle than specific memories. A situation you're in now reminds you, even subconsciously, of a time that you felt overwhelmed. For me, it's social gatherings. When I walk into a room, I often feel like I'm about to be humiliated. So my fight/flight instinct kicks in hard. At parties, I'll often go to the bathroom several times just to feel calm. I love bathrooms. Sitting on the bath, listening to the party downstairs. (*puts on muffled voice saying, 'You've been in there ages'*) I practise bathroom sound effects too, like the sound the toilet roll makes you pull off the last sheet. (*makes sound*) After that, I'm okay for a bit. But then someone new will come up and say, 'Hello, I'm Ted.' I'll get all adrenalised and just leave. There is no danger, but the psyche doesn't know the difference. That's complex PTSD in a nutshell. Sorry, Ted. Other signs are depression, substance abuse, isolating yourself and avoiding relationships. You may have no clue why you feel any of this. But there is help. Self-Help books are a great place to start, especially if you're nervous about therapy or talking to a friend. Therapy has been great too - someone to talk to, help join the dots, give names to things. I also try and stay healthy and clear-headed, vegan diet, exercise and meditation. And of course, stand up. Talk about facing your fear of humiliation. I did get to make some peace with my dad before he died a few years ago. A tumour on the brain felt strangely right for a man so lost in his own mental chaos. I did love him. He meant well. He was just negligent and confused and it caused damage. It's important to know where the

blame lies. These feelings aren't your fault. And it can be helped. So see it like you see any injury. Listen to it. Give it what it needs. And remember, it's okay to feel bad. But fear, anxiety, anger, depression, ruin all of the good stuff, all of the fun. And this . . . is supposed to be fun.

311. The funny thing about... being fat

Fat people can find themselves discriminated against. The solution? Not the body positivity movement, argues comedian Sofie Hagen.

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SOFIE HAGEN: As a fat person, I get a lot of abuse. For example, from people in cars, 'people' is just a nice word for men. It's not to be all like #allmenaretrash, it's just that it's never women shouting from cars. It's just never, 'I like your fringe' or 'Where did you get those glasses, they really suit your face?' It's like they have this idea that fat people are so desperate to get laid that any time a van blasting loud music through open windows passes, we're just like, 'Oh my god, maybe that's the one.' Here's a public service announcement on behalf of all fat people. We don't want to (*boing sound*) you either. Most of us actually have some (*horn sound*) at home. At the moment, it seems as if body positivity is the new thing. It's all over Instagram. Thin to . . . maybe chubby, white, feminine, cis women showing that, actually, if they try real hard, they can look a bit fat, too. Don't get me wrong. Society has made it very clear that no one fat or thin should be happy with their bodies. We're all struggling. But the people who are the most oppressed in society, like actually fat people, black people and people of colour, queer people, trans people, Muslims, people with disabilities are not at all represented in the body positivity movement. So here is what has happened and strap in, because this is excellent information. In 1967, as a lot of social movements called for justice, a Fat-in was staged at Central Park in New York. 500 fat people gathered to eat ice cream and burn diet books, which fyi, I will now be doing every Sunday in Hyde Park. Join me, NAAFA – The National Association to Advance Fat Acceptance – was founded in America in 1969 by Bill Fabrey in response to discrimination against his wife. #relationshipgoals. The next time someone is rude to you, if your partner doesn't start a social movement #leavehim, #boybye. In 1973, two people called Judy Freespirit and Aldebaran wrote the Fat Liberation Manifesto, which called for fat people to have equal rights, declared that the diet industry was the enemy and stated that they were fully entitled to human respect and recognition. There were a lot of points in the manifesto and none of them were #loveyourcurves or #yourbodyisbeautiful. Because it doesn't matter how much I love my curves. I will still be discriminated against on a daily basis and have a harder time buying clothes anywhere that doesn't have flowers on it. And I will still have men shout at me from cars. 'Fat' has been made into 'body' to make it more palatable, and 'liberation' has been made into 'positivity' to remove all accountability from the perpetrators. Body positivity is just another way of asking women to smile. Thankfully, women love

being asked to smile. Oh, no, wait, no, wait. Women love having autonomy over their own bodies. I always get those two confused.

312. The funny thing about... being little

Comedian Tanyalee Davis has a form of dwarfism called diastrophic dysplasia. She talks about some of the challenges and misconceptions.

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TANYALEE DAVIS: My whole life, people have underestimated me. I may have a Chihuahua-sized body, but I have a pitbull attitude. Hi, I'm Tanyalee Davis and I'm a three foot, six inch dwarf. No, I'm not a Pokemon. I have been called the Ferrari of Comedy: low to the ground and kind of racy. Sure, I have difficulties doing things. But I've found my own way of dealing with those challenges. I can't see very well. So I got contact lenses. I can't hear very well, so I go hearing aids. I can't walk very far, so I got a mobility scooter. I take the mobility scooter all over the world, making people laugh with my comedy shows. I even did a tour in Japan. I am *huge* in Japan. Many people complain about not having enough leg room on the aeroplane. I've never had that problem. In fact, I put the tray table down, put my feet up on it, recline and I can sleep for hours. I have a form of dwarfism called diastrophic dysplasia. It's a result of a recessive gene. One in 110,000 births are diastrophic dwarfs, which means both my parents had to carry this gene and then it's a one in four chance of having a dwarf child. All diastrophic dwarves have average sized parents. I have a few different handy tools, then increase my independence, which most people don't even think about. I have a metal rack that fits on the back of my scooter so I can carry my suitcases with no assistance. I also carry long plastic sticks that I use to push down or pull up my trousers. Since I have T-rex arms, these sticks allow me to reach things like door locks, lift buttons. They're also good for spanking. Hmm. I spend a great deal of time in hotels travelling around as a comedian. I love hotels, because other people clean the bathroom. But seriously, is it really necessary to put the sheets, the duvet so tight on the mattress? I have to put my legs up against the wall to pull the sheets back. I finally get in there and I feel like I'm sleeping in an envelope just waiting to get stamped. Disabled hotel rooms also have red emergency cords that hang up throughout the disabled rooms. I was in the shower one day and I was sitting on my step stool. I leaned forward for my shampoo. And when I sat back up, the emergency cord got wedged in my butt crack. My butt has never been cleaner. It was alarming. I've been up the Rocky Mountains in Canada, I've parasailed over the Cayman Islands, swam with dolphins in Australia. I was even molested by manatees in Florida. Well, that's right. I'm very adventurous. Of course, as a woman, I love to shop. It's quite a challenge even getting into the mall when you're three foot six inches tall, because they have those automatic doors. Those sensors on the doors don't catch me most of the time. Half the time I end up running face first into the door. I have to throw my handbag up just to get in the door. Finally, I got into this one store, found some stuff I liked, go into the fitting room, close the fitting room door. And where does the bottom of the door come to? (*motions to neck*) Here I am,

got my big white booty hanging out to all the customers. My milkshake brings all the boys to the yard. Life is short. I'm Tanyalee, unstoppable me.

313. The funny thing about... being offensive

Are you easily offended? Guilty of causing offence? Comedian Imran Yusuf takes aim.

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IMRAN YUSUF: A great way to make yourself look important is to be offensive. Being offensive is a great way to criticise or attack another person. You know, that ever so clever tactic to knowingly say or do something that you know all too well will incur the wrath of self-righteous bastions of morality, be they the God squad or your ordinary garden variety spectrum of avocado-grasping participation trophy-accepting tablet-induced dopamine-addicted bunch of stupendous idiots. 'Hello, I identify as a conscious entity tethered to the biological vehicle of the Homo sapiens.' - There's no possible for that yet, so shut up. There is almost no limit to how offensive you can be with words, provided you aren't instructing others to commit physical violence or break the super injunction of a wealthy, influential person more important than you. And thus, here lies the rub. Being offensive is a great way to provoke offence, evoke response and even make a career out of. Say something offensive, some will be offended, while some will support what you have to say and your freedom to say it. This is a very lucrative opportunity to embrace. Provided you can keep one audience reacting in anger to your vitriol and the other in support of your offensiveness. Don't like people who are different to you? Foreigners stealing your job with their superior work ethic? Slag them off and the other mouth-breather, knuckle-draggers who feel like you do, will tune in, buy your book and support whatever you're be so offensive about. Congratulations. You're now self-employed in the industry you hate and it pays well, straight out of the pockets of the same people whose jobs have seemingly been stolen. Plus, being offensive is a great way to cover up your own faults. What better way to shield your own inadequacies and failures than to cast the first stone from the vulnerability of your own glass house? Conversely, though, a broader view allows us to see that the funny thing about being offensive also requires being offended. If you feel offended, that's probably because you actually value what the offender says as gospel, rather than realising that it is you who gets to determine what it means to you. This is particularly pertinent to insults. If a homeless person told me I was poor, I'd find it funny. And in the same way, if a racist addressed me with a slur, as they often do, just check out my YouTube channel, I'd find it hilarious that they'd want to share their poverty with me. Slurs only empower the villain if the victim accepts that it means anything to them. Now let's be grown-ups. Offence has been around forever, and no matter how much we try to prevent it, in the realm of human communication, it's as natural as the light, wind and water surging into and all over the place, permeating the hearts and minds of the offended. Despite the efforts to tackle anti-Semitism today, you can still freely buy Nazi memorabilia from antique shops just off Leicester Square. Modern racial slurs emerged from an era of Western

plunder and subjugation, delineating humans along visible lines and imbuing entire communities of people with the stigma of unworthiness by force of military empires. Yet today, these slurs will thrive as a constant reminder of the anger we bear towards each other and the refusal to fully embrace each other as equals and fellow citizens. So offence and offensiveness are a natural part of human interaction. It's been around since the dawn of spoken word, and it's not going anywhere anytime soon. The only power we really have is to choose what any of these words means to us. So man up, you big girl's blouse. If you've been offended, please send me an email at ImranYusuf@Idon'tgiveaf (*beeps*)

314. The funny thing about... bigorexia

Bigorexia - like anorexia - is a big problem. Never heard of it? Comedian Russell Kane injects a bit of humour as he sheds light on it.

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RUSSELL KANE: We are in an epidemic of bigoxia and male body dysmorphia. Men who look in the mirror and see either peperamis or blobs, rather than the medium sized body they've probably got. I'm talking about men descending into the equivalent of anorexia, bigorexia – neuroses about the way we look. Looking in the mirror and seeing what isn't you, going after an unrealistic goal that can ultimately damage your health. On my latest lads holiday, five of my friends refused to take their t-shirts off because they were insecure about how they looked. Back in my dad's day, it was like, 'Man boobs out, hurrah, bomb in the pool.' Steroid usage, massively prevalent. Just look at the reality TV shows. You can't get that body just from doing a little bit of cardio. If you think I'm just being dramatic, we live in an era where male suicide is at its highest. Male eating disorders are on the rise. This is a huge thing. Men are looking in the mirror and their brains are tripping out. The end result: Cardiff High Street is full of people that look like they were made by the X-Men. These are men injecting themselves. This is bigorexia in action. If I ask these men, they say back to me, 'Russ, you don't understand, it's what a bird wants, it's what women want, women want a big strong bloke that can lift them up, sometimes they drop into morse code, dot, dot, dash, dot, dot, dot, dash, testosterone, dot, dot, dash. Meat, metal, football. Listen, ladies, I don't presume to understand what women want, but mostly, gentlemen, the primary characteristic that a woman is looking for is a man that isn't an arse. Something that will be made much, much worse if you inject yourself with steroids, ironically. Bigorexia is not new. It's come in several phases. It started with Joe Weider and Arnold Schwarzenegger, when bodybuilding exploded years ago. My dad was heavily involved. My dad's neck was bigger than my thigh. (*laughs*) That's true, though. I'm not suggesting we shouldn't eat healthily, be a bit toned, do some exercise, make an effort gents. Everyone likes that. What I'm suggesting is, in our culture, it can be a bit of a turnoff to be a bit too perfect. I know it goes against everything we know about Darwinian evolution, but British people are not attracted to perfection. It made me the opposite of my old man. He was 17 stone shaven headed, doorman, metal welder, lifeguard, semi-

competitive bodybuilding, oiled athlete, nut job. And he had me for a son, a skinny peperami stick with a glittery question mark over the top. 'I quite like theatre, daddy.' But I do have a connection to this. I've never used steroids myself. 'Really, Poirot?' But my dad did, my dad massively used steroids. He injected it, he lifted massively heavy weights and it turned his aortic valve, the one that looks like a Mercedes sign, into a bi-cuspid double triangular flap. That could happen to you, gentlemen. So instead of three flaps opening every time you breathe in and out, two. And over the years, it sticks, sticks, sticks, sticks. And if you make it to 60, you'll be lucky. That's what happened to my dad. Heart attack. Boom. Gone. Very sad. The only upside I can now do stand-up about him and pay my mortgage. Stay healthy.

315. The funny thing about... feminism

For anyone who doubts the need for feminism, here's a thought experiment from comedian Deborah Frances-White.

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DEBORAH FRANCES-WHITE: The funny thing about feminism is that so many people just don't see why we need it. Imagine a social experiment, one that you should never, ever do. You have identical twin boys and you call one Al and one Bob. When they're five years old, you start giving them pocket money for tidying away their toys every week. You give Al a pound and Bob 78 pence. If Bob complains, deny it. Tell him he's imagining it. If he shows you evidence and insists that it's unfair. Tell him Al is just that little bit better at helping out. Bob will probably start to get his shoes on faster and tidy his toys like a boss to show that he's as good as Al. Occasionally, when Bob has really excelled, give him the full pound and say, 'See, Bob, this just shows you can do it when you put the work in. You have to try harder.' When they're seven, tell the twins it's time one of them became the toy-tidying supervisor. Interview them both. Notice that Al comes to the interview with an attitude like he's got it in the bag. Give the kid a high five and a fizzy drink. Bob will probably over explain himself nervously in the interview, do nothing to relax him until he starts to look defeated. When you give Al the job, congratulate him and tell him he's a born leader. Give Bob feedback that although he was well-prepared and you appreciated his PowerPoint presentation, there was a certain something . . . missing telling him he needs to be more like his brother, that he's lacking a certain confidence. On their 10th birthday. Ask the twins if they'd like some pets. When they excitedly say yes, introduce them to Fluffy and Faloopy, two adorable baby hamsters. And tell them they are they are the absolute equal owners of the fluff balls. As they rush to stroke them, explain that Bob will have to do 90 per cent of the feeding, grooming and hut cleaning. Bob will ask how much he'll be paid. Explain that Hamster care is worthless but needs to be done relentlessly without pay. Whenever you see Al stroking the pets, say loudly to someone else, 'Isn't Al a great hamster-daddy? Look at him babysitting the hamsters' and make sure he hears it. If Bob complains about the extra workload or falls behind in his toy-tidying role, say, 'Well, that's the price for having it all, Bob. Remember, you're the one who wanted the hamsters.' Let's roll

out this experiment with a whole generation of twin boys. A few bobs will get angry and grow up to do better than their brothers because they have something to prove. A small number of Bobs will be gifted with so much more natural smarts or talent that they'll sail past their brothers regardless. As a trend, though, 20 years from the beginning of this social experiment, twin boys called Al will be more confident, greedy for leadership roles, sure of themselves and convinced that their own opinions are facts than their brothers called Bob. It will be an Al's world, not a Bob's world. The funny thing about feminism is that we can only see how messed up that is when it's two boys.

316. The funny thing about... grief

Comedian Jayde Adams takes a wry, painful, warts and all look at grief.

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JAYDE ADAMS: Grief is, well, boring, right? I mean, we all think we want to be helpful and sympathetic, or maybe get mentioned in a Facebook post that the grieving do as someone who helped me through my terrible time. But do you really want to hang out with someone that you just cannot cheer up no matter what? Absolutely no way. My sister died of a brain tumour in 2011. She had a fit on my dad in his car and he had to rush her into a walk-in centre in his arms. It was lucky it was that sister who got rushed into the walk-in centre, because if it'd been me, you'd have had to drag me in by my ankles. She died on April 24th, 2011, and I was the last person to get to the hospital, behind secondary members of my family. I remember being really p—d off that there were so many people in the room with us, I felt like there was no privacy. And why the f— was I the last? She was *my* sister, there was only two years difference, and she and I danced together for ten years. We shared a room together for 10 years and she was the one who protected me from bullies at school. They say that the only two things in life you can be sure of are death and taxes. And I find it really funny that you don't get taught about both at school. I learned how to grow cress out of cotton wool before learning how to comfort my parents. I learnt how to put a condom on a banana. But I don't know how to talk to my brother about my sister. I'd rather cry on a stranger on a bus than hear one more person ask, 'Are you okay?' with that everso rehearsed face of sympathy that people think they have to do, because they saw it in *Four Weddings* and a *Funeral*. My friends, of course, were very supportive. But two or three years of the same story, the same bad mood, the same sadness over and over again, it really wears people down. Life moves on and so should you. If you can. There are some people that don't think they can. And that's perfectly okay. I hear people talking about how people dance around the subject to death. But I think since the rise of social media, people aren't doing that as much nowadays. These days, people love a bit of death. Grief trolls I call them, people who get off on the drama of it all, you know, 'Ooh yeah.' Women are the worst offenders of this. I'm sorry, girls, but you are. Attaching themselves to the grief and then getting all up in our business, so they seem very important during a really intense time. I mean, people really have no idea what to

do. Also, I'll be perfectly honest, I'm seven years out of it and I can admit it now. But I love the attention. Don't get me wrong, I would have had my sister back in a nano-minute. I spent my entire childhood with this gorgeous older popular dancer sister taking all of the limelight, and now . . . people were noticing me. Wow. Love it. The trouble is, however, when I got the attention that I'd always wanted, it was now tainted with an emptiness that would never go away. The universe gave me all that I'd ever wanted, which was to be noticed, but I paid the price for it. Like someone comes over and puts a little top hat of poop on my good mood. Something will always rain on my parade. So I made up a way to cope with everything. I had this idea called Island Jayde. I imagined that my life was an island and it's my island. I am judge, jury, executioner, president, queen, prime minister and God. If other people from other islands want to come on to it, they can. But there is a list of rules. And if they don't adhere to the list of rules, then I won't let down the drawbridge. I'd say that grief has given me a sort of Incredible Hulk level of strength. The worst thing that could ever happen to me has happened now. It means I'm indestructible, even when I am vulnerable. I call it a special club. It's a really terrible way that you get into the club. But once you're in, it's like, you know. Like the Freemasons. But our secret handshake is a hug, a knowing nod or a wink.

317. The funny thing about... online trolling

Comedian Bilal Zafar gives a lesson on how to beat internet trolls at their own game.

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BILAL ZAFAR: I had the opportunity to have some unexpected fun with some trolls. This is a true story. I am a brown Muslim comedian with opinions so you can imagine the sort of negative attention I can sometimes get just for existing. I usually ignore that sort of thing. But it took a bit of a weird turn a little while ago, a little movement called #boycottMuslimbusinesses got going, which I wasn't paying any attention to. However, my surname is Zafar, so my Twitter handle happens to be @Zafarcakes. My brother saw an opportunity to have a joke at my expense and he tweeted, 'Boycott @Zafarcakes, it's a cake shop in Britain that refused to serve non-Muslims.' That wouldn't even be a good idea for a business, but I started getting tweeted almost immediately. Someone told me that I'm living in Britain now, so I need to learn some British values. I've barely even left Britain, but fine. And a man called Andy said, 'One rule for them, another for us. #typical.' It's typical, isn't it? I was ignoring everyone until I got one tweet that stood out a little bit. A lady called Mikil said, 'He's probably on benefits. Typical.' It wouldn't really make much sense for someone who has a cake shop to be on benefits. And also that sort of horrible stigma we have towards people on benefits in the UK, I find it quite upsetting and it wound me up a little bit. So I thought, right, I'll do another tweet for these people. So they're all sort of paying very close attention to Zafarcakes now, to see what this cake shop would say next. And I thought, 'I'll clear this whole benefits thing up.' So I said . . . I said, 'I am not on benefits. I used to be. I saved them up. Now I have a business.' You'd think maybe they'd understand that that was a joke. But instead,

what happened next was that a petition was started. I think the plan was to get loads of signatures on this thing and then send it off to a cake shop that doesn't exist. From that point on, I was getting so much abuse and hate, I thought, 'Well, I'm a cake shop now, so I might as well get into character.' So I started saying stuff like, 'A lot of customers today.' And then couple of hours later I just said, 'lemon drizzle.' I should say, my spelling and grammar and everything, it's pretty much perfect. But I thought for the purpose of this whole thing, I thought I'll throw in a few spelling mistakes just to see what happens. And it makes people angrier than you think. I was in a weird position now of being attacked with real anger and hate, but I could only find it funny. Someone called English Lion tweeted about me. Now, I don't know how well you know patriotic people, but a lot of them call themselves things like English Lion, British Lion – have you ever even seen an English lion? English pigeon would make some sense, but . . . Social media is a strange place. You don't need to have an identity, but you can have the entitlement to feel that your opinion on literally anything matters. Your name can be an emoji. You can have a profile pic of your dog. You can tweet a celebrity some abuse. They'll see it and you might even get a reply. I've learnt that anonymity can give people a terrifying amount of courage and self-importance. If you pair that with genuine anger or fear, the results can be quite bizarre. Anyway, English Lion was very upset. He said, 'Please help share our petition, there's a Muslim-only cake shop open in Britain, funded by our benefits.' You couldn't make it up. Apparently you couldn't make it up.

318. The funny thing about... privilege

Comedian Sophie Duker takes aim at people who say "check your privilege" without checking their own.

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SOPHIE DUKER: It's fun to bash pale, stale, middle class males for being entitled A.F., especially when they make it so easy. But privilege is complicated. It's not just black and white. Take the current batch of Conservative MPs, a bunch of white men so posh they make Jeeves and Worcester look like Kevin and Perry. So privileged that the House of Commons is how they describe literally everyone else's house. But whoever you are, if you're watching this, it's 100 per cent that you're packing some kind of privilege. And just like a carry-on containing oversized liquids, 'You got to check it.' Take me. On paper, I'm a triple threat minority. A black queer woman living in post-Brexit Britain. I get to experience sexism, hmm, racism, delicious, or possibly the sexy blend that is misogynoir. Get you a bigot who can do both. Plus, nobody really trusts bisexuals. So I get straight up original homophobia from straight people bi-phobia from the queer community and a whole lot of well-meaning confusion from my mum. Oh my mum – did I mention that she's a first generation immigrant and that I come from a single parent family? World's tiniest violin solo. Okay, I'm not actually going to shrug it off and pretend that all that stuff isn't deep. I've been assaulted, abused in the street and had it assumed by strangers straight off the bat that I must love chicken and twerking, which is awkward because

(*segment of twerking*) Love a bit of jerk and twerk. But unlike a lot of people, including some black queer women, I have got a whole lot of privilege going for me, too. I'm cis, meaning my gender identity matches up with the one I was assigned at birth. Neurotypical, which means my brain basically works the way doctors expect it to. Able-bodied. I speak English. And through being born in London, I bagged a British passport, which is basically a golden ticket to gain entry to the rest of the globe. A lot of why I'm doing okay today is because I got lucky in the lottery of life. People are really good at seeing other people's privilege, but tend to be pretty bad at seeing their own. It's always my poshest friends who say things like, 'Talking about money is so vulgar. Let's just all split the bill.' – 'I had tap water and a salad for a reason, Florence. I'll split the bill when you chip in to heat my house.' Also, calling one quality a privilege does kind of make it sound like one end of the spectrum is superior to the other. 'You say black like it's a bad thing.' I love being black. I love having lips. I love seasoning. I love not being able to blush. It makes me so mysterious, so enigmatic. Everyone's asking, what's her secret? What's she hiding? Maybe she's born with it. Maybe it's melanin. We've got to stop using privilege just as a stick to beat others with and start examining our own. With great privilege comes great responsibility.

319. The funny thing about... violence

Violence is bad. So why do we love it so much in films and popular culture? Comedian Dane Baptiste takes a look at the contradiction.

Made by ITN Productions, 30 April 2019

DANE BAPTISTE: The funny thing about violence is that even though it's supposed to be a bad thing, the V word is apparently hugely enjoyed by our Western culture. That's right. Human beings in our society love seeing violence as long as it's packaged in an acceptable way to distance ourselves from real violence as a species. Now, some of you are thinking 'That's a horrible thing to say, how can you have said that and endorse violence, or seeing people get hurt then, how could you?' Well, I have three words for you people: You've Been Framed. One of the most successful and longest-running shows on British television essentially features drunk grandparents falling off tables at weddings and christenings, watching balls of different shapes and sizes hitting our dads in the crotch. Oh, comedy gold. In the 90s, We had Street Fighter and Mortal Combat, where it was not only funny to watch a friend get beaten up, but it's even better to watch that person get so angry at losing a match they commit an act of violence themselves. Personally, my favourite type of violence has to be seeing animals attack human beings. I've spent many a night on YouTube, on my laptop, on my phone, enjoying clips, animals, introducing human beings to karma in their kingdom. Some of the acceptable groups to commit violence against, according to films and television, would be, number one: orks and goblins, you know, the kind of ones you see in like, Lord of the Rings or Magic, The Gathering, if you're a massive nerd. Anywhere you've got wizards, they're not too far behind, but not the Harry Potter goblins, those guys are cool. Number two, zombies, like the

Walking Dead, Evil Dead, Night of the Living Dead. Just basically any films and TV shows that end in 'dead'. Oh, the zombies from 28 Days Later, because those ones could run, so they were extra scary, so kill them. Number three, aliens, not just any aliens, though, like E.T. or ALF or the aliens in Area 51. Those aliens are cool. I mean, the Sigourney Weaver Aliens or Predator. Kill them immediately. And number four, Nazis, you know, like in Inglorious Basterds or Indiana Jones or Captain America. In conclusion, the funny thing about violence is that it doesn't seem like a good thing, but it's definitely part of our humanity and a darker part of our psyche and sometimes can be cathartic and helpful. As long as it's, number one: fantasy. Number two: escapism. Number three: doesn't hurt innocent people, but if it does, it makes them £250, and number four: Nazis. That's always fine.

320. The garden shed composer who changed music forever

Peter Zinovieff was the first person to use computers to compose music - which he did from a shed at the bottom of his garden.

Published on 4 November 2018

This video was made by BBC Archive

TOMORROW'S WORD *1968*: On the river near Putney bridge in London, there's a computer at the bottom of the garden. It's over £10,000 worth of equipment, a small fortune invested in tone generators, modulators and tape recorders, all for producing electronic music.

PETER ZINOVIEFF: I'm Peter Zinovieff and I've been concerned with electronic music for the last fifty five years or so, and it feels like forever.

CAPTION: In the early 1960s, Peter had the novel idea of using computers to compose music. It's an idea that's helped shape the electronic music landscape of today.

"NEW HORIZONS – 1971" PETER ZINOVIEFF: There are two computers, one over there and one here named Leo and Sofka after my children. Leo is a fast computer and does most of the mathematics. Sofka obeys exactly what Leo tells her and delivers the calculated information to a very large number of electronic music apparatus.

CAPTION: Aournd this time, Peter organised a series of concerts with the computer.

PZ: There it is finally on the stage, and it played a composition which nobody had heard before, even myself. I mean, it was a random composition. So this was the first time that a computer had played a composition by itself.

"UNACCOMPANIED PARTITA FOR COMPUTER, PETER ZINOVIEFF – 1968" NARRATOR: But the composer feels that we'll be hearing a lot more of computer performed

music. You may not like the sound of it now, but one of these days, he says a computer could produce a sound as emotionally satisfying as a full symphony orchestra.

CAPTION: Has this day arrived?

DJ FOOD: I'm D.J. Food, I've been using computers since the early 90s to design, DJ and produce music. Computers undoubtedly help you in every facet speed things up, but they do give you multiple options where sometimes it's better to narrow those options. Within the timeline of computing with music, we've gone a long, long way. You can perfect orchestras being sampled. You know, you can make whole albums and not know that they were intended to sound like orchestras. They sound exactly like orchestras now.

CAPTION: Peter's ideas about the role of computing in music are just as relevant today.

"THE SAME TRADE AS MOZART" 1971 PZ (Archive): And so really in the future, it's how inspired people are going to be in using them, not in what the computers can do.

PZ: It sounds a bit naive because any compensation depends on the person composing it. I guess what I meant was that the restrictions imposed by electronic music equipment is such that it requires a lot to overcome, that.

DJF: No computer is going to do it on their own *yet*. I think really the human element is the key to all of this, through all of Peter's quote is the machines can generate the sounds just the same way as an acoustic instrument can, but the human has to put the emotion into the machine.

PZ: It's not like learning a violin from childhood and having a virtuoso instrument at the end of it, which is under your control. There is no possibility of . . . of doing this in electronic music. It changes every year. The equipment changes every week. Imagine a violin player looking at a website to see if there's a new violin.

DJF: I think the next big jump in terms of computing and creativity is when AIs get to start making music. I think it's already started and with horrendous results. But again, it'll only get more interesting. And when humans start interacting with AIs then who knows what could happen.

PZ: I would like to have much more human communication with whatever it is that makes electronic music, even though it's electronic music, not . . . not instrumental music. Yeah, there's a huge way to go. And even then it will only be the beginning.

321. The gesture that speaks a thousand words

The story of the clenched fist hand gesture - from symbol of resistance to fist pump emoji.

Made by Dayglow Media & Pencil & Pepper, 21 August 2018

NARRATOR: A clenched fist raised with the palm forward is a powerful symbol of solidarity and strength. Nelson Mandela and Martin Luther King both used it as a symbol of resistance. Barack Obama and Donald Trump have used it too. Where did it come from? We don't really know, but it seems to date back a long way. Ishtar, the ancient Assyrian goddess was shown in sculptures with her arms raised. She was the goddess of fertility and warfare. And it's thought her clenched fists represented anger in the face of violence. In the French Revolution, a clenched fist was a way of showing solidarity with the revolutionaries. A few decades later, in 1848, a wave of political revolutions spread across Europe, and a painter, Honoré Daumier, depicted a clenched fist in his work, The Uprising. The gesture was adopted by the antifascists in the Spanish Civil War and by communist parties around the world. During the 1960s, it became a symbol of black power. US athletes Tommie Smith and John Carlos made headlines when they raised clenched fists on the winner's podium at the 1968 Olympics in Mexico City. In one form or another, you often see clenched fists now from hip hop homies and anti-war protesters to feminists and gay rights activists. And of course, since 2015, you can text someone a clenched fist emoji – revolutionary? Hmm. Today, the clenched fist has become the fist pump.
And rather than political resistance, it is an expression of personal triumph.

322. The girl who changed the world with an acorn

An urban fairy tale of hope and redemption, which challenges us to think about the way we interact with the natural world.

Made by Last Conker, 16 October 2020

NARRATOR: When I was young, I lived in a city that was mean and hard and ugly. Nothing grew. Everything was broken. No-one ever smiled. The people had grown as mean and as hard and as ugly as their city. And I was mean and hard and ugly too. I lived by stealing from those who had almost as little as I did. If you promise to plant them, I'll let go. Alright. I promise. Acorns… I understood the promise I had made. I held a forest in my arms. And for the first time in my life, I felt lucky. Rich beyond my wildest dreams. I planted by roads, on roundabouts. Among rubble ruins and rusty railings. I pushed aside the mean and hard and ugly. I planted, planted, planted. Nothing changed at first. But slowly... People came onto the streets to see. They touched the leaves in wonder. They took tea together by the tiny trees. Soon they were planting too. Trees, flowers, fruit and vegetables. In parks and gardens, on balconies and rooftops. Green spread through the city like a song. Breathing to the sky. Drawing down the rain like a blessing. I planted in another sad and sorry city. And another. And another. Until last night, I met a child just like the thief I used to

be. If you promise to plant them, I'll let go. I promise. I made the old bargain. Knowing a heart can change. Knowing my planting will go on.

323. The girl who helped discover dinosaurs

The story of the young fossil hunter Mary Anning - told in a beautiful animation made using sand from the beach where she lived and worked.

By Infocandy. Music: Alexandra Harwood, 18 June 2018

NARRATOR: Mary Anning, the woman who helped discover dinosaurs. Mary Anning was born into a poor family in Lyme Regis on the south coast of England in 1799. As a child, she loved strolling across the beach and cliffs with her father. He was a cabinetmaker who earned extra money by searching for fossils. He taught Mary everything he knew about them. They sold the fossils to tourists on a stool outside their house. But one night, tragedy struck. While walking over the cliffs, her father slipped and fell. His injuries were serious. Weakened from the fall, he died soon after from tuberculosis. His death left the family devastated and in great debt, their lives became a struggle for survival. To help make ends meet, Mary continued her father's fossil business without him. One day, Mary's brother spotted an unusual skull in the cliffs. Twelve year old Mary searched relentlessly for the rest of the fossilised bones and dug them out. She had found the skeleton of a prehistoric reptile, the ichthyosaur, the bizarre looking creature, was half fish, half lizard. Her discovery was evidence of a highly controversial theory at the time: Extinction. Many Christians were shocked and confused as to why God would let a species die out. Mary was noticed by educated geologists who started to come to her for advice. Later, age 22, Mary discovered the first plesiosaur skeleton. Experts thought her new find was a fake. But eventually she was proven right. Women weren't accepted in the Geological Society in Mary's time. So she wasn't properly credited for her groundbreaking discoveries. Some men even gave lectures, introducing her new find without any mention of the woman who had discovered them. But Mary remained determined. She saved up for a shop to sell her fossils and continued searching for ancient Jurassic creatures. She studied the rocks so carefully that she could even spot coprolites - lumps of fossilised poo. Despite all of this, she was still not well respected in the local community and remained very poor. Things got worse. Her beloved dog, Trey, was killed in a landslide and she became sick with breast cancer. The medicine she was given made her wobbly. The locals sneered at her, calling her a drunk. Sadly, Mary Anning died aged just 47 in 1846, only on her deathbed did she begin to get the respect she deserved. The Geological Society of London made her an honorary member and began to write about her life's achievements. Now, her outstanding contribution to palaeontology is fully recognised, and she is a celebrated woman of science. It's often said that the famous tongue twister she sells seashells on the seashore was based on the life of Mariana. But it's hard to say for sure. The truth is buried in the sands of time.

324. The glass ceiling smashers

The pioneering women, who refused to take no for an answer – and broke into traditionally 'male' professions.

Published on 20 February 2018

This video was made by BBC Archive

CAPTION: Once upon a time, certain vocations were considered 'women's work'. But there were many who wouldn't accept being shut out of the more traditionally masculine jobs. And through sheer determination, guts and talent succeeded anyway. Milda Harding worked her way up to become Britain's first female bank manager. Thought a BBC reporter at the time was quick to undermine her achievement.

REPORTER: Will it be an essentially feminine branch, a feminine bank.

MILDA HARDING: Oh no, no. No. One will cater for male customers as well as the lady customers.

CAPTION: Sandra Holt was a bus driver from Halifax who had to endure many of her colleagues walking out in protest at her employment.

REPORTER: Well, what do you think the problem was all about? Was it prejudice against women?

SANDRA HOLT: I suppose so, yes.

CAPTION: Iris Cable was a former airforce mechanic who set up her own garage in Kent.

IRIS CABLE: Well, I try and give good service, I try and be very conscientious. I think working on aircraft has made me like this.

CAPTION: Sue Brown was the first female cox to compete in the Oxford/Cambridge boat race.

SUE BROWN: It doesn't make any difference being a woman, I don't think.

CAPTION: Meanwhile, at Alexandra Palace, the BBC had its share of pioneering women. Shiela Borret was the first female announcer on the BBC's National Service. Elizabeth Cowell was the first female television announcer.

NEWS REPORT *1936:* Elizabeth Cowell being made up. The BBC was ready to tell the world that the first television programmes were going on the air to Radio Olympia.

CAPTION: It was 1960 before the BBC has its first female national television newsreader, Nan Winton.

NAN WINTON: We're hoping they will send up quite a lot of questions, and we will give them the answers.

CAPTION: These women who broke into traditionally male professions are true pioneers. But whilst we celebrate their achievements, we must also recognise that even in 2018 some women still face discrimination and harassment at work. And that in terms of true equality in the workplace, there is still a way to go.

325. The godfather of typography

Alan Kitching is one of the world's leading typographers and printmakers. What is the inspiration behind his work?

Published on 19 January 2018

Made by BBC Culture

CLEMENCY BURTON HILL *Journalist*: So, Alan, how did you start working with lettering and with type?

ALAN KITCHING: I always liked drawing. And I used to, in fact, I used to draw like little posters and things. So when I said I want to be a poster artist, when I was, like, probably, that kind of slightly dumfounded the headmaster and my parents, so. And then, they had a good idea, well, the nearest thing they could think of was the printing industry, because they use lettering and letters. I was never interested in printing. What I was interested in was the composition. How you chose that size of type for that. And you put a rule in there, you have to spell things properly and you put a comma in or not or whatever. And that, to me, was fascinating. I had to experiment and discover new things through this old medium. And that's what I'm still doing now. Printing was never colourful. It was traditionally always black and white. Like books were always in black type and white paper. These letters, which are hundreds of years old, all they've ever seen in their lifetime is black ink.

CB: And now look what they get to play with.

AK: And then I changed it, I had to clean the clean and clean. And now I print in different colours and fluorescent . . . and things like printing ink have developed. You could get fluorescent inks and the whole palette changed.

CB: Is it possible to say what it is about those old wood type, the old metal type, and why they lend themselves so well to modern messages, to modern graphics?

AK: I don't know, Clemency.

CB: Magic, isn't it?

AK: (*laughs*) All, I'm saying is I tried to experiment myself in my own terms what to do with it and respond to various phrases like the first line of a Keats poem, 'A thing of beauty is a joy forever.' Wonderful line. That needs colour. Taking a line of poetry and trying to express the meaning of the words. To reinforce the meaning of the word.

CB: And how do you decide on the colour, because you're known for these glorious, amazingly vibrant pictures.

AK: Now, I've just a poster to commemorate the Russian Revolution. And that's all in a series of reds. So the colours come out of the subject matter. I'm doing this kind of sketchily, because I want it to look like it's been weathered, it's an old poster, you know, it's been out on the hoarding for a long time. And it's weathered and gotten wet and everything.

CB: Are you a perfectionist printing?

AK: Printing materials are always very precisely made. And yet at the same time, it is really crude. And it's the crudity I like within the perfection, so I'm trying to achieve perfection, which is not that perfect. I'm not obsessive about that, really. Some things look all right and some things don't and I move it accordingly.

CB: We're surrounded all the time with letters and we use the same computer programmes and the same e-mail systems and everyone's looking at the same fonts all the time. What's the value in this sort of thing? And seeing letters that aren't just made and replicated everywhere? Does lettering matter for life, Alan?

AK: Certain typefaces evoke a certain kind of feeling for a word or phrase. And I think people these days are more aware of it, because there's thousands and thousands of fonts. When I started, there's was, like, maybe 20.

CB: How many typefaces have you got, do you reckon?

AK: You know something, I've never added them up, actually.

CB: Are you talking hundreds, thousands?

AK: We're talking hundreds. Hundreds and hundreds. Yeah.

CB: Do you have a favourite?

AK: The ones I'm using now are my favourites. Because they're all associated with the idea behind the subject of the job.

CB: Alan, what makes the perfect typeface?

AK: The underground lettering type Johnston sans serif? Because Edward Johnston came from calligraphy. He studied the subject intently and it took many years to develop. And what he finished up with, that London Underground use now is, to me, the essence of a perfect type face.

CB: Do you still get joy and pleasure out of doing it? Because it's been many years now, but when you wake up in the morning, are you excited to come down to the press?

AK: I am. I am. And I have textbooks up there, and I sit there late at night, or any time, and I'm working out, you know, I've got this thing, a Dylan Thomas line, and I'm reading a poem and so on . . .

CB: Do you always sketch everything out before you get to the press?

AK: And I made little sketches, most of them get translated onto actual size work, probably pretty much straightaway.

CB: This ink looks very wet. Is it very wet?

AK: No, it's dry.

CB: Oh, it's dry.

AK: It's very thick. This would take a long time to dry. Yellow takes, like, a week to dry.

CB: Wow.

AK: The red's a bit quicker and the blue is a bit quicker.

CB: It's so tactile. I wasn't expecting that.

AK: And this is what I'm saying about the colours come from the subject. 'Under the apple bows' – and I wanted this, to intertwine the Y and S, as if it's interwoven.

CB: Like a branch. Gorgeous.

AK: Like a branch. That is the first line from Dylan Thomas's poem, *Fern Hill*. I thought it's just a wonderful line. 'Now as I was young and easy, under the apple bounds,' I just thought, breathtakingly beautiful.

326. The guide dog that spies on people who ignore its owner

Amit Patel's guide dog, Kika, has a camera that films the discrimination he can't see.

Published on 15 May 2018

This video was made by BBC Stories

CAPTION: Two years ago Amit Patel went blind. He now has a guide dog called Kika to help him get around. Let's look at things from Kika's perspective. This footage was filmed using the camera Amit straps to Kika's back. How long will it take for the stewards at this London station to stop that Amit needs help? Amit and Kika's normal access route is closed because of a royal visit and they're lost. More than two minutes pass and nobody offers help, so Amit calls out.

AMIT PATEL: Hello? Is there a member of staff anywhere? Hello? Is there a member of staff?

STAFF MEMBER: Sorry. Sorry, sir.

AP: Five minutes I've been waiting here, I can hear you staff members talking. Seriously. Can you not see a guide dog?

SM: I was looking the other way.

AP: I wasn't sure where I was, whether I was standing on the pavement or standing on the road. Whether there was anybody there to assist me. And the hardest thing is actually feeling scared and vulnerable, not knowing where I am or who's around me.

CAPTION: Kika's 'dog-cam' gives Amit an insight into what's happening in the world he can't see. Kika's camera recorded the time a taxi wouldn't stop to pick Amit up and when train passengers didn't offer him their seats.

AP: When we come home at the end of the day, I upload the GoPro footage onto my laptop. And if I've felt that we've had an incident during the day, I've heard something, but I can't place it. I will get my wife to review the footage.

CAPTION: Staff at the station said they didn't see Amit, but that's not the way it looked to his wife. Amit complained to Network Rail. It says it's investigated and is giving further training to its staff.

AP: Having the video, having the voice and the actual scenario being played out in real time, it actually gives me something to go back to and say, 'This is what happened to me, and it needs to be sorted.'

CAPTION: Meanwhile, Kika's continuing in her career as a camera operator.

327. The hidden history of gin and tonic

Love a good G&T? Food historian Annie Gray on the history of gin and tonic - and how they came together.

Made by Somethin' Else, 29 June 2018

ANNIE GRAY: Gin is Britain's favourite spirit. We bought over 47 million bottles of it in 2017. Distillation goes back to the 9th century when Arabian alchemists developed the alembic still. This produced highly alcoholic spirits, which could be infused with various herbs and spices, which were, at first, seen strictly as medicine. When distilling spread to Europe, it was through the usual havens for medical knowledge, religious houses. By 1269 Dutch monks were producing a special juniper-based spirit said to cure the plague. This was the birth of what we now call gin. Spirits at that time were drunk by the rich, and after the dissolution of the monasteries in Britain, they were often produced at home. Demand was high, for who knew medicine could taste so good. By the 17th century, spirits or cordials, as they were known, were increasingly commercialised. No longer just as medicines, but as pleasant and, it was claimed, healthy tipples. Meanwhile, British soldiers were fighting alongside the doctor as they battled for independence. The shot of Dutch courage their forces downed before heading off to do or die, became popular with the Brits, too. And returning soldiers brought back with them a taste for this curious, juniper flavoured drink. It may have started off as a Dutch drink, but it quickly became very British. It

was no longer a rich person's drink. It was now a cheap and tasty way to get hazy and forget the daily struggle for people whose lives were often short, brutal and very miserable. Distilling was easy and could be done in a basement while the rats looked on. It was especially popular in London and it was there that it would cause the most problems. In 1688, King William III saw an opportunity to tax gin making money to fight the French. He encouraged production and the gin craze went bang. For nearly 75 years gin was blamed for murder and mayhem, and when the government finally tried to control it, there were public lynchings of officials trying to inspect distilleries. In the 19th century, gin was rehabilitated, although it never lost its slight air of danger. Working class gin palaces dripping with glass and glitz made gin glamorous, harking back to the time when spirits were only for the rich and making it slightly more socially respectable. It was often drunk neat or with hot water. But a new era was beginning. Tonic water has its origins in South America, where the bark of the Cinchona tree was used to treat malaria. As a powder, it was mixed with water and sugar, and it spread across the British Empire. But it was only in the 18th century when carbonated water was invented that it made the leap from fairly vile medicine to everyday drink. It still lacked something, though, and it was in the heat of the British colonies, such as those in India, that people started adding gin for an extra kick. Gin and tonic was born. Today, gin is as popular as ever. In 2009, laws changed to allow small-scale distilleries to produce gin more easily. All the reasons it was popular in the past are just as valid today. It's easy to produce, endlessly varied and mixes well with other drinks. No wonder we get through so much of the stuff. Cheers.

328. The hidden history of the Christmas pudding

Our modern, sweet pudding was once served more like a chutney, as an accompaniment to roast beef. Here's food historian Annie Gray.

Made by Somethin' Else, 4 December 2018

ANNIE GRAY: The Christmas pudding is in decline. In a recent survey, less than half the population said they included one on their Yuletide table. And that figure hides a significant age bias. The younger you are, the less you fancy a bit of pudding. How has this dish, once emblematic of Britishness, come to such a sorry state? What we call Christmas pudding has its roots in the medieval period when a rich concoction called plum pottage became associated with winter feasting. Pottage was just a name for a soupy stew, and this one contained beef, spice and dried fruit. When a pudding version appeared sometime around the end of the Tudor era, the two coexisted happily for many decades. Plum pudding was similar in style, but with no actual meat, just lots of beef suet. And were stuck in with breadcrumbs and flour with added eggs until the mixture was thick enough to be put in a wetted, floured cloth and boiled. The resulting speckled brown, cannonball-shaped pudding wasn't sophisticated but was delicious. It tumbled rapidly into recipe books with as many variants as there were writers. It was part of the main meal, sometimes eaten before the meats, but more often with them. And it quickly became seen as the ideal

accompaniment to roast beef, a bit like modern chutney. Beef and plum pudding became *the* English dishes of the 18th century. The plum pudding was eaten widely across the winter. Though it was hardly a dish for the poor, with all its spice and expensive imported fruit. It could be made in advance, though it was more often prepared when needed, and it would keep for months making it ideal as a gift. However, as the 19th century wore on, it became increasingly associated with feasting, in particular at Christmas, because it was eaten with beef and beef was so ubiquitous on the Christmas table, the plum pudding itself came to be seen as a particularly Christmassy food and was even served when no beef was in the offing. In 1845, Eliza Acton became the first person to publish a recipe for it called Christmas Pudding, and it slowly slunk to later in the meal. It also got gradually sweeter and squishier, for it was now often moulded in an ornate copper mould for the tables of the rich, or a simple bowl for those of lesser means. Habits changed and the 20th century left the plum pudding behind, though as Christmas pudding it survived. No longer eaten as part of the main meal, it was now as sweet and served increasingly with accompaniments deemed fitting for its new definition – cream or custard or brandy butter. The tradition of setting it on fire was a Victorian one, but in the 1920s it garnered more mythology, such as the taking rather seriously of the old Victorian joke that the pudding should be made on STIR up Sunday, the fifth Sunday before Christmas. A sixpence was sometimes added to the mixture as well, a pale shadow of another festive tradition, this time related to the ancestor of the Christmas cake twelfth cake, which had tokens concealed in it to be found amongst much revelry. Today our Christmas dinner has swollen to such proportions that a hefty pudding with a rich sauce can sometimes seem too much to handle. Perhaps this year we should go back to basics: beef with gravy and a slice of plum pudding. Anyone?

329. The hidden history of the hashtag

Some call it the pig pen, others the octothorpe. Curious facts about the humble hashtag.

Made by Dayglow Media & Pencil & Pepper, 23 May 2018

CAPTION: The little sign we now call a hashtag was first used on Twitter in 2007. In the past the symbol had other names including, number, pound, tic-tac-toe, pig-pen and waffle. It's also called Octothorpe, but not many people know that. It began as the Roman term for a pound in weight. In the 14th century, libra was abbreviated to 'lb'. A 'tittle' – or short cross stroke – was added to show that it was a contraction. Gradually the way it was written by hand changed, and over time it evolved into the symbol we know today. In the 1950s Bell Labs introduced the Dual-tone telephone that used buttons instead of a dial. By 1968, the extra buttons were functional and carried symbols. Supervisor Don McPherson is said to have come with a name by combining 'octo' for the eight end points, with the surname of Jim Thorpe, the first Native American to win a gold medal at the Olympics and one of the greatest athletes of his era. Over the past decade or so, the symbol has found a new use on social media. There have been rumours over the years that Twitter might ditch the

hashtag to simplify things for new users, but it's still going strong. In 2017 #MeToo had over 1.7 million tweets in 85 countries.

330. The hidden meanings in music hall lyrics

Music halls were at the heart of working class culture in Victorian London - and there were often hidden meanings in their lyrics.

Made by Suzie Hanna/Jude Cowan Montague, 23 April 2020

CAPTION: Marie Lloyd 1870-1922

VOICEOVER: Hello, dears. I'm Marie Lloyd, music hall star, the one and only, from old London Town. #My old man said follow the van and don't dilly dally on the way# That song's about a moonlight flit. We had to leave our lodgings in the middle of the night before the landlord caught us and made us pay the rent. Music Hall was working class musical theatre which began in pub saloons in the 1830s. Whilst people ate and drank, they'd listen to songs rude, funny, political, sentimental. In our prime, there were over 300 purpose-built music halls in London alone. We were famous, at home and abroad. People bought our song sheets by the thousand. We had all sorts on stage dancers, jugglers, comic turns, circus troupes, animal acts. But we singers and performers, we were at the heart of it. Stars like Dan Leno, George Robey, Vesta Tilley and Gus Elen. Life was tough for working class people. We sung about the hardships high rents, overcrowding, poverty, violence, hunger, drinking, marital strife but our songs were funny. Something to share and to remember. Love songs. #Daisy, Daisy, give me your answer, do# Food. #Boiled beef and carrots, boiled beef and carrots, that's the stuff for your 'Derby Kell' makes you fat, keeps you well.# City life. #"Wotcha!" all the neighbours cried# #Who're going to meet Bill? Have you bought the street Bill?# #Laugh I thought I should have died# #Knocked 'em in the Old Kent Road Ah ah diddly ah# Holidays. #Oh I do like to be beside the seaside# #Oh I do like to be beside the sea# At the seaside you could show a bit of flesh. Take a few risks. #Where the brass bands play "Tiddly-om-pom-pom!"# Politics. #Two lovely black eyes Oh what a surprise# The song tells the story about a man who spoke up for one political party and got punched in the eye. Then he swapped sides and got punched in the other eye. Some performers weren't always what they seemed. George Robey appeared like a pantomime dame in frills and a skirt. Vesta Tilley always dressed like a smart young gentleman. #I'm Burlington Bertie, I rise at 10:30 And saunter along like a toff I walk down the Strand with me gloves on me hand And I walk back again with them off# Horseman Pablo Fanque was one of the great black music hall stars. He led his own circus troupe. And then there was Jules Léotard, the daring French trapeze artist. #He'd fly through the air with the greatest of ease, a daring young man on the flying trapeze# But it wasn't always easy. The Social Purity Alliance said we were a bad influence. The authorities could fine us for being improper. We had to be clever. Use double meanings. If you know what I mean. If the audience didn't like you they'd throw anything at you even dead cats. The air was thick with cigarette smoke and it could get disgusting with so many people packed together in such heavy clothes. Phe-ew. Our catchy choruses

survived right into the computer age. In the film 2001: A Space Odyssey, the HAL computer sings... #Daisy, Daisy, give me your answer, do# ...as it gets deactivated, and I've heard tell it's really about the mistress of the Prince of Wales, that's before he became Edward VII. There's often a hidden meaning in music hall lyrics. In London our audiences were mostly male and the songs were written by men. But some women, like me, had the cheek to make a good living. #Now I always hold with having it if you fancy it, If you fancy it, that's understood. And suppose it makes you fat, I don't worry over that 'Cause a little of what you fancy does you good# In hard times, singing those songs together was the best night of the week. I wonder what you lot are singing about these days# #Now I always hold with having it if you fancy it, If you fancy it, that's understood. And suppose it makes you fat, I don't worry over that, 'Cause a little of . . .

331. The hidden meanings tucked inside famous logos

Graphic designer David Airey deconstructs the world's most famous logos - and uncovers some hidden meanings in the process.

Published on 7 May 2020

This video was made by BBC Archive

DAVID AIREY: Logos are everywhere. They're a huge part of daily life, from the toothpaste we use in the morning, to the insoles of our shoes, cereal packaging, phone apps. Most of the products we see and use are branded with some form of symbol or wordmark. Why is that? Logos aren't just a label that shows who's responsible for a product or service. They're also used because people often choose products based on their perceived value, rather than their actual value. Think of the celebrity who drives an Aston Martin instead of, say, a Skoda. Skoda has often been ranked car of the year in many European countries and delivers much better mileage at one tenth of the price. It's a logical choice, but it's Aston Martin's identity that creates images of luxury and status, and that is what usually clinches the sale. A logo can appear in various formats, depending on both the brand and the environment in which the logo is displayed. Wordmarks are type-based logos that draw attention to a brand name on its own. The type design often gets a custom twist to capture the essence of what the brand does and to separate it from competitors. That could be the loose, flowing feel of Cadbury's or Coca-Cola, or the more traditional vibe of New York Times and The Washington Post. Visual tricks such as the use of negative space can be applied to add a little design magic. An example is the hidden FedEx arrow, that conveys direction and movement. Monograms are shortened wordmarks that are usually initials of longer names. These are about turning a mouthful into something that's generally easier to remember. Another form a logo can take is that of a graphic symbol, still representing the core of a brand's service. It's often used where space is at a premium, like an avatar, or that little area beside a website url. Sometimes, when a brand is so established and the symbol is instantly recognisable, anything else becomes almost unnecessary. Symbols are particularly well suited for incorporating subtle messages that act as talking points and heighten memorability.

The bear in the Toblerone logo is one example. It adds meaning, because the bear relates to an old coat of arms that represents the town where the Toblerone chocolate was originally created. The main job of a logo is to identify. It takes its meaning from the entity it represents, not the other way around. This is why when logos first enter the world, they're essentially empty vessels. With consistent use over time, the market's filled with every association people have with a particular brand, whether that's positive, negative or something in between. That's exactly how religious symbols work. There's nothing inherent in the shapes, but it's about what those shapes have come to represent in the minds of the people who are looking at them. Another form of logo is that of a combination mark. Essentially a wordmark and symbol together. This lets you communicate messages in a slightly different way. Look at how the Amazon logo has it all, from A to Z. And even adds a little smile into the mix. So how can you tell a good logo from bad? In my work as a designer, I judge the strength of an idea on the following criteria. Is it appropriate? Is it simple? Is it memorable? By appropriate, I mean, the design needs to be relevant in shape and form to the client in question. For example, a logo for a toymaker may need to be fun and appealing to kids, or a logo for a car racing team may need to appear sleek and dynamic. By simple, I mean that the design can't say too much. It should tell one story, so it's adaptable enough for use in all applications, from on a billboard or the side of a building to a social media avatar or website favicon. By memorable, I mean the design also needs to be distinctive, unusual enough to be remembered. A good way of testing. This is to describe the design to someone and see if they can sketch a fairly accurate likeness. Some of my favourite logos aren't particularly well-known, but they've stuck with me because they all share those same traits: telling a relevant story with simplicity and distinction.

332. The hidden metaphors that shape our world

Metaphors are not just for poets - they're everywhere in our everyday language. And they shape the way we view the world.

Published on 6 August 2020

NARRATOR: Breaking the ice. A thorny issue. Life's a rich tapestry. Our everyday speech is littered with metaphors. (See what we did there?) Or as the poet Paul Muldoon put it... "The impulse to find the likeness between unlike things is very basic to us." But metaphors aren't just for poets. They shape our beliefs, attitudes and actions in ways we don't even realise. So what exactly is a metaphor? At its simplest, a metaphor is X equals Y. Sometimes it's stated explicitly. Every day is a winding road. But more often metaphors are harder to unpick. Take the end of The Great Gatsby... "We beat on, boats against the current, borne back ceaselessly into the past." On first glance, we're talking about rowers fighting the pull of the current. But the image is mixed up with time, the past, the power of nostalgia. Many think the best metaphors bring colour and meaning to the everyday Author James Geary says that... "By mixing the foreign with the familiar, the marvellous with the mundane, metaphors make the world sting and tingle." But not everyone is a fan.

Philosopher Thomas Hobbes compared the use of metaphors to... “Wandering amongst innumerable absurdities.” Which is of course a metaphor. If we’re trying to express anything abstract, metaphors are hard to avoid. Take heartbreak. Imagine your friend is going through a break up. They’re probably... A complete mess. Beside themselves. Consumed by jealousy. Or perhaps they’re bottling up their feelings. Some metaphors have become so familiar, they almost feel literal. Think about time again. There’s the tired old metaphor... time is money I hope you spend today profitably. Thanks for being so generous with your time. What does it say about our society that we equate time and money like this? But dig a little deeper and you’ll see... even the way we think about time is metaphorical. We move through it, travellers on a path, with the future up ahead and the past behind us. The American linguist, George Lakoff, called these orientational metaphors. Take the idea of up and down. He’s at the peak of health. He fell ill. She’s on top of the situation. He’s under my control. She was able to rise above her emotions. He dragged the conversation down to his level. Lakoff also helped develop the idea of political framing. The words we choose affect how we perceive and deal with social issues and help decide what becomes publicly accepted common sense. And metaphors play a huge role in that. We often talk about the battle or fight against cancer But a 2019 study suggests military metaphors like this could actually undermine cancer treatment, make people feel fatalistic about their chances and even put implicit blame on those who don’t survive. Crime is another area full of metaphor. We have crime waves. The criminal underworld. Crimes committed in cold blood. But what effect might metaphors really have? In 2011, a Stanford study gave one group a pamphlet describing crime as a wild beast preying upon a city. A second group were given a different pamphlet describing crime as a virus plaguing the population. When asked how to tackle the issue, the first group were 20% more likely to endorse stricter policing than the second. So the metaphors we choose matter. Not just for our beliefs, but potentially for our laws, our politics and our treatment of each other. Lakoff and his co-author Mark Johnson put it like this... “The people who get to impose their metaphors on the culture get to define what we consider to be true.” Or to adapt a well-known example... Knowledge (of metaphors) is power

333. The history of the universe... in 4 minutes.

Historian and author of Origin Story, David Christian, runs through 13.8 billion years of history - and looks at the impact of humanity.

Animation by Paper Panther, 18 May 2018

DAVID CHRISTIAN: Our universe was created about 13.8 billion years ago in the Big Bang. At first, it was very simple, consisting of little more than hydrogen and helium and lots of energy. There were no stars or galaxies, no planets, and certainly no living creatures. Then gradually, more complex things appeared. The first stars and galaxies probably appeared within about 200 million years of the Big Bang. As big stars lived and died, they blew up and created new elements. Those new elements allowed the creation of new material such as the dust and ice and rocks

and minerals from which planets are made. Our sun and solar system appeared about 4.5 billion years ago, and by 4 billion years ago, it's likely that life had emerged on Earth. Life evolved and diversified. But most of it consisted of tiny single celled organisms until about one billion years ago, the first many celled organisms appeared. From about 500 million years ago, big creatures became much more common from trilobites, to trees, to Tyrannosaurus rex. The first humans evolved very recently, just about 200,000 years ago. Though it wasn't obvious at the time. The appearance of humans turned out to be hugely important, because humans were able to share ideas and information better than any other species that ever existed. Using that ability, our ancestors gradually built up stores of information that allowed them to control their environments more and more powerfully. The process accelerated until in just the last hundred years, we have become so powerful that what we do in the next few decades will determine the future of the oceans, the climate and of most other species on Earth, including our own descendants. Many scholars believe that this represents a new geological epoch, the Anthropocene. In the last 50 years, we humans have begun to control energy and resources on such a vast scale that we're transforming the land, the seas and the atmosphere of the earth. So planet Earth is at a turning point in its history. Humans, now the dominant species, will either lead the biosphere towards a flourishing future or to catastrophe, perhaps triggered by nuclear wars that could ruin swathes of the planet in just a few hours or caused more slowly by the continued release of greenhouse gases until the land is flooded and global climates are too hot to grow enough food. This is a very, very big deal. Never before has a single species determined the future of the entire biosphere. The good news is that we understand the science and we already have many of the technologies needed to build a sustainable future. What's missing now is the political technology. How can governments and peoples be encouraged to see the challenges that they all share rather than simply defending their own local and immediate interests only by collaboration? Can we avoid the many dangers we face today? So here's the once in a 4 billion year life challenge: Can we steer planet Earth towards a prosperous future in which humans and all the other organisms on which we depend can flourish for thousands, even perhaps for millions of years into the future?

334. The importance of knowing you might be wrong

Could intellectual humility be the key to making us smarter?

Published on 14 May 2020

Made by BBC Reel

NARRATOR: We all find it difficult to admit when we might be wrong. In an increasingly polarised world, it seems as if people are becoming more convinced of their own beliefs and less willing to contemplate other points of view. But could this be to the detriment of our intelligence? Could having a sense of intellectual humility actually be key to making us smarter?

DAVID DUNNING *Social Psychologist*: One of the new topics that's come in to conversation in a lot of different circles in society is the idea of intellectual humility, that we should be humble in our opinions, humble in our beliefs and in our conclusions. We have to know our limits and we have to tolerate those who disagree with us, because they may have a kernel or more of a kernel of truth than we actually believe.

TENELLE PORTER *Psychologist*: One way to think about intellectual humility and intelligence is that no matter how smart you are, how much school you've had, none of us are inoculated from getting things wrong now and then. We're all intellectually fallible.

N: Why do we struggle so much to understand and admit to the limits of our knowledge. Social media often feels like it's full of people offering confident opinions on things they really know little about. But what fuels this overconfidence? And are we all susceptible to it?

DD: The Dunning Kruger effect is that when you lack knowledge or expertise, you're not in a position to realise that you lack knowledge and expertise. And the reason this happens is because often the expertise you need to come to a correct decision is exactly the same expertise. You need to be able to evaluate whether or not that is the right decision. One thing to recognise is that the Dunning Kruger effect sooner or later is inevitable. It will happen to all of us. We all have pockets of incompetence. We all make errors. And those are the moments we step into the effect and don't know that we're stepping into the effect. People often assume that people deny their incompetence because they're in denial. They know it's there, but they don't want to admit it's there, either to you or to themselves. Actually, what our work suggests is that our errors are simply invisible to us. Now, the Dunning Kruger effect is part of the ingredient in this mix, in this stew of intellectual humility and the need for intellectual humility. So the work that I do does suggest that we should be a little bit more intellectually humble if we truly want to know. Sometimes it means recognising when we don't know.

N: So how does intellectual humility connect with our intelligence? Could it be playing a part in how we acquire knowledge, or the way in which we perceive just how smart we really are?

ELIZABETH J. KRUMREI-MANCUSO *Psychologist*: We conducted five studies together to examine how intellectual humility relates to people's intelligence towards their knowledge, as well as towards their meta knowledge. So people's perceptions or awareness of how intelligent they are or how much they know. And what we saw is that there was no relationship between people's levels of intellectual humility and their general cognitive ability or their IQ. But even though intellectual humility wasn't predicting general intelligence or cognitive ability, it was very much predictive of how people view their intelligence. So people who were lower in intellectual humility indicated that they were much better at problem solving than other people. And they also overestimated how well they had done on the cognitive ability assessments. People who were higher in cognitive ability were more conservative in their assessments of their Problem-Solving ability and actually underestimated a

little bit how well they had done on the cognitive assessment. Then in another study, we looked at how intellectual humility relates to people's general knowledge. What we found is that intellectual humility was predictive of people's ability to discriminate between real and fictitious items on this assessment, meaning that people who are more intellectually humble had more general knowledge. So when people were lower in intellectual humility, they were more likely to claim knowledge that they didn't have. And so even though we saw in the first study that intellectual humility wasn't related to general cognitive ability it did seem to relate to how much knowledge people possess.

N: If intellectual humility is linked to acquiring knowledge. Could it be a key component to making humans smarter? Interestingly, one of the obstacles to intellectual humility can actually be the way in which we perceive and understand human intelligence.

TP: On one end of the spectrum, people believe that intelligence is a fixed trait, that you get a certain amount of it, and that's that. On the other end of the spectrum, people believe that intelligence is malleable, that you can grow and improve your intelligence through hard work and effort. If we perceive that intelligence is something that can't grow and that we either have it or we don't, it's harder for us to have intellectual humility. Adopting a growth mindset can help us foster intellectual humility, because when we move into this idea that intelligence can be developed, that we can get smarter and learn, which is all part of the growth mindset. It opens us up to being intellectually humble, to admitting everything that we don't yet know and to correcting ways that we might have gone wrong.

EJKM: I think intellectual humility could have a huge impact on society. And what we're seeing from the research so far is that people who are more intellectually humble have more favourable views of people who disagree with them. They're more open to . . . to negotiating and compromising. They're more open to exploring information and especially information that is in conflict with what they currently believe.

DD: One of the things about the Dunning Kruger effect is that it arises when people are left to their own devices, when they're the ones trying to judge their judgement. That's when they get into trouble. So the important thing, I think, is also to seek out opinions of other people. We may not like them, but they may enlighten us.

TP: If we want to make big discoveries, it's going to require us to wade into the unknown and really come to grips with everything that we don't yet understand intellectually. Intellectual humility can help us make progress in that direction. Of course I believe that, but I could be wrong.

335. The incredible life of Clara Schumann

The life story of Clara Schumann, one of the most remarkable pianists of her time. As told using felt animation - and her wonderful music.

Published on 26 January 2018

This video was made by BBC Archive

CAPTION: Born Clara Wieck in 1819, her parents were afraid that she was deaf, because she didn't speak until the age of four. It turned out her silence was a result of the sounds in her home where there was more music than speech. Both her parents had musical backgrounds. Her father, a renowned piano teacher, began her music lessons at an early age.

NARRATOR: My diary begun for me by my father the 7th of June 1827 as record of my progress and of his own efforts on my behalf. From now on, I will write in the diary myself whenever I have some time.

CAPTION: She was best known for her virtuosic performances and usually played from memory. Her father's students often rented rooms in the house. When Clara was 11, one young man caught her attention.

N: My father has a new pupil this summer. His name is Robert Schumann. He is nine years older than me and has been studying law in Heidelberg. My father says that Robert has such talent and imagination that he could turn them into one of the greatest pianists now living.

CAPTION: A year later, she began touring, under the strict guidance of her father. But her heart remained in one place – much to his annoyance.

NARRATOR: September, 1839. May heaven only give me strength to prevail in the next struggle with my father. I shall find it hard. My heart is torn to pieces. When I think of all he has done for me and that now I most openly oppose him. Though Robert's love makes me endlessly happy.

CAPTION: Clara and Robert were forbidden from writing to each other, but they communicated through music. She often performed his compositions, under the nose of her father, who felt Schumann wasn't good enough for his daughter. To his dismay, Clara and Robert got engaged when she turned 18; they married the day before she turned 21.

N: We were married at ten o'clock. First came a corral and after a short address by Wildenhahn, the preacher, a friend of Robert's youth. His words were simple, but heartfelt.

CAPTION: The couple settled in Dusseldorf and had eight children. Robert continued to compose at home, but his mental health was failing. He was eventually admitted to an asylum. Clara used her musical talents to support the family, leaving little time for her own composition. During this time, a young composer became a frequent visitor to the Schumann household.

N: Now comes a wonderful person, Johannes Brahms. A composer from Hamburg and 20 years old. I have the most extraordinary feeling when I'm with him. It's as if he comes straight from God.

CAPTION: Robert died in 1856, leaving Clara to support the children. She was 36 years old. Brahms helped her in the months and years that followed. She continued to perform, teach and promote the work of her husband for the remainder of her life but gave up her own composition almost entirely. In total, she wrote over 60 pieces, including numerous songs and pieces for piano and orchestra – unusual for women of the time. She died in March 1896 and is remembered as one of the great pianists of the Romantic period.

336. The incredible story of the boy who invented Braille

How 15-year-old Louis Braille invented a revolutionary tactile code for the visually impaired.

Made by Dayglow Media & Pencil & Pepper, 14 June 2019

NARRATOR: Where does Braille come from? The story begins in 1812 in France and a young boy called Louis Braille. He lost his sight in one eye when he was three. This was the culprit, a sharp tool called an awl, which he was playing around with in his father's workshop. His eye got infected and the infection spread to the other eye. By five, Louis Braille was completely blind. But he was determined and he went on to win a scholarship at France's Royal Institute for Blind Youth. At the time, the system for reading was pretty basic, just raised letters on a page. So he started working on a new code that would be quicker and more efficient. By the time he was fifteen, Braille's new system was basically complete, and the first edition was published in 1829. Braille's system was based on a military code called Night Writing invented by Captain Charles Barbier, it was a system of embossed dots and dashes that soldiers could read safely with their fingers on the battlefield at night. Braille simplified the system, reducing the cells from twelve to six raised dots. So they were the ideal size for a fingertip to feel with one touch. Braille created his raised dots using an awl – the same sharp tool that had caused his blindness and a flat grille to keep the lines straight and readable. It's read from left to right like other European scripts, Braille is not a language, it's a system of writing, which means it can be adapted to different languages. Braille codes have been developed for maths and scientific formulae. Braille loved music and invented a system of Braille for writing music too. But the medical establishment was conservative and Braille's innovation was slow to be adopted. He died of tuberculosis, aged 43, two years before his system was finally taught at the institute where he'd been a student. A hundred years later, he was reburied at the Pantheon in Paris in honour of his work. Though his local village insisted on keeping his hands. Over time, the system did spread throughout the French speaking world. By 1882, it was in use across Europe and had reached North America by 1916. A universal Braille code for English was formalised in 1932. Braille has been revolutionary for many blind people around the world. But with the rise of new technologies, including computers that talk, literacy rates are on the decline. In

1999, a second eponym was given to this extraordinary man. A rare type of asteroid was 9969 Braille by NASA, a timeless tribute to a great human being.

337. The incredible time-bending power of your brain

Ever wondered where the last year of your life went? Neuroscientist David Eagleman sheds some light on the time-bending power of your brain.

Animated by Peter Caires, 13 June 2019

DAVID EAGLEMAN, NEUROSCIENTIST: When I was a child, I was about eight years old, and I went to climb on a house that was under construction in our neighbourhood. So I stepped up to the edge and I fell, and the fall seemed to take a very long time, so then I was looking down at the ground watching the red brick floor come towards me and once I hit the ground then I went unconscious but it got me interested in the question of... how we perceive time When I grew up and I became a neuroscientist, what I realised was we all come into the world with this idea that time is just a river that's flowing forward in one direction at a fixed speed, but what we know is that it can be different in your head and in my head, because it's somehow a psychological construct, time. In other words, your brain is locked in silence and darkness inside the vault of your skull and its job is to figure out what's happening outside but it has to do a lot of editing tricks. Your vision and your hearing process signals at different speeds and yet, when you see something like a balloon pop or somebody clapping their hands, it appears as though the sight and sound are synchronised. And what that means is the brain has to be collecting all the information before it puts together a final story and serves that up to your conscious perception. It's like there's a buffer where it looks for other signals coming up the pipeline and as a result it means that we're all living a little bit in the past. What we think is happening right now has actually already transpired some time ago, probably in the ballpark of about half a second ago. In the lab if I show you a photograph for half a second on the screen and then I show you that same photograph again for half a second and then again and again and again. And now I show you a different photograph for the same amount of time, it will seem as though the new photograph, the oddball, stays on the screen for a much longer time. Essentially when the brain sees something that's novel, it has to burn more energy to represent it because it wasn't expecting that. This feeling that things are going in slow motion is a trick of memory. In other words, when you're in an emergency situation a part of the brain called the amygdala comes online, this is your emergency control centre, it lays down memories on what amounts to a secondary memory track, these are very dense memories. And you're noticing everything around you and writing it all down. So when the brain reads that back out, there's such a density of memory there, that the brain's only conclusion is that must have taken a long time. And I think this offers an explanation for why people think that time seems to speed up as they grow older. And it's because when you're a child, everything's new to you. You're figuring out the rules of the world, you're writing down a lot of memory, and so when you look back at the end of a year, you have a lot of memory of what you've learnt. But when

you're much older and you look back at the end of the year, you're probably doing approximately the same stuff you've been doing for the X number of previous years. And so it seems like the year just went by in a flash. Really the way to feel as though you've lived longer is to seek novelty. So you can start with something simple like putting your wristwatch on your other hand or brushing your teeth with your other hand. Something this simple just forces the brain into a new mode where it can't predict exactly what's going to happen but instead has to be engaged. And what that means is when you go to bed at night time you have a lot of footage to draw upon and it feels like your life is lasting longer.

338. The interactive map that was way ahead of its time

Twenty years before the launch of Google Maps, the BBC launched an interactive map distributed by laser disc. Alas it never caught on...

Published on 11 April 2018

This video was made by BBC Archive

CAPTION: When Google Maps launched in 2005, it wasn't the first time that computer technology had been used to navigate the world around us. A decade before Google even existed, the BBC embarked upon an ambitious project of its own. It featured the contributions of over a million people and was named the Domesday Project as it was 900 years since the publication of William the Conqueror's book of the same name, considered to be one of the first ever public records in history. The BBC's Domesday Project was to be a computerised document of life in the UK in the 1980s.

1986 – THE DOMESDAY PROJECT: This is the BBC Advanced Interactive video. It's a combination of television monitor, microcomputer and video disc player. Much of the information you might need to know about the United Kingdom is recorded on these two video discs, the National disc and the community disc. Using the Community disc, enter the name of the place you want to visit, and up on the screen comes the map of the area. To get a closer look, use the Rollerball to move the arrow and just press the button. There's Dover Castle and that's the port. Move the arrow to photo. Press the button again. And up come pictures of the area, the castle, the new eastern docks. There's text as well, 20 pages of it for each place, which would give a visitor a very good idea of what the area's like.

CAPTION: The whole set up cost £5,000, putting it out of reach of most people, school and libraries. Only 1,000 systems were sold and the project was almost instantly out of date when it launched. We may not have been ready for the Domesday Project. But over a decade after its launch, Google Maps has become almost ubiquitous. And for many people is the main way they navigate the world, proving that an interactive map wasn't such a bad idea after all.

339. The inventor who plans to build a city under the sea

After spending decades inventing submarines and suits to explore the deep sea, Phil Nuytten now plans to build a colony there.

Published on 20 September 2018

This video was made by BBC World Service

CAPTION: Phil Nuytten has spent six decades exploring the ocean. As well as pioneering several diving techniques, he has designed submarines and suits that take people deeper than 305m (1,000 ft) and keep them at the same pressure as they are on the surface. Now, using the same technology Phil plans to build a colony at the bottom of the sea.

PHIL NUYTTEN: In the 1960s, all of us in this deep ocean business believed, absolutely believed that there would be cities under the sea in the next couple of decades. And of course, that didn't happen. But the thing that makes what I want to do completely different than anything that's been done before is that this colony will be at one atmosphere, the same pressure we're at right now, the same pressure we're designed to be at. And we do it with technology, the armour of technology. We still have all of this stuff that we built years ago. They'll be ideal for the prototype of Vent Base Alpha. There is the hangar for the sub. It goes in and out through that door. These are the guys wearing exosuits, swimming around. We call it Vent Base Alpha because it'll have to be built in deep water where the thermal vents are escaping from the seafloor. One of the most important things, if not the most important thing, is power. And so we'd get it by putting a Stirling Cycle Engine, which is an engine that works on temperature differentials on the seafloor. The temperature of these vents is upwards of around the 1,000 degrees F. The water surrounding them has an average temperature of about 46 degrees. That causes pistons to go up and down and you can turn generators with those pistons. And you have all the electricity that you need.

C: Phil is planning to build a prototype in shallow water and test it himself.

PN: I'm craving that shot, that rush, that incredible feeling when something that you conceived and built works. It really is a hell of a feeling.

340. The joy of having ADHD

Blogger Penny Jarrett says having ADHD definitely has a positive side - if you know how to manage it.

Published on 15 November 2018

Made in partnership with BBC Radio 4

PENNY JARRETT: My name is Penny Jarrett. I'm a business developer, youth mentor and blogger, and I have ADHD, which is Attention Deficit Hyperactive

Disorder. ADHD is a mental disorder which causes behavioural issues. A lot of people think that people with ADHD can't pay attention. But the thing is, is we can just pay too much attention. So paying attention to the wrong things or a lot of things at once. Sometimes I feel like I've got eight brains and each one has like 40 tabs open. I could be talking to someone and then another tab opens and I just start thinking about something else. And I give it my full attention. I feel like I have to give it my full attention for like three seconds. People with ADHD have a lot of energy. So there's a lot of fidgeting. We can't keep still. We . . . we usually have struggles following instructions. We get distracted a lot. So it means that we don't finish things and sometimes don't even start things. There are loads of good things about ADHD too. So an ADHD brain is usually creative. There are loads of artists, comedians, singers. Yeah, there's loads of creatives. We've got great imaginations which lead to a good sense of humour. So we're funny. And I think that's a lot to do with just doing funny things all the time. Like I sometimes find my remote in the fridge. Managing ADHD includes managing your environment, so you're not always going to have control over where you are. For instance, I if I'm in a white room like just completely bland, I find that I start getting kind of like breathless and panicky and like looking around and just . . . just can't focus on anything. But if I'm somewhere which is colourful and vibrant, I feel calm. And yeah, I think that's why my house is quite colourful. I didn't realise it before. But when I got diagnosed, I looked around me and I was like, 'Okay,' Managing and holding down a normal nine to five job is mad. I've even walked out of meetings – I've been in meeting rooms and yeah, just had the urge to just walk out. I didn't even notice until I was halfway down the corridor that, 'Was I just in a meeting?' It's just the brain under-stimulated it just searches for stimulation in any way. And if that has to be outside of that room, then yeah, meetings get left. When I'm selling to customers on the phone, I make affirmation cards, handmade with sharpies and pencils, and they have positive words on, things that I can look at and remember when I'm having anxious thoughts or just not feeling good. Even if I'm not trying to focus on something in particular, like a phone call, I need to be changing what I'm doing so that I can give enough energy to all my tasks. So if I had a to do list with like 10 things on it for the day, where a neurotypical person might do each one at a time, maybe, maybe even put them in order of priority. I can't always figure out which one I should prioritise. And that's interesting, actually, because people with ADHD have an interest-based nervous system. So, yeah, we find prioritising hard. If I timebox myself and give 15 minutes to each thing and keep coming back, then I'm stimulated enough to complete all of them. And yeah, at a high level. I was only diagnosed with ADHD last year when I was 30. So at first it was like such a negative to me. After doing a lot of research, I stopped . . . I stopped feeling negative about ADHD because I learnt about all the good things. The best thing about having ADHD, I think, is hyperfocus. And what that means is that we can actually zone into that thing for several hours and it not feel like several hours. And we go in so hard masterpieces come out of it. And that's why, yeah, a lot of creatives, I think they master what they do if they've got ADHD, because when hyperfocus kicks in. Yeah. Nothing would distract you, not even hunger or sleep. ADHD is manageable. So it doesn't have to remain negative and it doesn't have to, like, define you in a negative way. The symptoms of ADHD are with me and they always will be. But they don't have to define me in a negative way. If I learn how to manage my ADHD, then I learn

how to manage my life and I can be just as productive and successful as I want. Just not every single day.

341. The keyboard champions who changed the sound of music

You may not have heard of Wendy Carlos and Robert Moog, but you'll certainly recognise their sound. Their work changed music forever.

Published on 19 January 2018

This video was made by BBC Archive

CAPTION: You may not have heard of Wendy Carlos or Robert Moog. But you'll have definitely heard their work. Their meeting of minds would change music forever. Bob Moog got into the music business building theremins, instruments in which pitch is controlled by the performer's hand moving towards and away from the device. In 1963, he constructed the first Moog Modular Synthesizer and began showing it off to the world soon after. The synth offered a revolutionary way to produce sound. Voltage Controlled Oscillators produced primary sound waveforms which could be sculpted by filters and modulators to imitate or create an endless array of musical tones. It was the first time such sound-generating capabilities were brought together in one unit. The Moog Modular was ready but it needed an eager young composer to really make it sing. Wendy Carlos (then known as Walter) had just completed a degree in Physics and Music when she met Bob Moog. Carlos said of him: 'It was a perfect fit: he was a creative engineer who spoke music. I was a musician who spoke science. It felt like a meeting of simpatico minds.' Carlos quickly got to grips with the Moog's capabilities. 'Switched-On Bach' was an album in which Carlos reinterpreted compositions by JS Bach using only a Moog Modular synth and a tape machine. 'Switched-On Bach' was No.1 on the Billboard Classical Albums chart from 1969-1972. In 1970 it won three Grammy awards. The success of the album popularised the synthesiser which Moog would then repackage into a miniature form. Within a few years the Moog sound could be heard on many popular albums. And Carlos's synthetic re-interpretations of classical standards comprised the soundtrack to A Clockwork Orange. Moog was now mainstream. Carlos enjoyed the rest of her career surrounded by synth modules . . . and cats. And Moog would see his company become one of the top musical instrument manufacturers in the world. Although a lifetime of having his name mis-pronounced lay ahead.

342. The land where elves rule

Many people in Iceland believe in little hidden people - huldufólk - or elves. Or so surveys suggest. But do they really?

Made by Angel Sharp Media, 18 April 2019

MAGNEA GNA JOHANNSDOTTIR *Student*: It's kind of unimaginable not believing in them.

My grandmother had an elf friend in a rock.

SIGURBJORG KARLSDOTTIR *Storyteller:* The elves come to me in my dreams.

MAGNUS H SKARPHEDINSSON *Elf Investigator* I'm convinced elves do exist.

CAPTION: Iceland's elves are known as huldufólk or hidden people and have been part of folklore for thousands of years.

TERRY GUNNELL: I'm Professor Folkloristics at the University of Iceland. One of the areas of research that I've been working on is so-called elve or 'alfar', along with huldufólk, 'the hidden ones' that Icelanders are so interested in.

MAGNEA GNA JOHANNSDOTTIR *Student*: I can picture some kind of idea of a hidden person. Kind of looks like a human.

HELGA OSTERBY THORDARDOTTIR *Student*: They have a little bit old fashioned clothing.

MAGNUS H SKARPHEDINSSON *Elf Investigator:* They have their own society here, emotions and feelings. They're born, grow old and die.

HOT: I think they live in rocks.

CAPTION: The hidden people are said to be found all over Iceland, although they usually remain invisible.

SIGURBJORG KARLSDOTTIR *Storyteller:* They can show themselves if they choose to, but rarely do. But you never know when it will happen.

TERRY GUNNELL: You have maybe 10 percent say that they don't believe. And then those who say they do believe it began about 10 percent. But in between, you have all of the rest who are, maybe, possibly, probably, who knows.

INTERVIEWER: So if I asked you then if you think literally that they exist?

HOT: We can't say no.

MGJ: Yeah, you can't say no.

HOT: They will come haunt us.

TG: It's not that they, believe they are worried that there might be something there when it comes down to it that you're not going to mess with.

CAPTION: The authorities are so keen to not disturb suspected elf habitats that building projects have been adapted and major roads have been diverted.

G. PETUR MATTHIASSON: My name is Petur Matthiasson, and I'm Head of Communication with the Icelandic Road Administration. So this is the rock that we

moved from the place where the road is, and we moved it over here. People thought that this might be and elf church, and these people asked us if we could maybe move the rock. We will look into it, not because we believe so much in elves at the Road Administration we look at it as part of our culture inheritance.

CAPTION: The hidden people are not unlike the fairies of Celtic folklore, and the belief may have been reinforced by Iceland's Viking settlers.

TG: We know that people in the Viking times were buried in mounds which showed above the Earth, as each generation goes by, the living memory of the people within the ground turns into a much more hazy idea about beings that live out of sight.

CAPTION: Iceland is a nation of dramatic and wild natural beauty.

HOT: The nature of Iceland makes you feel really strong emotions.

TG: A nation where your house can be destroyed by something you can't see. We naturally try to explain these things by means of personifying the environment.

MGJ: And everyone is surrounded by nature. You see the mountains, you see the ocean everywhere. The belief started because of the strong connection that we still have.

CAPTION: But some are more cynical and fear it opens the country to ridicule.

GPM: I think there is a pressure from the society as a whole that we are the people who believe in elves and we should tell everybody that, because we have been trying to get more tourists for a long time. I think a lot of people who say they believe in elves but in heart they don't. If we couldn't have moved it, we would have smashed it down, it's just a rock.

CAPTION: Either way, belief in elves may help Iceland take care of its unique nature. Is there a lesson here for us all?

SK: Whether you believe it or not, these stories about the elves and these creatures, they teach us to respect nature and the elves here are, for the most part, I think, respected.

HOT: Should the law consider the huldufólk? Maybe not. But I think maybe the law should try to consider what the rights of nature can have because it doesn't really have a voice, even though it's quite outdated, maybe, the huldufólk is giving nature a voice.

TG: There are people coming from countries who've in a sense lost this connection, this magic.

SK: In Iceland, you can talk about the elves and these other world to everybody. And people would not lock you up.

TG: It makes Iceland different. And they like being different to other nations in all ways.

GPM: We want it to be like this. It would be a nicer place to live if they were hidden people there. Don't you think?

343. The man who brought colour to the Russian empire

The story of Sergei Prokudin-Gorskii, who travelled around the Russian empire taking colour photos between 1905-15.

Originally published on 14 March 2017

This video was made by BBC World Service

MICHEL SOUSSALINE *Grandson of Sergei Prokudin-Gorskii*: My grandfather, Sergei Prokudin-Gorskii was one of the pioneers of colour photography. It's a unique example of this quality of colour. This is close to 100 year old production. At that time, you have to realise that the only photograph in colour were taken indoors. And he was probably the first to do a lot of work outside. This is a very nice picture on the Mariinsky Canal, where he have done a lot of shots. You really feel something extremely, I would say, natural. You can really feel that this guy was very so pleased probably to be taken. And, at the same time, the composition of the picture is great. He was able to travel anywhere in the empire. He got the permission from the Tsar to travel everywhere, even parts which was very difficult to access. Bukhara is, today is Uzbekistan, but it was at that time Turkistan, which is really in the south east of the empire, bordering Iran, Afghanistan and China. My grandfather was somebody who was extremely openminded, he was really a Renaissance man. And in his work, he tried to show the different category of people in terms of religion, origin. This is a Jewish school with, I would say, the teacher and some pupils. At the origin of image were obtained by projecting the free negative on glass in black and white through a colour lens for a projection of creating the colour. This is the original lab book of my grandfather with a lot of technique and description and some eventually document like three pictures in colour. It is a kind of eccentric renaissance man. I like that because I am a little bit like that also, I try to be. And more you . . . more you learn more you find this person extremely attractive. Quite fascinating.

344. The nasty side of social media

Why do humans so often succumb to 'groupthink' - and how can we fight the tendency to follow the herd?

Animated by We Are Flow, 18 January 2018

Made by BBC Ideas and World Service

JON RONSON *Author, 'So You've been Publicly Shamed'*: Justine Sacco was a PR woman with 170 Twitter followers, and she'd make little edgy jokes to her Twitter followers. And one day she was at Heathrow Airport on her way to Cape Town. And

just before she got on the plane, she tweeted, 'Going to Africa. Hope I don't get AIDS. Just kidding, I'm white.' She wasn't trying to be racist. She was trying to make a joke, mocking her own privilege. She tweeted out and got no reply. And she never got any replies because she had like 170 Twitter followers. So nobody ever replied to her jokes. So she got on the plane and turned off her phone and slept. And when the plane landed at Cape Town, she turned on her phone and straightaway there was a text from somebody she hadn't spoken to since high school. That said, 'I am SO sorry to see what's happening to you.' And she looked at it baffled. And then there was another text that said, 'You need to call me Right now.' This was from a best friend, 'You are the worldwide number one trending topic on Twitter.' While she slept on the plane, completely oblivious, her joke went around the world and destroyed her. Hundreds of thousands of people were tweeting, 'We've got to get this woman fired. We've got to report her.' Somebody worked out exactly what plane she was on and they linked to a flight tracker website. So hundreds of thousands of people were just waiting for her to land. People were tweeting things like, 'We are about to watch this Justine Sacco get fired in real time, before she even know she's being fired.' She was destroyed without being given the chance to explain herself. But one of the most shocking things was if anybody that night tried to say, 'Hang on a minute. I'm not sure that Justine Sacco's deserving what she's getting. I'm not sure that she was intending to be racist.' People would scream at that person. When you think about that, that's the real danger of groupthink - you become bullies.

CAPTION: The term 'groupthink' was popularised by psychologist Irving Janis in the 1970s.

NICK CHATER *Professor of Behaviour Science:* Groupthink is a phenomenon where a group of people start to behave in a coordinated way. They will start to think the same thing, support the same view. But sometimes it doesn't really chime with what the individuals in the group think. And expressing opinions that disagree with other people is an uncomfortable thing when groupthink sets in. We all start to push for the same view, endorse the same arguments. We all start to become harmonious. Now, this is very nice from the point of view of avoiding dissent and disagreement within the group, but very dangerous, of course, if it squashes out some of those dissenting voices, that might actually have a lot of important messages to process.

CASS SUNSTEIN *Harvard Professor:* The best way to mitigate against groupthink is to have a culture which defines a team player, not as someone who gets along with the group and everyone smiles when they see, but a team player is someone who adds information to the group's discussions.

JR: One of the ironies here is that on social media, we all like to see ourselves as nonconformists. But when we all get together in a group, what we're doing is using our individual nonconformity to create a more conformist world. So if somebody steps out of line all us nonconformists in this frightened, conformist way, tear them apart. It's like we're defining the boundaries of normality by tearing apart the people on the outside.

345. The new virtual country with no borders

If you were to create your own country, you might think about a territory and passports. The Good Country has taken a different approach.

Published on 18 October 2018

Made by BBC News

CAPTION: There's a new country in the world. It's not on the map. It's called the 'Good Country'. It has big plans to fix some of the world's problems.

SIMON ANHOLT: Migration, terrorism, poverty, inequality, climate change, pandemics and biosecurity, conflict, landmines, human rights, women's rights, children's rights, minority rights, language rights.

CAPTION: This is Simon Anholt. He's one of the founders of the Good Country, a virtual country designed to foster international collaboration.

SA: The two things that people most commonly associate with a country are a) having a passport and b) having a territory. We happen to think that territory's a nuisance. The moment you have territory, you need an army to defend it. And by definition, all of our citizens have already got somewhere to live. So we don't need to provide them with anywhere else. And then as far as the passport is concerned. Well, yes, we will be issuing passports. And one day it may well be something that you can actually travel on.

MADELINE HUNG: The goal of the good country is to change the culture of governance worldwide.

CAPTION: This is Madeline Hung co-founder of the Good Country.

MH: For world leaders, that means understanding that it's not enough in this moment in history to just care for your domestic population and your slice of territory.

SA: One of the great things about being a country is that we can behave like a country. We can adopt policies and we can implement them in the international domain.

MH: Each citizen of the Good Country pays five dollars an annual tax, and that means that we will have economic hard power. So in certain instances, we might choose to use that economic hard power to drive other actors to the negotiating table.

CAPTION: The Good Country launched in September 2018. Their research suggests there are 760 million potential citizens. So far, 2,000 people have enrolled from over 80 countries.

SA: At least 10 per cent of the world's population would like to see the world change in the way that we describe it. More cooperation, more collaboration, a tiny

bit less competition. I mean, competition is fine. But when it becomes the only alter at which countries worship, then it becomes problematic.

DR PHIL CLARK *Assistant Professor of International Politics at SOAS:* I think the Good Country Project is a really valuable initiative. However, I think it's also a very romantic and even a utopian project. It's not clear to me how policies will be decided, and it's not clear to me how policies will be enacted. My guess is that while the Good Country tries to behave more ethically than state, it may simply end up being another state with the kind of divisions and power politics that we've seen inside existing governments.

CAPTION: Where did the idea come from? Simon worked as an international policy advisor for 20 years. In 2014 he created the Good Country Index. It measures what each country contributes to humanity and the planet.

MH: Over the past 50 years, we've seen the creation of dozens of new countries, and so if anything, it would be odd not to see new countries form in the 21st century. Of course, this is a new kind of country, and that is really important because we have a different end goal. We realise it's not going to be easy. It's not going to happen overnight. But this is a project based on hope.

346. The perks of speaking 25 languages

Richard Simcott is a hyperpolyglot, meaning he has a gift for learning new languages.

Published on 22 February 2018

Made by BBC Cymru Fyw

RICHARD SIMCOTT: [*moving through various languages, all subtitled*] I think I learnt Slovak in about two weeks. I studied in Spain, I've lived in Macedonia for seven years. Learning a new language is great, because we have an opportunity to speak to new people. It only opens windows and doors onto the world. Turkish for me is a very beautiful and interesting language. For me it's important to speak Polish with people living here in Britain. I learnt from Wales that it's possible to speak two languages with a child. I did this with my own child in Macedonia with French and English. She now speaks French, English and Macedonian with my wife, and also speaks Spanish and German. And also a little Welsh, naturally! I think German is a very beautiful language. Learning a language isn't just a way of talking to other people, but it becomes part of me. If you'd like to learn another language, I think it's important to use the language every day and do something you naturally want to do, like dancing, playing cards, anything, but in the other language.

347. The pioneers of women's football

Women's football is on the up, but its first golden age dates back to the First World War.

Published on 19 January 2018

CAPTION: Is the future of football female? Women's football, often relegated to the sporting sidelines in the past is making a comeback on the world stage. And make no mistake it is a comeback. During World War One, the pioneering players were all women. As men fought in the war, newly working women formed football clubs. The Dick, Kerr Ladies played in front of thousands of fans at home and abroad. The women's reward? In 1921 the English FA banned women from playing Association football. The band lasted 50 years. Women who took up the game were persistently patronised.

INTERVIEWER: You're the centre forward.

WOMAN: Yes.

I: You know what the centre forward does?

W: Yes. Yeah. Scores all the goals.

I: You don't think it's a bit undignified having them racing around a football pitch?

MAN: I don't know. Is anything undignified these days?

CAPTION: A professional women's league was established in Italy 1974. And the world's best players flock to play there over the next two decades. Scotland's Rose Reilly was amongst the best players in the league. She went on to win the then unofficial World Cup with her adopted country, Italy. She remains the only woman to have been inducted into the Scottish Football Hall of Fame. The more female footballers have been dismissed, the more leading lights have fought for respect.

HOPE POWELL *England player and manager, 1983 – 2013*: You know, it's physical. Strong. You have to be, you know, really fit to last out a game.

CAPTION: But for years, the football fraternity did little to help the women's game.

LENNART JOHANSSON, UEFA President *Speaking on BBC Radio Five Live, 2005*: There are so many companies who could make use of the fact that if you see a girl playing on the ground and they're sweaty and the rainy weather and coming out of the dressing room, lovely looking, that . . . that would sell.

CAPTION: The numbers are more progressive than some of the rhetoric. Participation, tendons and figures of the women's game are all the rise. 30m female footballers around the world. Faith invest $156m in the women's game. More professional leagues exist across the world. Despite the progress, inequalities remain

apparent. [*Graphic shows World Cup player winnings, £22m for men, £630,000 for women*]. But in Brazil – arguably the most football-mad country in the world – things are changing. Until 1979, it was illegal for women and girls to play football there. But in recent years, Brazilian Marta (Vieira da Silva) the world's most famous woman footballer has helped to change the perception that football is only a man's game in Brazil. She even replaced Neymar, the world's most expensive footballer, in the affections of one young fan. (*photo of football shirt with Neymar's name crossed out and replaced with 'Marta'*) It means that some of the old footballing clichés (*montage of men saying, 'It's a man's game'*) simply don't ring true for modern football fans.

VOX POP: It doesn't really matter if you're a boy or a girl playing football.

UNNAMED FEMALE: Women will be accepted in the game.

VP: I just love football.

348. The power of quiet leadership

Leaders don't need to be loud and confident. The Open University's Dr Jacqueline Baxter makes the case for a quieter approach.

Animated by Sofja Umarik, 23 December 2020

Made in partnership with The Open University

DR JACQUELINE BAXTER: Look at the leaders around you. What do you see? Calm, reasoned, individuals who listen, and make considered judgements? Or something very different?

CAPTION: THE POWER OF QUIET LEADERSHIP DR JACQUELINE BAXTER ASSOCIATE PROFESSOR IN PUBLIC POLICY AND MANAGEMENT THE OPEN UNIVERSITY

JB: Great leaders are often seen as classic confident, extroverts who can speak without thinking, react rapidly and change tack pretty frequently. It's what best-selling author Susan Cain calls "The Extrovert Ideal". But is this really what we need really need right now? I'd argue that the crises of our time need a more considered approach. A quieter one. Let's look at the status quo. Extroverts are over-represented in senior leadership positions. One study found an incredible 98% of top executives scoring "very high" or "above average" on the extrovert scale. But people aren't on the whole satisfied with their leaders. Could there be a connection between the two? There are lots of examples through history of successful leaders who've taken that quieter approach. For example, Rosa Parks, Mahatma Gandhi, or Bill Gates. Research shows that introverts often bring a great deal to the table. They're more likely to listen and process the ideas of their team, and consider those ideas deeply before acting on them. They may be humble and more likely to credit their team for ideas and performance. And because their motivation generally comes

from within, they're less likely to compromise themselves chasing rewards like money or power. I think we need to re-examine the way our society views effective leadership, and whether we are really allowing the space for all team members to thrive. Research suggests that between 40 and 60% of employees tend to the quieter, more introverted, side of things. They can often feel invisible in meetings, because their thoughtful approach means that they have difficulty responding to those common on the spot questions. Many leadership courses can tend to focus on extroverted team activities - like networking and presentations - leaving quieter people perhaps mistakenly believing that they just don't have the qualities of a "good" leader. An approach that fails to bring out the best in around half of us is not just bad for quieter people, it's a disservice to us all. Leadership is complex, but in a world of soundbites, sledgehammer tactics and black-and-white thinking, perhaps standing back and listening can be empowering to leaders and their followers. As the Chinese philosopher Lao Tzu puts it, the best leaders are those that "talk little" and when their work is done and their aims fulfilled, their followers will say, "We did it ourselves."

349. The power of silence in a noisy world

Could we all do with a bit more silence in our lives? Writer Harriet Shawcross says yes - but be careful, it's strong medicine.

Published on 3 June 2019

Made with the help of BBC Radio 3

HARRIET SHAWCROSS *Filmmaker and Author*: In today's world, it can feel like there's no space for silence, like we're always required to be responding to something, to be saying something new. Whether that's answering a text or an e-mail, a tweet, a WhatsApp message or even the phone. My name's Harriet Shawcross. I'm a filmmaker and a journalist. And I think we would all benefit from a little bit more silence in our lives.

CAPTION: What we can learn from silence.

HS: One of the reasons I'm interested in silence and in what can and can't be said is that when I was a teenager, there was about a year when I didn't really talk to people at school. I would answer direct questions if a teacher asked them, or I would read out loud. But the kind of communication that makes us human, spontaneous conversation, sharing jokes was something that I wasn't able to do. And it had a huge impact on me and was really formative in terms of how I relate to people both professionally and personally. So what's so great about silence? Well, in the course of researching my book, I came across several studies into the impact that silence can have on both the body and the brain. In one study involving mice, silence was shown to promote the growth of brain cells in the part of the brain responsible for memory related to the senses. Scientists played mice a selection of sounds, including baby mouse cries, white noise and silence, and observed that during silence there

was cell growth in the hippocampus. Another study looked at the impact of listening to music on the body, and the researchers found that if silence was inserted into a track of music, the blood pressure dropped, the heart rate reduced, and the subject relaxed much more than when listening to a relaxing piece of music. This only happened when the silence was inserted in the middle of the tune itself. It didn't work for silence at the beginning or end of the experiment. So there's something about silence that comes in the middle of noise that's particularly beneficial. So silence can also enable people to actually say things that they've never been able to say before. I looked into the formation of the Samaritans, a support service for people that are feeling despairing or suicidal. The service was set up in the 50s by a vicar, and he started it because he had to conduct the funeral of a young girl who'd taken her own life. The reason she took her own life is that she'd started to have periods and thought she'd contracted some terrible disease and was dying. She was deeply ashamed of what was happening to her and had no one to talk to about it. It was this that inspired the vicar, Chad Varah, to set up the Samaritans as he didn't want people to feel that there were things that they couldn't talk about, particularly things that they were ashamed of. He believed that you should be able to sit with someone no matter what they're going through, without feeling the need to answer back or offer solutions or problem solve. And a really central way of doing that is through using silence and giving them space to explain what's going on for them. And frankly, if normal conversations could involve a little bit more silence like that, I think the world would be a much happier place. So silence is also at the heart of most major world religions. In Buddhism, silence is really highly valued and conversation can be seen as something that gets in the way of our experiences. And if you strip away all of that language, you're left with a deeper understanding of your own experiences in the world and your connection to other people. But can too much silence be a bad thing? There's a condition known as assidy, which was experienced by monks who spent prolonged periods in silence. And it's basically distinguished by a feeling of torpor, of not being able to do anything. And that's specifically associated with spending long periods of time without speaking to anybody. I also spoke to people who'd spent more time than probably most of us would want to in silence. One of them was a Buddhist who spent nine months on a silent and solitary retreat, and the silence had a really profound effect on him. After a certain amount of time, he felt like he was losing control of both his mind and his body. He actually felt like he was having a heart attack. He knew logically he'd just pulled a muscle in his chest. But without anyone to say, 'I've pulled a muscle in my chest' to, the pain that he was feeling, the sensations of panic meant that he actually really thought that he was dying. And the only way that he could snap out of that was by calling a friend of his. And it was only once he had words and language to attach to what was happening to him, that he was able to make sense of it and eventually feel better. So that Buddhist actually described silence to me as being like love. It's something that instinctively we all feel we want and need in our lives. But silence, like love, is really strong medicine and it can actually completely tear you apart.

350. The problem with plastic: A 10-year-old's take.

What matters most to children? One big issue for these primary school kids is plastic. Adults take note! Their future depends on it.

Made by Quintessence Films, 26 October 2018.

(Impossible to identify individual children and if they reappear)

CHILD: Adults act like they own the world and we're just houseguests.

CHILD: But soon we will own the world and their mistakes will affect us.

CHILD: Stand by. Roll camera.

CHILD: Plastic. Scene 79. Take one.

CHILD: In *Blue Planet,* the pilot whale was just clinging on to the dead calf, and she wouldn't let go. Like, even though it had been killed by probably lots and lots of plastic. It was heart-breaking. It really changed my perception of how people use plastics. I just feel like mankind is doing wrong.

CHILD: Here are some facts about plastic.

CHILD: Plastic comes from the Greek word Plastikos, meaning it can be shaped and moulded.

CHILD: Cellophane is not a plastic, but it's actually made from cellulose, which will biodegrade in about 90 days.

CHILD: 160,000 plastic bags are used globally every second.

CHILD: Norway recycled over 500 million plastic bottles in 2016.

CHILD: We wanted to see what happens to our plastic waste and we were given a tour of the Bristol Recycling Centre. It was amazing to see how much plastic we threw away.

WORKER: Right, so this is the bay where all the plastics and cans come in, dropped off the truck. Once they drop in here, we'll load them into this hopper, it will come up the line here, and then the machine will separate them out into plastic, steel and aluminium.

CHILD: We asked them how much plastic is recycled in Bristol every single day.

WORKER: About 15 tonnes, which we compact down into bales and then we ship it out to other companies. That's about 20 bales every day.

CHILD: What are there different things that can be made by recycling plastic?

WORKER: We sell our plastic to reprocessers and then they separate those down and granulate them and so can make another hi-viz top like this. They can make a fleece. They can make a plastic bottle or toys.

CHILD: What can we do about there being less plastic in the sea?

WORKER: A lot of the plastic that ends up in the sea would be from litter. So, if someone throws a piece of litter on the ground that can get washed down into the sewers, which ends up into the sea. So if people stop littering, a large amount plastic will stop going into the sea.

CHILD: On walks, my granny picked up at least one bit of plastic.

CHILD: On my way to school, I picked up 11 pieces of plastic.

CHILD: If everybody picks up at least one bit of plastic a day, like my granny, just imagine the difference we could make.

351. The problem with the colour 'nude'

Writer Tobi Oredein says the use of the colour 'nude' in the fashion and make-up industries makes her feel invisible.
Published on 2 August 2018

TOBI OREDEIN: My name is Tobi Oredein and in my humble opinion, mainstream fashion brands still make women of colour feel invisible. Nude lipsticks, nude coloured nails, nude dresses, even nude underwear stays fashionable season after season. But nude seems to me weird shades of pink and multiple shades of beige. People, often women that look like me, don't fit the fashion and beauty industry's idea of what nude should be.

CAPTION: Currently the Oxford Dictionary describes 'Nude' as . . . 4. Nude 'of a pinkish beige colour.'

TO: Let's face it. I'm more of a deep brown than a honey beige. And I'm not alone in needing a brown rather than a pink when it comes to finding the right shade of nude. In not creating new products to match the complexion of black women and women of colour, not only are mainstream fashion brands losing business, but they're telling women who look like me that we don't matter, that we don't exist. Of course, there are bigger problems than me finding a bra that matches the complexion of my skin. But it does highlight how little the fashion and beauty industries values black skin. By not creating diverse products to cater to customers, it shows why we're still battling for diversity on the runways and on magazine covers. It seems that the fashion and beauty industries only work to serve the needs of white women and white women only. However, some independent fashion and beauty brands have taken charge and decided to create new products for women of colour. Yes, the beauty industry is starting to put women of colour in their campaigns, and it is starting to make new products for women of darker skin tones. And yes, change is happening, but we can't just rely on smaller beauty and fashion brands. High end and high street brands need to make sure that all women of colour have an option when it comes to buying nude. So right now, it's not the bra I'm

wearing underneath my white top that's invisible – it's me. So let's champion brands who help women of colour feel visible.

352. The public information films we'll never forget

From stranger danger to playing in electricity substations - the public information films of the 1970s were often truly terrifying.

Published on 13 December 2018

This video was made by BBC Archive

CAPTION: For over 60 years, the British public was exposed to some startling films.

HOW TO FIT A GAS MASK, 1939: When the alarm goes, first hold your breath.

CAPTION: Public Information Films (PIFs) were government-approved mini horror movies. That attempted to educate, inform and even control society.

GREEN CROSS CODE – He's Great *BFI National Archive/COI, 1973*: Hi there.

CAPTION: They were often cheesy.

GCC: He's great. I'm going down. Congratulations.

FATAL FLOOR *BFI National Archive/COI, 1973*: Polish a floor and put and put a rug on it. You might as well set a mantrap.

CAPTION: And some were hysterically over the top.

FILM: And to think he'd only just come from the hospital.

CAPTION: After TV ownership boomed in the 60s, PIFs began using more cinematic techniques to deliver stark warnings to a younger generation.

LONELY WATER *BFI National Archive/COI, 1973*: I am the spirit of dark and lonely water, and this is the kind of place you'd expect to find me.

CAPTION: Messing around near water could be fatal. As could trespassing on train tracks (*Scene from 'Robbie (Overhead Lines) BFI National Archive/COI, 1986*) And who could forget Jimmy's error (*Scene from 'Play Safe – Frisbee', National Archive/COI, 1978*) when he went to retrieve a frisbee from an electricity substation? Young cyclists were warned about the risks of using the road. (*Scene from 'Cyclist Turning Right', BFI National Archive/COI, 1986*) Children were warned about stranger danger. (*Scene from 'Never go with strangers', BFI, National Archive/COI, 1971*) The fate of the films' protagonists was often crushingly inevitable. (*Scene from 'Play Safe – Kites and Planes', BFI National Archive/COI, 1978*) Perhaps this was a reflection of the fears and anxieties of society at that time. PIFs stand out as cultural artefacts from a turbulent point in Britain's history. A time of blackouts, the three-day week and industrial unrest. The aesthetics were of a bleak, hostile wasteland brimming with dangers. (*Scene from 'Apaches', BFI National*

Archive/COI, 1986) Fewer children are playing in dangerous environments or driving tractors now. Instead they have limitless entertainment options indoors. The government department that produced these films closed in 2011. And today's society has its own terrors to contend with (*News report on Paris Terror Attacks', '9/11' and Westminster terror attacks*) Modern PIFs reflect different concerns (*film of girl on mobile phone getting into a crash*) and more specialised campaigns are more common now. They are often indistinguishable from actual adverts, but they can still frighten a new generation. Although perhaps there's something uniquely creepy (*Scene from 'The Balloon', BFI National Archive/COI, 1981*) about the some (*sic*) of the more classic PIFs of yesterday.

353. The quiet power of introverts

Are you an introvert? If so, that's great! Sofja Umarik (who is an introvert) looks at how it can be a real strength.

Made by Sofja Umarik, 15 January 2020

SOFITA UMARIK: I am an introvert and I love it. And I'm not alone. Introverts are everywhere, and our quiet approach to life, our need for solitary time, isn't a flaw - it's a gift. But as an introvert, it's not always easy to realise how wonderful you are. The world feels like a place that rewards extroverts. Where being loud is mistaken for being confident and happy. Where everyone has something to say, but nobody listens. A world of open-plan offices, networking parties, and big personalities. For those who speak softly, it's easy to feel left out. As a child, I blended into the background. Many thought that I had little to say, or that I simply didn't like others. But that wasn't true. People often think introverts are shy, or antisocial. But these are misconceptions. Introverts, like anyone, can find socialising fun. But while parties leave extroverts energised, after some time, introverts need to recharge… away from everyone. There's a scientific theory for this. There are two important chemicals found in all our brains - dopamine and acetylcholine. Dopamine is like a hit of energy when we take risks or meet new people - and it makes extroverts feel great. But introverts are more sensitive to dopamine and get quickly over-stimulated. That's why we prefer the more slow-burn feeling we get when our brains release acetylcholine. That happens when we concentrate, read, or focus our minds. It makes us introverts feel relaxed, alert and content. But it barely registers with extroverts. Of course, like anything, it's a sliding scale. You can lean one way, or another. Or be a bit of both - known as an ambivert. Now I understand myself better, I am deeply grateful for how I am. Instead of filling up space with small talk, I listen patiently and make my words matter. I have few friends, but our connection is deep. I love spending time alone. It's where the chaos of a long day can finally settle. I can reflect and listen to my thoughts, and eventually reconnect with myself. Only after that, am I ready to share with the world again. I've learnt strategies for finding comfort in our noisy world - from using music to create bubbles of peace, to escaping to a quiet park at lunchtime. I adore the intensity and chaotic beauty of the world. But it's in quiet spaces where I feel truly at home. If introversion were more

valued by society, it could make a massive difference to our collective future. The unique attributes of introverts really are a deep, quiet strength. And as Gandhi, put it, “In a gentle way, you can shake the world.”

354. The real El Dorado?

Former British Museum director Neil MacGregor tells the story of the ‘golden man’ on the raft, who commits treasures to the deep.

Published on 15 November 2017

This video was made by BBC Radio 4

NEIL MACGREGOR: Somewhere across the Atlantic Ocean lies a hidden mountain kingdom where a people cover their naked king in gold dust. Stepping onto a wooden raft heavy with gold and jewels. This king sails out into the middle of a lake. And there, one by one, he commits all those precious treasures to the deep. Upon hearing of this fabled American land of gold, 16th century Europeans set sail in search of it. Sir Walter Raleigh braved tropical heat, Spanish spies and crocodile attacks only to return empty handed to England and to a severely disappointed Queen Elizabeth. The legend of Eldorado, the golden man on the raft, was, it seemed, just that: a legend. Or was it? Living high up in the mountains of what is now Colombia, were the Muisca people? They were some of the finest gold workers in the world and they crafted flat, slender golden figurines called tunjos. For the Muisca, the value of these things lay in the making of them, not in keeping them. The process that enabled a gold sculpture to emerge from a wax mould was not for them, just a technical feat, it was a religious one. And the people who could make gold figurines in this way were not just gold workers. They were miracle workers. Most of what they made was to be given to the gods. To make that gift onto the raft, went to the Muisca king, his golden body, shining like the sun. Thousands of people gathered on the shores of Lake Guatavita to celebrate him as their rightful ruler, a man who, by plunging gold into the water, ensured for them all far greater riches to come.

355. The real meaning behind the phrase ‘hair of the dog’

Skeletons in the cupboard? Spondulics? The origin of some of the quirkiest words and phrases in the English language.

Published on 23 October 2018

This video was made by BBC Archive

ALBERT JACK *Author of Red Herrings and White Elephants*: ‘A skeleton in your cupboard’ is to have some sort of shameful secret hidden away. It is certainly possible that the actual discovery of a skeleton in a cupboard provided the origin of

the phrase in the first place. But it is far more likely to come from the study of human anatomy. Up until 1832, it was illegal to dissect a human body for the benefit of medical research. But of course, many a physician still did, leading to suggestions that they hit their skeletons away, locked in surgery cupboards. The phrase 'hair of the dog' is a version of 'the hair of the dog that bit you'. Early English medical theory suggested that rubbing the hair of a particular dog or other animal into the wound of its bite will cure the ill effects and heal that wound. The phrase was used in many variations until settling down as a hangover remedy. These days, a few more drinks the day after a heavy session is said to cure the effects of a hangover. Now, 'to go back to square one' means taking it back to the beginning. The origin of this phrase is easily traced to the 1930s, when commentary of English football matches began to be broadcast by the BBC. The Radio Times devised a numbered grid system which they published, enabling commentators to indicate to listeners exactly where the ball was on the pitch. Whenever the goalie had it, the game was back to square one. 'Spondulics' is a wonderful slang word for money. Now, according to the Oxford English Dictionary, it is a word of fanciful origin. But my Greek friends have managed to trace it back to their ancient language and the word 'spondulicos' which derives from 'spondulos', meaning a type of seashell. This shell was once used as a currency and is very likely to have been the origin of our slang phrase. 'Close but no cigar' is an American expression that has crossed the Atlantic and is used widely in Britain. It is used to describe an act or event coming very close to succeeding, but not quite close enough. For its origin, however, we need to look at the wandering fairs and circuses touring 19th century America. Many of the sideshows would offer the public the prize of a large cigar for winning competitions. Many would have been disappointed to come close, but not actually win the cigar.

CAPTION: This is just a taste of the hundreds of strange phrases we use regularly. As the English language evolves, their origins become more remote and their true meaning can only be found deep within the pages of the dictionary. Or on BBC Ideas.

356. The recipe for perfect grass

How does the grass at Wimbledon and the World Cup look so great? Two groundsmen reveal the secrets to growing the lushest grass.

Made by ITN Productions, 26 June 2018

CAMERON HUTCHESON *Professional Football Groundsman:* The grass is my baby. It requires care and attention 24/7.

NARRATOR: The world's biggest sports stars would be lost without sets.

NEIL STUBLEY *Head of Courts and Horticulture at Wimbledon:* We have a challenge that we want to produce every year, the perfect tennis court.

N: So what's so special about the grass?

NS: We have vacuums that we take onto the court at the end of every night. And that literally just sucks up all the debris that, that's built up on the base lines. So every night we will actually hoover all the courts. We'll then water them, put the covers up, put them to bed.

N: Sounds like the grass needs its beauty sleep like the rest of us. These are the secrets hidden in the grass. It all starts with one plant. Or, is it several million?

NS: To get an EU licence for our . . . our grass seeds, you need to be within a range. So our range is 750 seeds per gram. We sow our courts 80 grams per square metre and Centre Court itself is 902 square metres. So that calculation will give us . . .

N: (*scribbling sound*) Ah right, so that's . . .

NS: . . . 54 million grass plants on Centre Court before the championship starts.

N: Yeah. Thanks, Neil. Got it. So here's a challenge. The population of the US is over 325 million. Are there more or less strands of grass on a professional football pitch? Turns out it's more. There are approximately 357 million strands on a pitch, mind blown.

CA: Most people on a match day will ask, 'Is the pitch real?' And the answer to that is yes. Mostly. Reinforced pitches are more durable. They are more pleasing on the eye because you're keeping more grass coverage.

N: And we all want sexy grass pitch. But how do they do it?

CA: So the fibres are injected at two centimetre spacings across the whole pitch. They go down 20 centimetres long and they're up at the top of the surface, about 20 ml.

N: And if you laid all the artificial strands in one of these pitches end to end, they would stretch 7,140 kilometres, which is about the distance from London to Mumbai. Not sure why you'd want to know that, but sounds impressive, right?

NS: Here are the championships we're fully 100 percent organic. But for the betterment of world tennis, we would certainly look at different hybrid reinforcements to see whether we can get more play for longer times of the year.

N: Wimbledon may be the only Grand Slam played on grass, but many say grass is best for your body, as the impact on the knees, hips and joints is less than other surfaces.

NS: The ideal length for us is eight millimetres. So that's the grass doesn't stress out too much during the . . . during the fortnight, but it's also short enough for the players to get the right grip and the right ball speed.

CA: Typically no more than 30 millimetres at kick-off. Generally, that's the rule. It's completely down to the manager. If they want a quick moving pitch, short and

wet is the best. If they want it slightly slower and a more direct style it might be a little bit longer and kept more dry.

N: Which basically means if all goes wrong, you can blame the grass. So, what are the perfect conditions?

CA: Obviously you need the sun out, bit of moisture in there and a good level of warmth to keep the plant active throughout the winter months. We try and increase the growing conditions with undersoil heating and grow lights.

N: Oh, sounds cosy.

NS: It's actually better for the grass if the roof is closed. Now, when the roof's open, it's open to direct sunlight so the grass can actually then start to stress out and dry out quicker. So once the roof's on and the air conditioner's on, we actually get a more stable environment for growing grass.

N: Now, time to talk about some food for the grass.

CA: Plant health is key in everything we do. A balanced diet like an athlete and a good maintenance programme is very important. We feed the pitch very regularly, but we also monitor the amount of nutrients. If you overfeed the pitch, it can become obese, it won't go looking for it. So we have to make sure it's a balanced diet.

N: And if there's one thing you don't want, it's fat grass. As you sit back and relax, watching the action, spare a thought for the grass guys. You don't have to think about it as much as them though.

CA: It really is a life choice and a life commitment working on the pitch. There is an awful lot of walking. On a match day, the pitch gets double cut so that's eight miles straight off the bat. And then after the game, we'll also clear up the pitch. Where that, put in with general walking between jobs, it can really get up to sort of, yeah, ten to twelve miles.

N: Which is awesome for your step counts and is a year-long job.

NS: So I have a head groundsman. He has a team of 14 that look after it year round. We then supplement that with an extra 12 staff for the summer. So we have around about 30, 32 guys for the summer.

N: So, vacuum it like a carpet, feed it like a baby, and don't stop thinking about the grass.

NS: Every time I look at a sporting event, I spend most of my time looking at the playing surfaces. Half the time I miss a good goal and I miss a great putt. But that's the nature of the beast.

N: So unless your lawns in perfect condition, maybe he's not the man to be inviting round for a barbecue.

357. The river that's a legal person.

In New Zealand, the Whanganui River was recently granted the legal status of a person. Does that mean it will be better protected?

Published on 15 January 2020

NGA ROMA POA *Cultural Mediator and River Guide*: Having so many people from around the world be like, 'Oh, you guys like look at the river as a person?' That's been a huge thing. That's made me proud.

TITLE: What happened after this river gained legal rights?

NRP: As children we've always been brought up with the idea every sort of living organism is just as important as you. Awa [river] has very much a personality of its own to. She's patient. She's consistent. She's persistent. You see the water sort of channel through rocks and it slowly cuts into these huge pieces. And then at times, she just roars. She's very fierce in a way. But she does it so elegantly, is how I'd explain her. My relationship with the river has kind of been my life. I've always considered the river being my greatest teacher, dearest friend.

CAPTION: New Zealand's indigenous Whanganui Iwi consider this river to be their living ancestor. Since the 1930s they have been challenging the government in court over the use and control of the Whanganui river. In 2017, the government passed new legislation, declaring the river to be a legal person.

CHRIS FINLAYSON *Former Attorney General*: It really is an exciting day for parliament because this longstanding grievance is brought to an end by the passage of this legislation. And I very much look forward to working with the Iwi and to seeing this wonderful river repaired and regenerated over the years to come.

CAPTION: The Whanganui tribes and the government together appointed two human representatives for the river to speak on its behalf. Giving a river legal personhood means it can go to court, enter into contracts and hold property.

GERRARD ALBERT *Lead Negotiator for the Whanganui Iwi Tribe*: For a very long time, this country has grappled with the place of indigenous peoples with colonisation. And finally, we had a place in which our river is valued for what it is. They can see us now, because they can see our river for all that it is. And therefore we felt valued, two years ago when the legislation passed.

CAPTION: The Whanganui is now managed according to the Iwi world view. It belongs to itself and the communities surrounding it.

ERIN O'DONNELL *Water Law and Policy Expert, University of Melbourne*: The first thing we need to understand is that a legal person is different from a human person. It is a fairly profound statement about what matters to the law and who matters to the law. And then they therefore have rights and duties and powers under the law. Once the Whanganui happened, it really inspired a lot of people around the world.

And since then, we've seen kind of rolling examples over the past two years of rivers and lakes receiving legal rights.

CAPTION: Rivers in India, Colombia, Bangladesh and Australia have since been granted legal rights. In New Zealand, one national park is also a legal person and soon a mountain will be too.

EO: We need to think about what kind of legal person are we actually creating, what kind of legal model is actually going to give us the outcomes that we want? The paradox of legal rights for rivers happens because the right to go to court to defend your interests can actually backfire for the environment. So one of the things that we've seen happen around the world is that when nature starts getting rights of its own, people get complacent. People then start being afraid of what the river could do to them, because the river is now constructed as a competitor with people.

CAPTION: In India, the legal personhood of the Ganges has been put on hold, in part over concerns that people would be able to take legal action against it in cases of flooding and drowning.

EO: This is quite different to what's happened on the Whanganui river so far. It's a much more sustainable model than we've seen in other parts of the world. It has significant funding. So, you know, if it needs to take some action in the future, it's . . . it does actually have some funding to start doing that. And it's embedded within new management arrangements and institutions that give all stakeholders a voice in the new management of the river going forward. Indigenous empowerment has been a really significant outcome of these pieces of legislation.

GA: People are coming to us now. The new consciousness that people have around what this river is. They're coming to us and asking, 'Can we access the river in this particular way?' That's something that hasn't happened in 150 years.

C: Despite this new legal status, many challenges remain. The river is polluted with debris shed by farming and forestry. And its headwaters are diverted into another catchment for hydropower.

GA: What we know is that in 20 years' time, when the reconsenting for that scheme happens, it will be a far different decision making framework that will be applied. You know, the river faces a whole lot of challenges, but it's within our grasp.

NRP: So as much as people can sort of praise this idea of the awa [river] being its own legal entity, there's also importance in having discussions with people who are against that idea. We appreciate discussions like those. Even the tension that lies in it.

GA: The fullest expression of what this new status for the river means will come in 50 years. In two generations' time. Because we will have had time to grow a community that understands its relationship with this river. That will change the way in which we think in this country. Absolutely.

358. The robots that think like ants

By turning ant brains into algorithms, scientists have created self-navigating robots. (Image credit: University of Sussex)

Published on 23 April 2018

This video was made by BBC World Service

CAPTION: Scientists have translated ant brains into algorithms to create a vehicle that can follow routes without GPS.

PROFESSOR ANDREW PHILIPPIDES *Brains on Board project, University of Sussex*: The reason we look at ants is because they have remarkable navigational abilities. They go very long distances through complex world come back straight to their nest without any problems.

CAPTION: The team studied how the insects behave. As well as how their brains and eyes work.

AP: We saw the ants periodically stopped and scanned in multiple different directions and then seemed to take a new direction. This prompted us to think that maybe what they were doing was using views not to remember a place, but to set the movement that should take.

CAPTION: They used these findings to create a self-learning computer programme. Like ants, these robots learn a route by recording views they see along it. Then, to repeat the journey, they scan different directions and move in one that looks most familiar. The team are now adapting the software to create self-learning drones.

AP: This can be used in search and rescue, for instance. So in situations in disaster areas where GPS might be unavailable, we'd send the drone out and it would maybe find a target and come back, the route information could be transmitted to a ground-based robot, it would be able to go out to the target and then maybe take some medicine or even pick the person up.

359. The school bringing a divided community together

The Israeli school bringing a divided community together, bridging the gap between Jews and Arabs.

Published on 26 April 2018

This video was made by BBC World Hacks

CAPTION: These children are all Israeli. But some are Jews and some are Arabs. They usually live separate lives. But this school teaches them together.

MIA: It's like two different worlds that just come together, mixing to one big world.

CAPTION: Israel's population: 75% Jewish, 21% Arab, 4% Other. But Jews and Arabs hardly ever mix. And the wider Israel-Palestine conflict is a cause of friction.

MOHAMAD MARZOUK: Many people could not imagine the idea of having children, Arabs and Jews, going to school every day together because the idea of separation is so rooted. If we want our citizens to live in an integrated way, we should start that from the beginning, actually, from the education system.

CAPTION: Each class has two teachers. One teacher speaks Arabic and the other speaks Hebrew.

GITIT HYDEN-RONEN *2nd Grade Hebrew Teacher:* I think the children get so much more to hear two languages. Language is the basic thing to live together. Without it, you can't do it. The Jewish are here. The Arabs are here. And that's it. We just have to live together. And the education, the school, it's the beginning of that.

CAPTION: Mia is Jewish. Aya is Arab. And they're good friends.

AYA: I like school because we play together and we do activities. And the Arab and Jewish play together and do not fight.

CAPTION: But what happens when there's conflict between Israel and the Palestinians outside the classroom?

GHR: We talk about it with the children if they talk about it and we just listen. I think if we're a good listener, we give them the power and the strength to deal with it.

CAPTION: This school goes up to Age 12 then children go to segregated schools. But friendships can last. Noga is now at a Jewish school, Lama goes to an Arab school.

NOGA: We are still good friends and we meet and we talk on the social media.

LAMA: Learning together is better because we get to know the other side, get to know their story.

N: This is the normal idea of the going to school together. We are one country.

L: Yeah, we live together, why shouldn't we learn together?

CAPTION: There are only six Hand in Hand schools teaching 1,500 pupils. And in Israel there are very few integrated schools. But Mohamad believes they can make a big difference.

MM: In the short term, we know that we're giving our children a different education and different opportunities for an alternative for the existing relationships between Arabs and Jews.

Now, in the long term, we know that create a fundamental change in this situation of conflict between the two peoples.

360. The science behind why doughnuts are so hard to resist

Why is it so much easier to choose a doughnut over some broccoli? This is what's going on in your brain...
Published on 20 July 2020
Made in partnership with the Royal Society and Dr Fabian Grabenhorst Scientific Adviser on the Neuroscience of Food Reward University of Cambridge:

NARRATOR: Why do we like some foods more than others? What is it about burgers and cakes that we crave? And what is happening in our brains when we choose what to eat? If you hopped into an MRI machine and were offered a delicious chocolate milkshake, you would see your brain's reward system light up like a funfair. Right above your eyes is your orbital frontal cortex, a part of the brain which is especially developed in humans and primates. Here, bundles of neurons respond to different sensations and nutrients taste, smell, how smooth and rich the milkshake feels and the more your neurons light up, the more delicious the food seems. Two things which particularly delight these reward neurons are fat and sugar. Combinations of fat and sugar can be even more delightful, such as in that delicious milkshake, or cakes, or doughnuts. But your neurons don't just respond to these sensations, they also activate when you're planning what to eat in a contest with each other to get you to choose them. "Pick me." says silky smooth mouth feel. "No! Me!" shouts sugary sweetness. "You never pick me." quietly mumbles the smell of broccoli. And once you have chosen, the same neurons track your progress, and as you eat, they get less and less active as you approach fullness. But we're not entirely at the mercy of the demands of our orbital frontal cortex. Having information about the food can make a big difference. Hop back into that MRI machine and slurp down some soup. There are two types - one is labelled 'rich and delicious flavour', and the other is labelled 'boiled vegetable water'. Your neurons light up at the taste of 'rich and delicious', and less for 'boiled vegetable water'. But wait a minute. You've been tricked. Those were both the same soup. The only difference was the name and that was enough to completely change your experience of it. This experiment was also done with wine telling people that the wine cost more made their neuron activity increase and the wine tasted better. Another part of the brain involved in choosing food is the amygdala. The amygdala also has a role to play when you choose where to go out with another person. If you've seen what they prefer in the past, your amygdala will have developed so-called simulation neurons. These predict the choice you think they will make which you can then factor into your own suggestions of what to eat together. Differences in our genes are also a factor in how susceptible we are to the siren call of our reward neurons, with some people being naturally more responsive to the reward we feel from eating sugar and fat than others. Scientific experiments give us clues about how our brains compute our choices of what to eat, but the way we experience these choices in our lives and in society is also complex. Dr Emily Contois, Assistant Professor of Media Studies, gives her take.

DR EMILY CONTOIS *University of Tulsa*: We choose the food we eat for a lot of different reasons what's available at the grocery store? What's convenient? What's affordable? What do we have good memories about? What tastes good to us? What do we think is healthy? What is our current health status? What defines our ideas

about who we are? So when we think about food in the digital age, one of the biggest things that has changed the way people eat and the kinds of foods that they are seeking out are social media platforms. Instagram, and the desire for people to be able to take beautiful food photos, has transformed the idea that you are what you eat into you are what you post. So we seek a lot of different things from the food that we eat. We can seek comfort, we can seek a connection to history, to our families, to our heritage. But we can also seek in it a sense of control. When we live in moments that are full of economic, political and social strife, sometimes we seek in food that sense of security and safety. So in those moments, we sometimes see people get really interested in ideas about naturalness, health and purity, as a way to protect ourselves from contexts outside of our control. So food also tells stories about who we are. The full complexity of our identity. What we eat tells stories about our gender and our sexuality, our race and our ethnicity, our social class, or our aspirations about our social class, the region where we live, even whether we live in an urban or a rural area. What we eat tells these contradictory, complex stories about who we are.

N: In the future, we can use our knowledge of what is happening in our brains to design foods that are low in calories and are still attractive, but healthy. And we can help ourselves by understanding how our reward neurons plot to get what they want. We can be aware of times that we tend to make poor choices, like when we choose a food because of some label which appeals to us, rather than because of its taste. So in the end, we are at least not fully at the mercy of our reward neurons. We can use our understanding to help design healthy foods and make healthy choices.

361. The secret (and science) of how to win at arm-wrestling

Want to win at arm-wrestling? These secrets from a pro - the captain of the GB team no less - are guaranteed to give you an edge.

Made by Splinter Design, 19 March 2019

NARRATOR: How to win an arm wrestling and roll to victory, with expert advice from Neil Pickup.

CAPTION: Captain of the Great Britain Arm Wrestling Team.

N: Has someone just challenged you to an arm wrestle? Well, lucky for you, or perhaps for your opponent, arm wrestling isn't just about brute strength. Using the right technique will not only help me to win, but will also help you avoid any injuries. The most effective arm wrestling technique and the best way to quickly win is the top roll. In the third century B.C.. the Greek mathematician Archimedes famously stated, 'Give me a lever long enough and a fulcrum on which to place it and I shall move the world.' 'What's that got to do with arm wrestling?' I hear you ask. Well, actually, everything. Your forearm is the lever and you want to make it as long as possible. And your elbow is the fulcrum or pivot point which you need to be strong. So stand is close to the table as you can and tuck your elbow into your body,

allowing the muscles in your back shoulder and arm to provide support. When you grip your opponent's hand, face your knuckles directly to the ceiling, creating the highest possible position for your hand to be in. As soon as the contest starts, lean your body back and pull your hand straight towards your nose. This technique will break open your challenger's hand. As soon as that grip begins to slip, pull your arm diagonally towards your other shoulder. Dropping your knees and dipping your waist at the same time. You've just neutralised your rivals forearm. Continue rolling your body down until you inevitably taste victory. The brilliance of the top roll, apart from the sense of superiority you now feel, is that you have not had to use any joints but made most effective use of your muscle power. So even if your adversary fights back, you will not hurt your arm. But don't get overconfident. The top roll is good, but not that good.

362. The secret language of feet

What do your feet reveal about you? More than you might think... A whizz through some foot facts.

Made by GRACE Productions, 1 June 2018

NARRATOR: The secret language of feet. A few facts, for starters. During an average lifetime of feet or walk 115,000 miles or a 185,000 kilometres. That's the equivalent to walking around the world more than four times. Each pair of feet has around 250,000 sweat glands. We release up to half a pint of sweat every day from our feet or 100 litres in a year. The average British foot has increased by two UK sizes since the 1970s. We are taller and heavier, in part due to our diet. The little micro-moves your feet make say huge amount about what's going on in your mind. Studies suggest men move their feet more when they're anxious, but women's feet stay still, though they do release a nervous energy as they become more comfortable. Men tend not to give clues about their attraction towards a person with their feet. But women do an open posture and foot movement away from the body are clues of attraction. In ancient Egypt, nail polish was used to show social standing. The lower classes often wore nude and light collars while high society painted their nails red. These days, well, it's up to you. If you think you can stop feet communicating by covering them, think again. A study from the University of Kansas found people are able to accurately guess age, income and a number of personality traits just from looking at their shoes. Practical and functional shoes tend to be worn by agreeable people. While old but well-kept shoes suggest a conscientious owner, researchers found the brighter to the shoe, the less anxious. The owner tends to be like shoes. Your socks can be equally revealing. In Silicon Valley and elsewhere, wearing colourful or flamboyant socks is an acceptable shot of flair for men in a generally dress-down culture. If your second toe is larger than the big toe, that's called Morton's toe. The ancient Greeks love this shape of foot. You see it all the time in their sculptures. About 20 to 30 percent of people have what is known as Greek feet. So-called Egyptian feet are when the toes go down one by one in size in a straight line. The Egyptians were into their perfect measurements. A so-called Roman foot is

where the toe and the two toes next to it are roughly the same length. Good for walking. And why are our feet so ticklish? And why does tickling make us laugh? It's a mystery that's perplexed thinkers from Plato to Galileo to Darwin. The soles of a high concentration of Meisner's corpuscles, highly sensitive nerve receptors. Scientists believe these evolved as a defence mechanism to protect vulnerable areas of the body from injury. It's also thought that tickling encourages social bonding. You can't tickle yourself.

363. The secret life of Emmeline Pankhurst

Unseen letters shed light on suffragette Emmeline Pankhurst's campaign to help war babies.

Published on 14 June 2018

Made by 100 Women

CAPTION: Emmeline Pankhurst is known as a trailblazer in the fight to get women in the UK the vote. But recently discovered letters shed new light on Emmeline's life revealing the plight of the 'war babies' she tried to help.

ALISON KELLY: I was clearing out my late mother's study and found this box full of old letters and cards. And in amongst the box was a . . . these two small brown envelopes dated 1916 and 1917. And when I turned the page, I couldn't believe my eyes when I saw the signature was E. Pankhurst.

Dear Miss Knight, I write to thank you on the baby's behalf for the very welcome Christmas present you and your friends have sent them. It will be a constant joy to them for years to come.

CAPTION: Grace Knight, the woman Emmeline writes to, was friends with one of Alison's relatives.

BEVERLEY COOK *Curator, Museum of London:* One of the things that Emily was really keen to do from 1915 was to establish a home for what she referred to as 'the war babies.' And these were children that were being born illegitimately to young women whose partners or fiances had been going out to war. As you can see from this item that I found in the collection, she is announcing her campaign to raise funds for the war babies and the home. What happened in wartime was that the fathers of the babies were often not in the country any longer. They'd been sent to war. So there was no option really for the young girls to quickly get married and have their babies within . . . within wedlock. She herself also adopted four children and I found in our collections at the Museum of London that show the children.

CAPTION: Emmeline is pictured here with her four adopted 'war babies.'

AK: *I shall be very grateful to you and other members and friends, if you can, from time to time send further help for the task of providing for the children is a heavy one. With received thanks. Sincerely yours, E. Pankhurst.*

364. The secret life of vowels

Vowels are understated, but essential. We couldn't speak without them. Over to spoken word artist Mark Grist.

Made by Mark Grist & Paper Rhino, 12 September 2018

MARK GRIST: Vowels. We use them every day. But how much do we really know about them? in the English language, we have five specific vowel letters, each with its own unique personality. First off, on this linguistic A-list is well, it's A – about as popular and versatile a letter as you can get. A balances representing an impressive seven different vowel sounds with the glitz and the glamour that comes from being the English language's very first letter. A is literally the alpha of our entire alphabet. It's the highest grade a teacher can give you for your work. We have A-list celebrities and many of us grew up watching the A-Team save the day on a regular basis. Some scientists believe that A has an entrenched motivating impact on us and can improve performance at work or creatively. A is quite playful. It features in a lot of words that are just, well, fun to say, like llama, aardvark, handbags, Balaclava, Madagascar, jazz hands to name a few. And A isn't too interested in numbers either. If you spelt out every number from one upwards, you wouldn't be using an A until you go all the way up to one thousand. E, in contrast, is much more grounded. It's the only out in our most used word, 'the'. And it's also the most used letter in our entire alphabet, appearing in 11 percent of all the words we use. It's the second most likely key to break on your keyboard from overuse. E is essential to storytelling. It allows us to write in the past tense. When E is left to its own devices, it takes a deep interest in the natural world, endlessly green elements, stems, trees, weeds, leaves, levies etc., I is very concerned with its appearance. It was the first letters to receive a dot when in its lowercase form. And it's the only letter that is always capitalised when on its own. It's also the first word in the shortest complete sentence in the English language. 'I am'. It's great for active verbs and when it's on its own it appears in a host of words related to excess and desire. Without it, you couldn't have kissing or drinking or hitting or spilling, hardly any illicit thrills at all. Out of all the symbols we use for vowels. O, is the one that appears the most in other languages. Even ones that developed completely independently of each other. The shape of the letter O mirrors the shape of your mouth as you make the sound. And it's thought that's why it appears in so many different languages. This constant circular shape with no beginning or end offers some of our most mysterious words, things like the moon, spooky, howls, grottoes, horror, ghosts. Groans, moans and bones too. U is much more scientific and, partly due to its lateness in the alphabet, always has one eye on the future. It's an abbreviation for university, for uranium and is linked to submarines. It provides us with some pleasant words, but also some of our most unpleasant ones. U also works well with other letters. It can be completely silent when it wants to be and it can be rare to get three vowels together in a row, but when it happens, in most instances, u is in there holding all together. So there you have it. The English language's vowels essential to everyday life. Each one packed full of personality. You'd best learn to live with them because you can't speak without them.

365. The secret to success? Dare to be different

Nikesh Mehta, a deputy director of the UK's intelligence agency, GCHQ, gives his top tips for success.

Made by BBC Studios 8 June 2018

NIKESH MEHTA *GCHQ:* I have often felt like a fish out of water at various points throughout my career, but I've definitely come to the realisation that my diversity and the difference that I bring is a real strength. My first tip is dare to be different. It can weigh heavily on your shoulders and it can be quite frightening, I think, to take a risk and do something different to break new ground. Sometimes people will question you and question whether you're making the right decision. And sometimes you'll question yourself. But that's okay.

CAPTION: Nikesh Mehta has been a deputy director of the UK's intelligence agency GCHQ since 2015.

NM: My family come from East Africa and India, and so they are the children of Britain's colonial past. When I said to some members of my extended family that I was going to work for the Foreign Office, there was an immediate sense of, you know, 'How could you, how could you do this? Do you not remember what they did to our people?' But I think you need to recognise that if you break new ground, there will be people who question you. But if you believe that it's the right thing to do, you need to persevere. So my next step is accept fear. So I know that when I'm in new, uncomfortable situations, I get a strong sense of fear and my flight mechanism kicks in. And for me, that starts with butterflies in my tummy and it goes on to trying to think through 'how can I get out of this situation?' So when I joined GCHQ, I definitely felt in those early days that sense of fear and flight. 'I'm surrounded by some incredibly intelligent people and they're going to find me out pretty quickly.' I've learnt, over the years, that actually that feeling only stays with me for a relatively short period of time. And if I ride it out and if I accept fear that actually it will be fine. And the rational side will kick in soon enough. Ask questions. That's my next top tip, because it's only through asking and really listening to what people say that you can build relationships of trust and confidence. And in my job, I often meet people from international backgrounds. And the one thing that I always do is to look at what's on the front page of their local newspaper that day. Because that gives me something topical to talk to them about. What you're trying to do is to make people feel that you're really interested in them and what they have to say to you. My final tip is find a champion. I think it's really, really important when you're breaking new ground to find somebody who will encourage you to be yourself and will advocate for you. For me, I was lucky that I was able to find a champion fairly early on in my career. And she is somebody that I will turn to and ask for advice and guidance. But also, don't forget that you are a champion yourself. I learnt something which was 'lift as you climb.' So making sure that you are helping somebody else to succeed. Part of what drives me is proving people wrong. The people who said that I couldn't possibly work for . . . for the Foreign Office, because it wasn't for people from . . . from my

background. So success for me is about the glory of being at the top of an organisation. It's about having the maximum impact that I can, but also about being an inspiration. So if I can change the conversations and encourage people to dare to be different and to take a risk, then I feel like I will have succeeded.

366. The sign that stands for global peace

A brief history of the peace symbol - from its design in 1958 to now.

Made by Dayglow Media & Pencil & Pepper, 15 June 2018

CAPTION: Peace symbols have been around for centuries. What's become known as the Peace Sign was designated in 1958 by British artist Gerald Holtom for the protests against UK atomic weapons research. The symbol combines the semaphore flag signals for the letters N and D, standing for Nuclear Disarmament. Holtom wanted the symbol the other way up. He thought it looked more hopeful. The peace sign quickly became internationally recognised. It was introduced to the US by the pacifist Bayard Rustin a friend of Martin Luther King. It was used extensively by anti-Vietnam war protestors in the 1960s and became fashionable among hippies. The peace sign was a prominent feature on the original pyramid stage at Glastonbury Festival. In 2017 more than 15,000 people at Glastonbury formed the world's largest human peace sign. It is one of the most recognisable graphic icons and isn't protected by copyright so it can be used by anyone.

367. The simple recipe for a happy street

Meet the woman whose simple but effective idea brought the community spirit back to her street.

Published on 20 November 2017

This video was made by BBC World Hacks

CAPTION: Playgrounds in the street.

NARRATOR: This woman had a simple idea for her street.

ALICE FERGUSON *Playing Out:* Closing the road to cars for a couple of hours at a time so that we could give over the space to children. Our children were not getting outside enough. They were not physically active enough. We saw that we have this great space immediately outside their front doors, but they couldn't use it.

N: This isn't a one off street party. This street in Bristol plays together every Tuesday. It means kids spend less time trapped indoors and adults can make friends with neighbours. Alice thinks it's an easy, cheap way to tackle childhood obesity and social isolation.

VOX POP FEMALE: It's really brought our community together.

VOX POP CHILD: It's really good because you make lots of friends on the street.

VOX POP FEMALE 2: They can look back and have some of what I had, because I always played out. But obviously times have changed.

N: Scientists have studied these schemes.

PROFESSOR ANGIE PAGE *Bristol University*: You can get an extra 10 minutes of moderate to vigorous physical activity just from simple closure of a street for a short period of time.

N: Government guidelines say children should get 60 minutes of exercise per day. An experiment in Ghent, Belgium, compared 19 play streets with normal streets for eight days, fitting children with sensors. Each session lasted five hours and the council even provided a box of toys. It found children in play streets did about 15 minutes more moderate to vigorous exercise each day. In Bristol, it was one simple change that allowed this idea to thrive. Instead of having to fill out multiple forms, now streets apply just once to hold regular sessions. Eight years on, more than 40 UK authorities use the same system. Inspired, Toronto is the latest city to pilot the scheme.

DEBORAH DONCASTER *President, Earth Day Canada*: It's all about getting kids outside playing again. And it was a natural part of my childhood. But it's a big piece of childhood that's missing from the modern day.

368. The smart bees that can 'play' football

Bumblebees can learn to score goals for sugary rewards. Yes really...

Published on 19 June 2018

This video was made by BBC World Service

CAPTION: Bumblebees may have tiny brains, but they are surprisingly smart.

PROFESSOR LARS CHITTKA *Queen Mary University, London*: We've removed them from that familiar environment to see how far we could push them in terms of the flexibility of their learning ability. And, for example, found out that they can learn to pull a string them in order to get access to a reward that was hidden under a glass table. They can also learn it better from each other than if we tried to train them. Once, there was a single individual that had figured out how to do it. The technique then spread to everyone in the colony. And in another experiment, we had them roll little balls to a particular location in an arena almost equivalent to playing a little football game to see whether they could essentially use a token, like in the same way we operate a vending machine in order to get access to a reward. And indeed, they could do that and learn it from each other. There is certainly evidence that bumblebees and perhaps honeybees and some wasps have some sort of

understanding of the outcomes of their own actions. At least I think they can foresee the immediate outcomes and adjust their actions accordingly.

369. The story of the killer disease humanity eradicated

Smallpox was one of the biggest killers in the history of humanity. This is the story of how we eradicated it. Are there lessons for us now?

Made by Angel Sharp Media, 5 June 2020 in partnership with the Royal Society

SANJOY BHATTACHARYA, ACADEMIC AND HISTORIAN: You just had to look at a smallpox sufferer to be horrified. It was very much a lottery ticket, which most people didn't want to buy.

JAMES WILSON, PROFESSOR OF PHILOSOPHY, UCL: The eradication of smallpox is one of the most significant events in the 20th Century. For me it would be up there with the moon landing.

CAPTION: What can we learn from the story of the eradication of smallpox? In the 20th century alone, smallpox killed an estimate of 300+ million people worldwide. That's more than both world wars put together.

PROF GEOFFREY SMITH, HEAD OF PATHOLOGY, CAMBRIDGE UNIVERSITY: You certainly couldn't miss a patient who had got smallpox.

SUSANNA BIDGOOD, RESEARCH SCIENTIST, UCL: You had these blisters, these lesions all over your skin. All these pustules were filled with virus.

CAPTION: Like Covid-19, smallpox was transmitted by breathing in droplets or touching a contaminated surface. smallpox would kill 30% of all people that caught the virus. Survivors would often be left disfigured, blinded or infertile. smallpox is thought to have found its way into human populations around 10,000 years ago, shaping human history with devastation for millennia. Smallpox spread around the world with crusading armies, trade, slavery and colonisation. the first attempt at protecting against the virus was a process called variolation. This involved deliberately infecting a person with smallpox matter. Variolation originated in Asia and was first practised in China and India.

SANJOY BHATTACHARYA: India, as in the Mughal Empire, understood the value of variolation because it saw smallpox as a threat to military power.

CAPTION: The practice was initially rejected in the west, before becoming widespread around the world.

JAMES WILSON: But the problem was that it was as risky as it sounds you're basically trying to stop a deadly disease by giving somebody a mild case of the same deadly disease.

SANJOY BHATTACHARYA: Variolation could lead to uncontrolled epidemics.

CAPTION: By the 18th century, smallpox was a constant thread in Europe.

DR ERICA CHARTERS, ASSOCIATE PROFESSOR OF GLOBAL HISTORY AND THE HISTORY OF MEDICINE, OXFORD UNIVERSITY: People knew that this was something that their children would catch and they might survive or they might die from it and so it was part of the cycle of life.

CAPTION: In 1796, there was a breakthrough. British physician Edward Jenner made a key discovery...

ARCHIVE NEWS REPORT: When Jenner inoculated the arm of James Phipps, a young boy of eight, with the contents of a cowpox bled from a dairy maid, it became possible for the first time to protect human beings artificially against pathogenic organisms.

GEOFFREY SMITH,: This really tipped the table in favour of prevention and eradication.

SUSANNA BIDGOOD: To people in the 1700s, this was totally mind-blowing.

SANJOY BHATTACHARYA: Jenner's idea was a game changer.

CAPTION: This led to the world's first ever vaccine. however, it would be a long time before the vaccine could be implemented effectively. In 1945, smallpox was still widespread around the globe.

SANJOY BHATTACHARYA: What happens in 1948 after the Second World War, the horrors of the Second World War, is that the world agrees that a new world order was needed.

CAPTION: The World Health Organization was created in 1948.

ERICA CHARTERS: What a crazy idea it would be to say that you're going to institute vaccination throughout the entire world.

CAPTION: But that's exactly what happened.

ARCHIVE NEWS REPORT: The 11th World Health Assembly approved a resolution in 1958 calling for worldwide smallpox eradication.

GEOFFREY SMITH: The WHO galvanised enthusiasm, they standardised the vaccine, obtained the resources that they needed internationally. They really deserve tremendous credit for that.

CAPTION: The eradication programme was launched in 1967.

SUSANNA BIDGOOD: People running the programme were going from door to door with pictures of a child with smallpox and asking people in the community if they knew anyone who had this disease.

CAPTION: Quarantine measures and contact tracing were needed to isolate individuals with smallpox symptoms.

JAMES WILSON: You're tracking, testing, isolating. It's a strategy which many people have said will be the only way we can keep on top of Covid-19.

ARCHIVE NEWS REPORT: May,1980. Two men affix their signatures to an historic document.

CAPTION: Smallpox was declared eradicated on 8 may 1980.

SANJOY BHATTACHARYA: National and local health workers played an immense role in the eradication of smallpox, whether it's in Africa or in Asia often selflessly, because a disease like smallpox was as threatening to them as Covid-19 is to today's health workers.

JAMES WILSON: It's interesting that we're often so eager to commemorate success in wars, but that much less is done to celebrate success in the control of disease. The eradication of smallpox is one of the most significant events in the 20th Century. For me it would be up there with the moon landing.

SUSANNA BIDGOOD: We've eradicated smallpox. And because we've eradicated smallpox we know that we can eradicate other human diseases. If we all work together to tackle the disease, to stop it spreading, to protect ourselves, there is no reason why we can't stop another pandemic like we stopped smallpox.

370. The story of the little pointing hand symbol

Ever wondered about the little hand symbol you see online? Well, it's called a manicule – and it's got a very long history.

Made by Dayglow Media/Pencil & Pepper 5 June 2018

CAPTION: The manicule is a little picture of a pointing hand from the Latin word 'manicula' meaning a small hand. It was originally used in texts to highlight a paragraph of particular interest. It's thought the symbol was inspired by the shape of a feathered arrow. It's earliest known uses were in medieval manuscripts from the 12th century, where it was often drawn in red pen or crayon in the margin. Some of the finest examples are in Archbishop Matthew Parker's library in Corpus Christi College, Cambridge. Parker was an influential 16th century theologian. It was known in printer's slang as 'mutton fist', 'bishop's fist', or just plain 'fist'. It is also called the 'indicationum' or 'index', from the Latin 'to point'. That's also where our index finger gets its name. It was also used on traditional 'finger post' road signs. This one is Izod's Post from Gloucestershire, dating back to 1669. The US postal service also uses a manicule stamp for a letter that needs to be 'returned to sender.' In the 1960s, The Beatles' Yellow Submarine film featured an evil manicule hand and it inspired Terry Gilliam's animations for the Monty Python films and TV shows. And of course, these days, a pointing finger is used as a cursor online when you hover over a link. Meaning you probably see hundreds of manicules every day.

371. The subtle art of persuasion

Communication experts Guto Harri and Scott Solder share their tips on how to be more persuasive and get your voice heard.

Published on 3 September 2019

GUTO HARRI *Communications Expert:* There are really dull things in the world that are very important nevertheless. So you have to find an engaging language, an engaging methodology somehow or an image to bring them alive.

SCOTT SOLDER *Communications Coach and Author*: Learning persuasion techniques is more about understanding what makes other people tick and how they see the world and adjusting your communication so that your message that you wish to land with them lands properly and accurately.

CAPTION: They psychology of persuasion.

GH: I'm Guto Harri, I was a BBC correspondent for 18 years, and since then I've been a strategic communications advisor.

SS: I'm Scott Solder. I'm a communications consultant and an author and a speaker on influence, persuasion and assertiveness.

GH: The bridge for me from journalism to communications was four years looking after Boris Johnson's coms as mayor, a baptism of fire. One of the things Boris Johnson did really well was deploy words for great effect. So he was campaigning against a cut in benefits, housing benefits for poor people in London. Important, but very hard to bring alive. He said 'No Kosovo-style social cleansing on my watch in London'. Suddenly everybody was listening. That is the use of language to great effect.

SS: The thing about persuading people or just living your life in general is that if something's not working, you need to try to do something else. It's a similar way that Charles Darwin looked at life. The survival of the most adaptable is the theory of evolution. And that's absolutely true, every day of your life, and once you learn to be adaptable and if something doesn't work to try something else, and if that doesn't work, try something else, then you're much more likely to get people to understand the message you're trying to land with them, rather than just keep hitting a brick wall.

CAPTION: So how can I be more persuasive?

SS: A lot of people will actually employ that persuasion technique without realising, it's called being human or inhuman. And I'll give you an example of this. If you were to ask a favour from somebody who works for a local authority to sort of push you up the list, and they didn't want to, they could say, 'Well, I'm afraid the rules are that we can't'. That's dehumanising. That's stopping you from appealing to them on a human level by giving you an inhuman reason to do so. In other words, the rules or the institution or the organisation. Equally, it can be the other way

round. If you want to be all official and sticking to the rules, somebody can really try to humanise with you and give you a smile and say, 'Oh, come on. Just for me. Honestly can we just look the other way?'And these two techniques can work very well. If you are facing one, you can use the other. F

GH: Flagging's really important. There's nothing worse than somebody in a sort of monotone voice staring at you intensely, just delivering something like a robot. We all sort of drift off, follow something there and something there. But at some point we want to get to the point that really matters. And you say, 'Listen to me', you do that by using your hands, your voice, your eyes, by pausing, or you can use words as well. And this is the point that really matters. And whether you're a judge half asleep in court and you notice one bit that you need to clock or whether you're in a boardroom or whether you're just with friends and the conversation has gone on for hours, you suddenly want to say, 'But isn't the key point this?' Pause. Rest. Lower your voice. Just flag it. And people will remember that point.

SS: If you want to be seen as a leader or if you want people to come to you for advice or leadership. One really good technique is to give yourself a bit of celebrity status, and that means maybe dressing one notch up from everybody else. It may mean setting yourself up with a little bit more expertise than everybody else, because actually people feel secure if they have someone in their midst that they can go to, that they can turn to. Don't go too far because then you come across as aloof and that's not what you want.

CAPTION: How can I be persuasive without being manipulative?

GH: In the end, the key is to be true to yourself. Remind yourself why you're in the conversation and if there's an emotional connection that will be far more powerful than a simply intellectual connection.

SS: When you're talking about influencing and persuading people, I think it's really important to remember that it's really about seeking an understanding of what makes them tick and what matters to them. It's not about manipulating them. It's about understanding what drives them and trying to get them to understand what's driving you. Remember, most people have been persuaded before and most people can be persuaded again. It's a good assumption to make when you start. Persuasion is about understanding on both sides.

372. The surprising benefits of being a loner

Loneliness has been called an epidemic of the modern era. But emerging research suggests there are some upsides of being alone...

Published on 9 May 2019

NARRATOR: Loneliness has been called an epidemic of the modern era. The UK government has even called it one of the greatest public health challenges of our time. And the research shows that social isolation is linked to heart disease, stroke

and premature death. It's absolutely true that feeling more isolated than you would like to be can be harmful. That's especially the case if it's a long term chronic feeling, which can lead to sadness and depression. And it's also true that even temporary stints of extreme social isolation, like the solitary confinement of prisoners, can lead to poor health outcomes. But all of this bad press paid to loneliness can make those of us who are a little bit more socially reclusive wonder if we're hurting our health long term, too. Luckily, the research doesn't hold that up. First of all, it's important to clarify that you can be lonely anywhere, even at a party or in a crowd. Loneliness doesn't necessarily have to do with the number of people around you. It's whether you feel connected to and understood by the people around you. And how much connection each person needs totally varies. Introverts, for example, tend to have fewer friendships. So from the outside, you might worry if they're lonely. But studies have found that the friendships introverts *do have* tend to be stronger. And having high quality friendships over a lot of friendships has been linked to being happier overall. Meanwhile, even for people who aren't introverts, sometimes acting like a loner can have benefits. For one thing, being alone can be relaxing. In one survey of 18,000 people from around the world, the BBC found that the five most popular restful activities were all usually done alone, like reading. The third most popular was actually literally spending time alone, while seeing friends and family was 12th. Being more reclusive has also been linked to being more creative, and it's important for mental focus. Plenty of research on mindfulness has shown us that stillness activates the brain's default mode network. The part of the brain that is key for consolidating memory, promoting empathy and firing up new ideas. There's a reason why you'd get your best ideas in the bath or on a walk alone. Of course, this is all aloneness, not loneliness. But there is a potential upside to a temporary feeling of loneliness, too. In the same way that feeling thirsty reminds us to get water, feeling lonely is a good signal that we need to improve or expand our connections. So the next time that you want to say no to a social engagement, let yourself. Obviously, if this becomes a sudden trend or is linked to symptoms of depression, it's worth paying attention to or seeking medical advice for. But if it's just the way you've always preferred to operate, don't worry, being a loner doesn't have to mean being lonely and it might just make you happier.

373. The surprising history of 'stealing someone's thunder'

The curious tale of how a little-known 18th Century playwright coined a very famous phrase. Lexicographer Susie Dent tells the story.

Published on 4 June 2020

Made by BBC Reel

SUSIE DENT: If anyone has ever stolen your thunder, you might be consoled by this surprisingly literal story behind this video. It's very rash etymologists to pinpoint the very first use of a word or phrase. In this case, however, several contemporary sources recount the events that led to the very idea of stealing someone's thunder, that is winning praise for oneself by pre-empting someone else – and we've all been

there. The story involves an 18th century individual named John Dennis, an actor, manager and playwright of little renown. On February 5, 1709 a production of Dennis's play, Appius and Virginia, opened at London's Drury Lane. The venue was badly in need of success following the loss of six weeks of performances to Royal mourning, when Queen Anne's husband, Prince George of Denmark, had died. Unfortunately, Dennis's play was not to be one of them. It was judged to be a ponderous in the extreme and downright boring and survived only four nights before it was unceremoniously closed. Even the inclusion of a theatrical first failed to save the play. Dennis had invented a contraption that mimicked the sound of thunder more closely than any other traditional devices. No records exist of quite how it worked, but he may well have used a sheet of tin or a machine that rolled a drum over wooden troughs. Whatever it entailed, it was clearly successful enough to be pinched by the company who were succeeding Dennis's ill-fated play in a production of Macbeth. Perhaps out of solidarity, Dennis himself went along to the opening night, only to be outraged by an all too familiar sound booming from the stage. He is said to have stood up in indignation and shouted. 'Damn them, they will not let my play run, but they steal my thunder.' If only Dennis knew that while his play may have been lacklustre, one of his inventions, a linguistic one, was to prove his enduring as the words of any of his rivals, including the writer of Macbeth, one William Shakespeare.

374. The teenage mother who changed the High Street

Writer and entrepreneur Jessica Huie on why representation on the High Street is so important. Plus a few tips on success.

Made by BBC Studios, 11 October 2018

JESSICA HUIE: This is special card. This is my . . . my little girl with her hair that she said kept growing out rather than down, which is how she wanted it to grow. This is the princess card that was created because I couldn't find it in the stores.

CAPTION: Jessica Huie MBE is an award-winning PR, entrepreneur and author. She grew up in West London and became a mother at just 17. Secrets of the Highly Successful, with Jessica Huie.

JH: Motherhood launched my life in many ways. It certainly launched my career. I was looking for a card for my little girl who was seven and going through the stage where she . . . she didn't like her hair. And I went looking for a greeting card that would just kind of subtly reinforce her sense of self. And I thought, 'Oh, I'll find a brown-skinned princess' and I realised quickly that there was a complete absence of anything that was representative. And had one of those epiphany moments where I thought, 'Oh, why don't I do this?' rather than discarding the thought, I stepped into it and it changed my life, because it opens up this entire entrepreneurial journey where I realised the power of doing something which is driven by meaning. Colour-blind cards went on to be really the first independent publisher to secure a presence for black cards or multicultural cards in the British High Street. We won lots of

awards and got distributed in America and South Africa. And started this . . . or were certainly part of this early conversation around why representation and diversity and inclusion are so important in retail. I'm very proud of that.

CAPTION: Write your morning pages.

JH: When I wake up, I pick up my pad and my pen and I just let a stream of consciousness hit the page before I start my day. And it's an opportunity to check in with myself. And sometimes it's ideas and sometimes it's just a sort of 'Really tired, really tired, need tea.' You know, I find by the end of this three pages of writing, I'm centred, and so I'm able to step into my day really knowing how I'm feeling. And sometimes I have answers to problems, which is . . . is just brilliant. So I highly recommend it.

CAPTION: Don't apologise.

JH: I think it's very important to stop apologising. And it can be difficult. It can be really difficult because we live in a world where, you know, often when we're programmed to feel like there is a certain way we should be, a certain way we should behave, a certain way we should look, when actually what we have to offer our, you know, our unique point of difference is all about who we are. Because I will always be a woman who grew up on a council estate who, you know, is very aware and has family and friends who are experiencing or have experienced the challenges, which are a reality for people of colour, are a reality for people from lower socioeconomic backgrounds. And I'm proud of that because all of it has contributed to my unique perspective and my unique experience of the world. And that's what makes me who I am. Two and a half years ago, my dad had been diagnosed with terminal cancer and we were very close for the first time really in my professional life, I stopped doing, you know, those things that I had felt so critical and has held so much importance were put into perspective, and I guess it just sort of drove home how important it is for us to sometimes get off the treadmill.

CAPTION: Make time for yourself.

JH: So what I do is I go on a date with myself now, which is a two hour period where it's just me. No distractions of phones or schedules. And just a chance just to kind of be with myself and be present. And I'm still ambitious. I'm still, you know, that can be . . . it's just driven by something that's much more healthy and that . . . that inspires me on a daily basis.

375. The underappreciated beauty of Brutalism

Though the stark, muscular style of architecture divides opinion, it's being reappraised by some as bold monuments to more hopeful times.

Published on 19 February 2020

Made in collaboration with BBC Briefing

CAPTION: Brutalism is an architectural style popular in the 50s and 60s. It's characterised by simple block -like forms and raw concrete construction. Its stark muscular style became synonymous with some of Britain's most derided public buildings and most troubled housing schemes. But across the world, many of these buildings are being reappraised as bold monuments to more hopeful times. The term originates from the French 'Beton Brut' – 'Raw Concrete' and it's often associated with the architect Le Corbusier. Le Corbusier's Unite D'Habitation in Marseilles is thought by many to be the most influential brutalist building ever constructed. Completed in 1952 Le Corbusier described the building as 'a machine for living in.' A concrete home for 1600 residents to shop, play and live communally.

NEW LIVES FOR OLD *1959*: Half the dwellings on a twentieth of the space.

What are you going to do about

Knock them down.

CAPTION: Brutalism was seen as a way to rebuild the UK's war-ravaged cities in a modern style. Concrete joint cars, international travel, central heating, and universal healthcare as a life-changing luxury for all. Some of the most high-profile architectural projects of the era were social housing.

VOX POP FEMALE: It's like being in heaven up here, Because we've always been . . . we've always been poor people.

CAPTION: Buildings in the Alton West estate in south London made direct nods to Le Corbusier. And while they would be maligned by some they were a luxurious contrast to the slum conditions many residents had previously lived in.

4 MODERN BUILDINGS *1967*: It's exciting coming into a place with an upstairs. I've never had an upstairs before.

CAPTION: In Cumbernauld, Scotland, the town centre was a futuristic concrete construction, the likes of which had never been seen before. Sibling London towers Balfron and Trellick were completed in the late 60s and early 70s and have become something of a graphic shorthand for brutalism. They represented the classic welfare state brutalist project at its clearest and most socially engaged. Although it's not always the case, brutalist projects have often been interpreted as symbols of a more egalitarian society. It was a favourite style of public and institutional buildings, libraries and universities. Brutalism is an international phenomenon. It's utilitarian associations are visible in the former Soviet Union and eastern bloc, where a desire for a new architectural identity led to some of the brutalist movements most imaginative buildings. And in the US, many iconic public buildings were built in the brutalist style. But the phrase 'concrete monstrosity' became increasingly popular in the 1980s the result was that brutalism in the public mind, became the architecture of a forgotten underclass, of windswept plazas, crumbling concrete, and ugly dystopian soullessness. Brutalism fell out of favour with town planners and the public alike and many of its once-feted landmarks were torn down. Modern has now become heritage and brutalism is back. Many iconic brutalist buildings have been granted listed or historical status. And the National Trust now offers tours of

brutalist estates. Perhaps these buildings reminders of more idealistic times, when ‘streets in the sky’ were thought to be the future. Social media has also made it easier to create and share images of the brutalist aesthetic. There are now sites, blogs, groups and books all dedicated to celebrating the brutalist aesthetic. While many of its famous monuments remain under threat of demolition and the severity of the style still divides opinion, there is concrete evidence that brutalism will be around for centuries to come.

376. The university that sparked an education revolution

As the Open University celebrates its 50th birthday, we look back at the profound impact it has had on society.

Published on 12 March 2019

This video was made by BBC Archive

CAPTION: Higher education was once a luxury only available to a select few. But in 1964 the British Prime Minister announced a radical new way of getting a degree.

HAROLD WILSON: Another thing we’ve got to do is in the field of our education. And this is to put an end to snobbery. And relevant also to these problems are our plans for a ‘university of the air’

CAPTION: It was dismissed as ‘blithering nonsense’ by Iain Macleod, then shadow chancellor of the exchequer. But the idea of a university open to all, regardless of background or qualifications would change the lives of millions. When the Open University launched in 1971, there were over 40,000 applicants for just 24,000 places. The teaching methods were novel. Instead of attending lectures and seminars on a campus every day, students studied at home using course materials provided by the OU. The OU even had its own Post Office to send out course books, science kits, and even cassette tapes with personalised feedback.

VOICE ON CASSETTE: You’ll see I’ve only given you a C this time.

TV BROADCAST: This is The Open University.

CAPTION: The early productions were a veritable mixture of corduroy and calculus as well as kipper ties and chemistry. Crucially, long-distance flexible learning meant working people could fit their studies in around their lives. Meaning that OU students’ homes could be transformed into makeshift science labs. If you were a bus driver, you could study for your upcoming Marine Biology exam while on your break at work, before taking the test on a tropical island. There were also summer schools where students could add to their home learning with some old-fashioned classroom teaching and sample the heady delights of university social life. The OU grew over subsequent decades, becoming both the largest publisher and the largest university in Britain. Many famous faces have studied at the OU: Lenny Henry, Holly Willoughby, Myleene Klass, Jerry Hall.

SIR HUW WHELDON *BBC Broadcaster*: They come here now because of the Open University. There's nothing like it, not anywhere.

CAPTION: The influence of the OU on education has been profound. Its model of distance learning has been adopted by institutions all over the world. Of course, information is more readily available now with massive open online courses (MOOCs), learning opportunities are more plentiful than ever. The OU is using this technology to deliver innovative teaching, for instance with the first medical degrees by distance learning in Africa. The 'University of the Air' is still changing lives.

VOX POP FEMALE: It's such a rewarding experience to do, I'd recommend it to anybody.

VOX POP FEMALE 2: Open University students are extremely motivated.

VOX POP FEMALE 3: It's very, very flexible. You can do it around work. I've really enjoyed studying.

VOX POP MALE: It taught me discipline.

CAPTION: It's still the largest university in the UK, having taught over 2 million students since 1969. Not bad for such blithering nonsense!

377. The value of not having your life planned out

Where do you want to be in five years' time? Not sure? Here's why making a concrete 'life plan' may not be necessary. By Brendan Miller.

Published on 22 May 2020

Made by BBC Reel

BRENDAN MILLER: Plan your life. That always seems to be the message, doesn't it? People asking us about our career plans or where we plan to be in five years' time. And meanwhile, the media repeat stories about people who always seem to know what they wanted to do, their lives, a series of logical steps. But while planning is good, when the problem needs a solution that is fixed and well-understood, building something like a career is a different kind of problem. Firstly, you're missing information about what jobs are out there. In today's complex economy your dream job might be in the line of business that you've never even heard of before. What's more, you're missing information about yourself, about what you like and don't like, and how this might change. Stick to a childhood dream and you'll end up doing what you wanted to do 20 or 30 years ago, but not necessarily what you want to do today. Messy and unclear, life is what is sometimes called in design thinking a wicked problem. With a planning problem, you can work your way to a solution in a clear, logical fashion, but with a wicked problem you don't know what you're looking for until you find it. Based on this insight, Bill Burnett and Dave Evans, in *Designing Your Life*, recommend thinking like a designer and testing things out. In other words, not planning, but prototyping. The aim of prototyping is to find out information by just

trying stuff. You keep trying new things, which might not be the solution, but they help you better understand the problem. So, for example, let's say all you know is that you have an interest in the food sector. A prototyping approach might mean running a market stall, organising a supper club, or even just speaking to someone in the industry to find out what it's like. The idea is you're getting more information without making too big an investment. You take a small step. So you have a coffee with a restaurant owner that gives you information. Maybe you hear that the delivery business is booming. You try something else, say a shift in a bar, which in turn gives you more information. Maybe you discover you have a passion for making cocktails with this approach. You have more chance of stumbling across that thing that turns out to be what you were looking for. Even though you never went searching for it. Besides, even those people who claim they had a plan might well be deluding themselves with hindsight bias, what they remember is clear, logical steps. But in reality, a series of responses to unexpected opportunities and chance. So, as you're missing lots of information about the economy, missing lots of information about yourself, because prototyping is a great strategy and because even those who say they follow the plan probably didn't. For all those reasons. Don't plan your life.

378. The vision that will save thousands of new mothers

In the 1960s, two Japanese scientists discovered a drug that could prevent maternal deaths. It took decades for them to be proved right.

Published on 2 May 2017

This video was made by BBC World Service

CAPTION: 'Postpartum haemorrhage' is the leading cause of maternal deaths worldwide. More than 100,000 women die from severe bleeding after giving birth every year. Over 50 years ago, two Japanese scientists found a drug that could change this. Utako and Shosuke Okamoto began studying blood when World War II ended. They discovered the drug TXA (tranexamic acid) could stop blood clots breaking down and wanted to see if it would help reduce bleeding after childbirth.

UTAKO OKAMOTO: We wanted to look for new drugs to show our gratitude to humanity. We thought that this would be wonderful.

CAPTION: Ukato faced a lot of barriers as a woman. When she first presented her research, she was ridiculed.

UO: They looked at me with great curiosity as if I was something strange. Like, 'What on earth is going to happen now?' I was not nervous. Afterwards, people said kindly that they wondered if I was going to dance for them!

CAPTION: Despite the drug's potential, the scientists' vision for TXA was overlooked for five decades. In 2010, the London School of Hygiene and Tropical Medicine set up a trial to see if TXA could reduce the number of women dying from postpartum bleeding.

UO: Yes, it's going to be good. It's going to be affected. Without doing the research I know the result.

CAPTION: By 14 April 2016, 20,000 women had been recruited to take part. Utako died one week later – aged 98. One year after her death, the results of the trial were released. It found that TXA can reduce the risk of death from postpartum haemorrhage by 30% and has the potential to save the lives of up to 30,000 women every year.

379. The visionary behind virtual reality

Jaron Lanier explains how he came up with the term virtual reality - and shares his views on the future of technology in society.

Published on 10 January 2018

Made in partnership with Intelligence Squared

JARON LARNIER: The term virtual reality came to me when I was a teenager growing up in southern New Mexico. I had been really isolated and a somewhat odd kid. My mom died when I was young and I felt so separated from other people. And I had this dream from an early age of some way to share dreams with people, some way to find a commonality between these . . . between people, despite these huge chasms of air between our heads. And I suddenly was just electrified with the idea of putting multiple people at once into these simulated worlds that they could invent. I was fascinated with the work of a man named Ivan Sutherland, who is the inventor of computer graphics, more, less, and the inventor of interactivity on the screen and many other things. He described something he called the ultimate display, which would be what we call a VR headset, that would allow a person to have access to what he called a virtual world. The term virtual world actually came from art theory, believe it or not. I had spent a lot of time as a kid obsessing over the artwork of Hieronymus Bosch. And this amazing idea to depict a universe that is totally different from the actual one that we lived in. And I thought that this . . . being able to do this in a sort of a dynamic way, we'd really be in it with other people could be this pathway to connection. I just had this intense feeling and I thought that instead of calling that a virtual world, it should be called a virtual reality because it has multiple people. So virtual reality would be like the social version, the version where people turn into creatures, have bodies and see each other.

CAPTION: In his early twenties, Jaron Lanier co-founded VPL Research Inc, one of the first companies to design and sell virtual reality goggles and gloves. Lanier now works at Microsoft Research. He is also a composer, a visual artist and an author. He is known for his critical analysis of the tech industry.

JL: From an early age, I was aware that there could be terribly dark side to virtual reality and I've started to worry more about that because I think the Internet as a whole has been quite dark lately, especially from the United States perspective, since it's destabilised the country.

CAPTION: Various tweets: Let's build a wall, get rid of them #weneedtobuildawall; Make America white again; He is not my president; #FakeNews, #FakeNews #FakeNews;

JL: And it's terrifying. And what I realised is that whatever has happened with social media, whatever has happened with . . . with the Internet so far, we . . . we at least have an opportunity to fix it, while the technology is still rather crude, we must find a better way before virtual reality becomes a problem, because it's so intense. I've always had a feeling from a young age that if people, if mankind continues to pursue more and more technology with a sort of a mindset of just wanting more and more power, more and more capability, we'll eventually reach some situation where we destroy ourselves. I think almost everybody is really unhappy with how digital services are being used now. We've since seen this horrific destabilisation of the world where societies are torn apart. It's happening both in the wealthy world where you see America broken apart into people who don't even recognise each other. We see it in the developing world. Social media's played a role in the Rohingya crisis, it's played a role in stabilising parts of India, parts of Africa. So it's . . . it's all over. And this is an awful thing. And I don't believe there's any one single magic solution that will solve all of this at once. But I do believe that there has to be a particular first step.

CAPTION: Lanier suggests that we should pay small amounts for online services in order to remove the financial incentives of online advertising.

JL: If we insist that everything online is free, we're telling these companies that the only business plan they have is what they call advertising. But the problem is it's not advertising anymore, because they're measuring us so continuously and they're providing us with stimulus so continuously that it's more like a classic behaviourist experiment. It's become something so far beyond advertising. And it's . . . it's unethical and it's not survivable. And if we're telling the companies that that's the only available business plan, then we're begging for our problems. Our responsibility is to design adventures of aesthetics and connection and meaning that are so profoundly beautiful that they seduce us out of mass suicide, you know? And so I might, I even stumbled saying it, because it's almost . . . it almost feels taboo to say something that's that optimistic in this dark time. But I still think it's important to say that.

380. The woman who planted 50m trees (with a little help...)

Kenyan ecologist Wangari Maathai was the founder of the Green Belt movement, and the first African woman to win the Nobel Peace Prize.

Published on 6 December 2016

This video was made by BBC World Service

WANJIRA MAATHAI *daughter of Wangari Maathai*: My mother was often asked, "Were you afraid? You were fearless. How can you do all these things?" She said

“No, I was afraid. But what needed to be done was so compelling that I had to do it.” She grew up surrounded by nature, surrounded by the beauty of nature. I also remember her describing her mother being a farmer, her mother grew all the food they ate. And then she goes away to school, to university out in the United States, and she comes back and joins the university as a very young member of the academic staff. She was struck by the issues that were being presented by women who were very much like her mother. They were talking about lack of fuel, lack of water, and lack of nutritious food. And everything they described she felt was connected with degradation of the landscape, “So why don’t you plant trees?” she asked them.

WANGARI MAATHAI SPEAKING IN 1984: The women here till the land, so it is important for them that they know how to conserve this soil. Wanjira Mathai: She founded the Green Belt Movement in 1977 to help women plant trees and at the same time begin to understand how to heal the land themselves. It’s 50 million trees now and counting. Very quickly the Green Belt Movement became more than just about planting trees, because we had an extremely dictatorial government and we had a one-party system. Public land was being parcelled out to the friends of the administration of the day, and so protecting these spaces necessarily becomes political. Karura Forest was by far one of the scariest battles.

WANGARI MAATHAI SPEAKING IN 1998: “People are showing a lot of anger because nobody knew the extent to which the Forest is actually destroyed.”

WANJIRA MATHAI: It was vicious. she got very physically hurt, she was in hospital, but she survived. And so whenever she survived she knew it was time to go back and finish the work of saving the park. We are here in Karura Forest, one of the most beautiful urban forests in the world, and it is thanks to the Green Belt Movement and the efforts of my mother at the time that saved it. But she also was a human rights activist, a women’s rights activist.

WANGARI MAATHAI SPEAKING IN 2001: I have no idea where these policemen are taking me now. I have done nothing. To challenge the President and the party of the day, that was gutsy.

NEWSREADER: “An ecologist from Kenya has become the first African woman to win the Nobel Peace Prize. Wangari Maathai…”

WANJIRA MATHAI: She just didn’t believe that it was her. For a while there she probably thought, maybe it’s a mistake, I don’t know. But it was one of the most amazing moments to see her enjoy the spotlight and the platform in a way she’d never had before. I think the whole day she sort of spent saying, “I didn’t know anyone was listening.” My mother died on September 25th 2011. She’s left quite a legacy I think, certainly for us as Kenyans, as women, as Africans, to believe in the power of one. I think the fact that one woman from Nyeri, in the highlands of Kenya, could be such a potent force for change, remains one of the most inspiring things for me.

381. The woman who tamed lightning

Naomi Alderman tells the inspiring story of Hertha Marks Ayrton whose work helped shape how we use electricity today.

Animation by Aoife McKenna, 2 February 2018

Made by BBC Ideas and BBC Radio 4

NAOMI ALDERMAN: You're standing in a street in a British town in the late Victorian era. The old queen's still on the throne. It's a time between the old world and the new. It's a winter's night. Cold and moonless. You should also imagine one more thing. There's an electric streetlight, high off the ground. The lamp is flickering and hissing. Underneath the streetlight stands a woman. She has an intelligent, determined face and curly hair pinned in a mound on top of her head. She's staring up at the electric light. It's an arc lamp, a wisp of lightning crackling between two electrodes. She's listening to the hiss, noticing that when the arc buzzes, the light dims. She knows those lights throw off sparks. They can start fires. She's imagining a future where electric light could be bright, even and safe. She's thinking, 'How can I make that happen?' Hertha Marks Ayrton had always had to be ingenious. Born into a Jewish family in Portsmouth in 1854, her father was dead by the time she was seven, leaving the family with little more than a pile of debt. But Hertha Marks Ayrton was what you might call a bright spark and always inventive. She was stubborn, tomboyish and outspoken. Every evening, for a year, after a full day of work, Marks Ayrton studied for the Cambridge University entrance exam. She passed in 1874 with honours in mathematics and English. She was an astonishingly hard worker and made her first recorded invention, a sphygmomanometer, that would draw a graph of a person's pulse. After graduating, she carried on teaching and inventing. In 1888, she delivered a series of six hugely popular public lectures on electricity, in which she held out to her audience a compelling vision of an electrified future. Electric arc lights were used in street lamps. They provided incredibly bright lightning in a bottle, but they were volatile and poorly understood. To make them safe and reliable, *someone* needed to invent a way to precisely control their dangerous, temperamental power. So Hertha Marks Ayrton asked herself, 'Why did arc lights flicker?' And how could she stop them doing it? She put together an intricate and comprehensive set of experiments to test out every possibility. She often had to hold the arc steady by hand for four or five hours to get consistent results and Marks Ayrton deduced the electric arc hissed when oxygen was present in small craters in the carbon surface. The hiss was the sound of the carbon oxidising. To stop this happening, Hertha Marks Ayrton an invented and patented a new kind of carbon rod, coated with a copper film to stop oxygen reaching the sides of the electrodes. As she predicted, this gave a steady arc of more dependable light. Hertha Marks Ayrton wanted to make streetlights safer. And she did. The arc light helped create a new after dark world of working, playing, shopping and exploring. She ended up sparking life into detonators, 3D printing and, maybe one day, rocket launchers for space travel. Hertha Marks Ayrton tamed lightening. The arc that burned so brightly between the electrodes of those early lights was uncontrollable, a

wisp of lightning, if you like. Marks Ayrton got that lightning under her control and gave it to the world.

382. The women changing the face of motor racing

Racing driving is a very male-dominated sport, but a growing number of women - like Alice Powell - are changing that.

Made by Mat Hale, 31 October 2019

ALICE POWELL: Think racing driving is a male sport? The drivers are male. The engineers are male. The mechanics are male. Times have changed. For as long as I can remember I've wanted to race. I started go karting when I was eight. I missed birthdays and time with my friends. It takes a huge amount of dedication. In 2010 I was the first woman to win a Formula Renault championship. It was a massive achievement. Then my funding dried up just like that and I was racing no more. I was out of it for four years. Then came the W series. A female-only championship. It's not about segregation, it's about opportunity. Regardless of gender, we are all just racing drivers. My aim, as always, is to win. You have to train physically, it's a tough sport. Knowing the track is crucial. Every bump and every turn. I came second and third in the first two races. Then I crashed at Marzanoa and broke down at the Norris Ring. My chances of winning the championship were over. The final race of the series was coming up and for so many reasons. I needed the win. The atmosphere at Brands Hatch is amazing. Once I'm in the car, I can't see the crowds. I'm focussed on doing my job. I got off to a good start. I was in second place. I needed to overtake. I made my move and pushed through. I was in the lead. I just had to bring it home. You get into the rhythm. But anything could break it. I could see the drivers behind me and my mirrors all fighting for the win. There was no one in front of me. I kept my focus pushed to the limit. The support we've had has been outstanding. I came third overall. But next year I want the championship. It gave me that winning feeling again. (*being interviewed after race*) I'm just over the moon, you know, it's been a long time coming. So just with the bad luck in the middle of the season to get high and to win at Brand's Hatch in front of the home crowd is amazing.

383. The women who changed the way we see the universe

Henrietta Swan Leavitt, Cecilia Payne-Gaposchkin and Vera Rubin changed the way we view the universe. So why don't we hear more about them?

Published on 5 March 2019

JO DUNKLEY: I'm Jo Dunkley and I'm here to tell you about three amazing women astronomers who in the late 19th and 20th centuries faced down challenges many of us would recognise today. Despite the obstacles, they each managed to change the way we understand the universe. Astronomer Henrietta *Swan* Leavitt joined Harvard

College Observatory in 1895. She was part of an extraordinary group of women known as the Harvard Computers. Their job was to classify stars using photographic images. As women, they weren't allowed to operate the telescopes themselves and were paid very little. Leavitt studied stars that get brighter and dimmer over time. She discovered a pattern in 1908, now known as Leavitt's Law, which says that a star that takes longer to pulse is intrinsically brighter than a star that pulses quickly. This means that just by measuring the rate of pulsing, which might be days or weeks, and by seeing how bright the star appears from Earth, an astronomer can find out how far away it is. This was transformational. Edwin Hubble used Leavitt's discovery in the 1920s to work out that smudges of light in the sky were in fact entire galaxies far beyond our own. The universe was much bigger than we thought. I have such admiration for Leavitt because she was assigned very mundane tasks in her job. Yet still made this vital breakthrough. Cecilia Payne-Gaposchkin also worked at Harvard College Observatory after Swann Leavitt. In the early 1920s, she used the latest learnings about quantum physics to come up with the idea that stars are all made mainly of hydrogen and helium gas. Up until then, no one had known what stars are made of. They were thought to have similar ingredients to our planet Earth. Payne-Gaposchkin said that stars are much simpler than anyone thought. However, the well-known astronomer Henry Norris Russell advised her to remove her idea from her Ph.D. thesis in 1925, as it went against the current wisdom. Just a few years later, Payne-Gaposchkin would be proved right. She would later go on to become the first female head of astronomy at Harvard University. I wonder if Payne-Gaposchkin would have been discouraged from her bold new idea if she had been a man. Luckily, it didn't stop her from achieving great things. Vera Rubin was an American astronomer. She finished her studies in the 1950s, while juggling caring for her young children, often having to attend lectures in the evenings. Rubin wanted to study how entire galaxies spin. And she became the first women allowed to use the Palomar Observatory in California. At the time there was no women's bathroom. But undeterred, Rubin pasted a paper skirt on the men's bathroom door to create her own. Rubin discovered something surprising: all of the galaxies she looked at were spinning too fast, as if something more massive but completely invisible was holding them together. Rubin showed that every galaxy is surrounded by a huge halo of invisible dark matter. Fifty years later, we still don't know what it is. Rubin's story inspires me. Her discovery is so important to my current research, and I relate to her as a mother trying to balance doing science with looking after young children. It's not easy, but it's a fun challenge. These women all made great discoveries in astronomy, and despite being little known throughout their lives, their stories continue to inspire women across the world.

384. The young investors helping farmers produce more food

How young people and farmers are helping each other in Nigeria.

Published on 13 June 2018

This video was made by BBC World Hacks

NARRATOR: A new tech idea in Lagos, Nigeria, is connecting young urban investors with rural farmers to help them scale up. The farmers are producing more food for Nigerians and the investors are making a profit. So how does it work? In a trendy Start-Up office in Lagos, a tech company called FarmCrowdy is creating an online platform.

ONYEKA AKUMAH *CEO, Farmcrowdy*: The idea was born out of the need of getting small scale farmers connected to farm investors we like to call co-sponsors, to produce more food. Farmcrowdy is built on a community model where Nigerians are taking responsibility to sponsor Nigerian farmers to produce Nigerian food for Nigerians to eat.

N: It's part of a bigger trend in the country to reduce Nigeria's reliance on expensive imported food. Meet Okon Archibong. He's a chicken farmer. He couldn't afford a bank loan to grow his farm. But the online platform helped him crowdsource investors to expand production.

OKON ARCHIBONG: We did 6,000 birds last year with Farmcrowdy, and we're hoping that this year it will expand to 8,000 or more. Farmcrowdy provides day-old chicks. They provide medications for the birds. They provide feeds for the birds. So Farmcrowdy takes that load off our backs.

N: The company also teaches farmers how to improve agricultural standards and organises a buyer for their products in advance.

OA: We split profits between the sponsor, the farmer and Farmcrowdy at a 40 40 20 ratio once we've done the full cycle of farming. So an average farmer grows his income by an average of 80 percent when they work with us on Farmcrowdy, because now they have the right market to sell their farm produce and earn something that makes them excited.

N: Following an early food delivery that went bad, the farmers and investors now get insurance cover. But as with any investment, there are always risks, and making a profit can never be guaranteed. IT consultant Temitope Adesmoye has invested in 23 farms and has made a profit on every investment.

TEMITOPE ADESMOYE: I can practically call myself a farmer, without having to go the farms or actually farm. But I'm supporting farming and playing my part. So, the first farm I invested in was the poultry farm. It was just as easy as that. Click on the farm, make the payment. It's a very seamless and easy process.

N: The company is still very new. It's one of several agri-tech start-ups in Nigeria working to help produce more food locally. But can they scale up?

AO: We want to impact on the lives of 10,000 small-scale farmers in Nigeria and then eventually take this community model into other African countries where the structure to support small-scale farming is lacking. This makes it very exciting for me.

385. Think you don't like opera? This film is for you

Confused or put off by opera? Let's see if we can change your mind! Here's a five minute introduction for the non-opera-aficionado.

Made by Mat Hale, 23 December 2019

SOPHIA SMITH GALER *BBC Journalist (and trained opera singer)*: Yes, it can feel difficult to understand, long or old-fashioned. But it's also as entertaining and provocative as an art form can get. This is a film about opera, for those who think they don't like it. So the basic plot is this. It's 1585, England, and we open on two queens. Elizabeth I feels threatened that her cousin, Mary Queen of Scots, is going to take the English throne.

CAPTION: Elizabeth I Mary, Queen of Scots (Maria Stuarda) – UpCloseOpera

SS: At the heart of every opera lies drama, and in the 1800s, composer Gaetano Donizetti was drawn to the tragic story of Mary, Queen of Scots. This opera is called Maria Stuarda and we're listening to it now in its English translation.

Earl of Leicester: ♪ Your Royal Highness will see through her devices ♪

SS: Elizabeth has put Mary under house arrest and is trying to decide whether to pardon her or execute her. Earl of Leicester:

♪ But your true safety must be through her execution ♪ Elizabeth I: ♪ Stop! ♪

SS: There's a love story too. Elizabeth I is in love with her adviser and confidant, the Earl of Leicester. The problem is Leicester is in love with Mary.

Earl of Leicester: ♪ I love you! And have come here to save you from your suffering ♪ Sophia: And Elizabeth is jealous. Elizabeth I: ♪ She's using you to get to me. But no, I will not have it ♪

SS: There are two different types of things that you can sing in an opera. One of them is recitativo, which moves the plot along and is a bit more like speak singing, so for example, ♪ I have to leave in an hour ♪ And an aria is a song where you tell the audience how the character is feeling, you explore those emotions, so it might be more... ♪ I am so hungry, so hungry ♪ Back to Mary, Queen of Scots, this is the pivotal point in the opera where the two queens meet. We know that this meeting didn't happen in real life, but dramatically you need it - you need this final confrontation so that you can have the final resolution. These two queens are two sides of the same coin, and that's why they're here mirroring each other, both dramatically and musically. Then, as the insults start, Donizetti adds pauses to the music, and they're really important because they allow both the characters and the audience to understand the gravity of what has been levied at each other and the hurt. Donizetti cast both Mary and Elizabeth as sopranos, and that's interesting, because you don't normally cast both leading ladies with the same high voice classification. But it makes total sense as they were rivals volleying for power.

Mary: ♪ The shape of her features, the set of her shoulders, show sisterly feeling, will not be returned ♪

SS: There weren't any microphones when opera first started, so it's the opera singer's job to make sure that they're heard, not only over an orchestra, but right to the back of a theatre. Sophia: The crunch comes when Mary refuses to bow down to Elizabeth's authority. She starts hurling insults at her and she seems to have forgotten that Elizabeth here is the one with all the power.

Mary ♪ Brat! ♪

Elizabeth I: ♪ Cecil, she's yours ♪

Elizabeth I: ♪ Then it's decided ♪

Elizabeth I: ♪ She dies ♪

Sophia: The story ends with Mary accepting her fate and forgiving Elizabeth.

Mary: ♪ Help her carry the cross she will bear ♪

SS: You've got to remember that this opera is called Maria Stuarda, it's not called Elizabeth I. Mary dies the hero. This opera forces us to see two women who were afforded crowns in an era of totally male control. We get to witness their game of thrones. And women fighting for power today might find an opera like this a cathartic viewing experience.

CAPTION: Special thanks to Opera up Close Director/Librettist - Robin Norton-Hale Costume Supervisor - Claire Nicolas Associate Director - Sasha Amaya Staff Director - Eleanor Dodson Orchestrator - Paul McKenzie LX Designer - Jack Weir Designer - Kate Lane

386. Three invaluable tools to boost your resilience

How can we build more resilient societies? And how can you boost your resilience? Leading resilience expert Dr Lucy Hone shares some tools.

Animated by Kong Studio, 23 July 2020

Made in partnership with The Open University. OU consultants: Dr Jenny Douglas and Dr Sara MacKian.

LUCY HORNE *New Zealand Institute of Wellbeing:* You just feel like you are climbing a mountain every day. And every day, you get up and the same mountain is ahead of you.

CAPTION: Lucy Hone is director of New Zealand's Institute of Wellbeing and Resilience. Her own resilience was tested in the most horrific way in 2014

LH: My wee girl Abi, who was 12 at the time, hopped in the car with her best friend Ella, and Ella's mum, who was also a really dear friend of mine. And on the way down, a driver sped straight through a stop sign, crashed into them and killed all three of them. So, I just have this peculiar insight, really. I've done the academic study, I've trawled over all of the research - and then I've had to really test what works in a really, obviously horrifically personal way. And I can say that I feel really lucky now, because having had that training, I did at least have some tools at my fingertips. But I want to make a really important point here that too often people focus on resilience, thinking it's just a personal thing. And actually, we know that it's much, much bigger than that. Not seeing yourself represented in society is potentially damaging for your resilience, whether it's race, sexuality, ability, mental illness. Any form of prejudice like that - that feeling that you don't belong, you're not seen and you're not heard - is hurtful and reductive when it comes to resilience. So why is it important for a country to be resilient? Because it enables us to mobilise our resources faster. And in that, I mean everything from portaloos to trust. Think about our ever-changing environments that we know we all live in nowadays - bushfires, Covid, the earthquakes. Change and adversity come thick and fast, and resilient societies, resilient nations, are so much better able to respond in that time. To be able to protect their weak, their vulnerable, to be able to protect the economy - to weather whatever comes, in a much better way. So, on that personal perspective, the good news is that research shows that resilience really requires what we call "ordinary magic". It's not some elusive trait that is only available to a few. We can teach people to be more resilient. The three strategies that I relied on when the girls died, and to be fair, I absolutely still rely on now, I've wheeled them all out again recently, are... The number one, is understand that suffering is part of life. Whether it is divorce or redundancy, losing a partner - really tough things happen to us all. So knowing that, going into this terrible experience, knowing that adversity was common and that suffering was common, really did make a difference because it prevented me from feeling singled out. Number two, tune into the good. We get sucked into what we call in psychology and negativity bias. We're really good, humans, at looking at all the crappy bits. But actually we're not so good at tuning into the good stuff. And it's really, really important for us to counterbalance that by choosing to focus our attention on some of the good stuff. And resilient people are really careful to choose where they focus their attention. Number three, ask yourself, "Is this helping or harming me?" "Is the way I'm thinking is the way I'm acting, right now, helping or harming me in my quest to get through this?" All too often, people think that resilience is about that good old stiff upper lip. And it's not that at all. Actually being resilient is also being able to accept your vulnerabilities, knowing when you need to get help, and to reach out. Studies have shown that having strong, supportive relationships is probably the most important thing we can do to build resilience. We were really lucky. We had a really supportive community, who helped us. And all of this what you need when you navigate trauma and adversity. Nobody goes it alone. And one of the key researchers in the field, Chris Peterson, used to say: "Other people matter." That that was the three-word summary of his decades of research.

387. Three pioneers who predicted climate change.

Here are three key figures in the history of climate change - not all of whom got the recognition they deserved for their work at the time.

Animation by Peter Caires, 2 June 2020

Made in Partnership with the Open University

NARRATOR: We've known about the idea of the greenhouse effect since the 1820s, but it was Eunice Foote - a women's rights activist who first showed how it could actually work. In 1856, she used an air pump to fill glass cylinders with different gases and then tested the effect of sunlight on them. One was carbon dioxide, CO2. "The receiver containing the gas became itself much heated... and on being removed, it was many times as long in cooling..." Foote's experiment suggested that CO2 and water vapour trap heat more than other gases do and the potential effects on our climate began to emerge. "An atmosphere of that gas would give to our Earth a high temperature." That year she submitted her findings to an American scientific society. At their conference she wasn't able to take questions directly because someone else presented her work for her and it wasn't published in the proceedings of the society. Another journal did end up publishing her paper, but it went largely unnoticed. Three years later, Irish physicist John Tyndall did more complex experiments, finding other greenhouse gases that trap heat. He went on to become one of the founding figures of climate science. Nobody knows if he'd read Eunice Foote's paper, but his own didn't mention her or her glass cylinders at all. No pictures of Foote have survived, and her contribution remained buried for 150 years only coming to light by chance in 2010, when a retired geologist discovered a citation of her work in an antique science annual. Guy Stewart Callendar was a steam engineer by day and an avid collector of climate data in his spare time. By the 1930s, he was collecting temperature readings from 147 weather stations around the world. No-one had ever collated the data like this before, and when he compared his temperature readings to historic measurements of CO2, he discovered a clear pattern. Callendar saw that not only was climate change happening, it was at least partly down to the burning of fossil fuels. In 1938, Callendar presented his findings to a scientific body but the idea that we humans could influence something as huge as the Earth's climate was still, for many, too hard to believe. It wasn't until after the Second World War that the effect of human activity on global warming the "Callendar Effect" - was proved right. In 1958, chemist Charles Keeling's colleagues were studying the relationship between ocean acidity and carbon dioxide. Until then, it had been thought that the oceans quickly absorb most CO2, taking it out of the atmosphere, but that didn't appear to be true. Keeling had a hunch that scientists had been underestimating how much of the gas was actually over our heads. I was telling these people that the whole field was pretty badly screwed up. Atmospheric CO2 readings had been taken for decades, but the data was unreliable. Keeling was convinced he could do better, and looked for a spot that was as far as possible from the pollution of cities and industry. He went to the middle of the North Pacific, 4,000 metres above sea level, to the huge, active volcano of Mauna Loa, in Hawaii. If you had to have picked a spot anywhere, which would have given a representation of the

whole world with one single site, Mauna Loa Observatory is probably about the best choice. His new data proved two things. Firstly, it showed that CO2 goes up and down with the seasons. But if you zoom out from these "saw's teeth" you can see the second thing that Keeling proved atmospheric CO2 was increasing year on year. Keeling began plotting his readings on a graph, and the ominously upward-curving line - the "Keeling Curve" - was born. But the Mauna Loa project faced challenges. Equipment broke down, and it struggled to secure funding. It was only through sheer perseverance that the observatory kept taking its readings. Keeling was eventually awarded a National Medal of Science for his work, and today, Mauna Loa is still the world's benchmark site for measuring CO2. It's now more than 160 years since Eunice Foote suggested the cause of global warming, more than 80 years since Guy Callendar demonstrated the planet was warming because of human activity, and more than 60 years since Charles Keeling showed CO2 was rising at an alarming rate. And here we are...

388. Three quick tips for staying calm under pressure

Speaking in front of a lot of people can be nerve-racking. Dr Radha Modgil has some expert tips to help you keep a lid on your nerves.

Data Animation TV, 11 February 2020

Made in partnership with BBC Bitesize

DR RADHA MODGIL: Exam pressure, deadlines, job interviews and presentations can all make you feel like a nervous wreck. Just when you need to remain calm, your heart's racing, your palms are sweaty, your voice sounds strange and your mind goes blank. Well, with a little help from neuroscience, here are three easy and reliable techniques you can use to literally keep calm and carry on, no matter what. Of course there are other things you can do to combat stress but this trio of tips will hopefully give you instant calm.

CAPTION: CALM CAPTION: BREATHE

RM: First, a breathing exercise. I want you to take a deep belly-breath through your nose for five seconds hold it for a second, then push all the air out through your nose, slowly, counting to five. Repeat a few times and you'll feel calmer. For centuries, yogis and Buddhists have used controlled breathing techniques like this to gain the upper hand over the nervous system and science is beginning to understand how it works. Research has identified a specific network of neurons in the brain stem called the pre-Botzinger complex that regulates breathing and communicates with other parts of the brain.

CAPTION: PRE-BOTZINGER COMPLEX

RM: Under stress we tend to breathe very quickly as our body prepares for danger, which is useful if you need to run away but not if you're about to speak in public. The good news is that by breathing deeply and slowly you can change the message your brain's receiving from 'danger' to 'all is well'. So the next time you feel panic rising, use deep breathing through your nose to force your body into a state of

calm. And the best thing is, no one will notice, not even your audience. Now you're ready for the humming. A single note, your favourite tune, literally anything will do. Why? Well studies in how we regulate heart rate have shown that humming can stimulate one of the most important parts of the body you've never heard of. The vagus nerve.

CAPTION: THE VAGUS NERVE

RM: It was named 'the wanderer' in Latin because it emerges from the brain and meanders up and down the body like a superhighway of communication, connecting the brain to organs like the heart, lungs and stomach, voice box and ears. A 2013 study of choristers showed that singing, humming and mantras all help keep the heart's rhythm in step. So the next time you feel your heart racing sing a song or just hum a note and let your own wanderer nerve restore calm. The final tip is to focus. When you're busy it's tempting to multi-task, but if you want to stay calm and actually get stuff done, don't. Scans show your brain can only do one thing at a time.

CAPTION: ONE THING AT A TIME

RM: When you do two things at once it has to switch between them very rapidly and gets overstimulated and floods your body with stress hormones. By working the way your brain is wired and doing one thing at a time you can quickly go from feeling overwhelmed to calm. So break your task down into small parts or steps, circle the one thing you need to do next and forget about the other tasks until their time comes. This is sometimes called 'process thinking' and is used by sports coaches to help athletes focus.

CAPTION: FOCUS

RM: Doing just one thing at a time with your fullest attention keeps your mind in the here and now and is a great habit to develop. So next time you feel panic rising, stop and remember to breathe, hum and focus. Let us know how you get on.

389. Three simple tips for making better decisions

When you're faced with a big decision, it can be hard to know where to start. Dr Radha Modgil shares three of her favourite tips.

Data Animation TV, 13 February 2020

Made in partnership with BBC Bitesize

DR RADHA MODGIL Someone once said that life is just one decision after another and I agree. Some decisions are small, like what to wear but some are so big they'll affect us for decades to come, like choosing a career. When I'm facing a big decision I make sure I do three things. Free up my brain's bandwidth, give it the fuel it needs and get honest advice from a friend. By eliminating the small choices in life you save the best of your brain's ability for the really important things. When he was in office,

Barack Obama removed one decision from his daily life - what to wear. It was always a grey or blue suit and a white shirt because he knew the science behind decision-making and that by wearing a kind of uniform he'd save bandwidth for the really important choices. Scientists studying the brain have seen that all decisions, big or small, consume the same amount of energy. A small decision takes the same amount of energy as a big one. So when you need to make really important decisions, like which university to apply to or which job offer to accept be vigilant about not wasting energy on decisions that aren't going to make a massive difference to your life. Save your brain's bandwidth for things that really matter. Your brain needs fuel to think just as much as your body does to move. Thanks to advanced imaging we can watch the brain working away more clearly than ever before. It's the most complex and energy-demanding organ we have. If you're very hungry neurotransmitters can't be produced which results in communication between the brain's 86 billion neurons breaking down, compromising your ability to think and make good decisions. So when you need to make an important decision make sure you're not hungry. And I don't mean reach for the biscuit tin. Research shows that drinking plenty of water and having a slow-release carbohydrate breakfast like porridge will help you think clearly. Omega-3 is also a brilliant brain food. You can find it in oily fish and pumpkin and sunflower seeds. It doesn't mean you can't treat yourself but do try to give your brain this kind of fuel too. The final step is to stop the fear of loss dominating your decision-making. Nobel laureate Daniel Kahneman spent a decade studying human decision-making and found that in big decisions we're generally more afraid of loss than we are motivated gain.

CAPTION: POTENTIAL GAINS FEAR OF LOSS

RM: According to his research, this means we often pick the safest option rather than the one that will have the most positive impact on our lives. Kahneman's got a great tip for getting over this fear of loss. Ask the advice of a friend who's not afraid to drop some truth bombs even if it means your feelings get a bit roughed-up. An objective friend can help you identify the best decision because they're not weighed down by the fear of what could be lost. In the end the decision is always yours but it helps to seek this kind of advice.

CAPTION: BIG DECISION

RM: So the next time you're facing a big decision free your brain from small decisions give it really good fuel and seek out a friend who cares more about your future than your feelings.

390. Three simple tips to improve your memory

Whether you want to remember shopping lists, decks of cards or even your dreams, memory coach Jordan Harry shares his top three tips.

Made by Dayglow Media, 17 April 2020

JORDAN HARRY *Memory Coach*: For memories to form, three functions have to take place. Acquiring - learning or experiencing something new. Consolidating - this is where the memories become stable. And finally, recall, the ability to recall that information in the future.

Caption: 3 tips to improve your memory

Caption: Acquire Learn a new skill

JH: Can juggling really increase brain activity? German researchers divided 24 non-jugglers into two groups and asked one group to practise juggling for three months. They found that those who didn't juggle showed no difference in brain activity over the test period. But those who juggled, had an increase in grey matter in two areas of the hippocampus and neocortex, parts of the brain involved in memory, visual and motor activity. The brain is like a muscle and needs exercise. To exercise your memory you don't necessarily have to learn a new physical skill like juggling. (In Spanish) It can be anything from learning a new language to skilling up in a computer game.

Caption: Consolidate - Enter your memory palace

JH: A memory palace is where you imagine a place where you can store information. Memory experts use this trick a lot to remember number sequences or even a whole deck of cards. Let's say you have a simple list of things you want to buy. Step one: Start at your door and go anticlockwise around your room, labelling each item one to seven in order. Step two: In my room, my bed is the first object. So I would place the first item I want to remember buying an apple, for example on my bed. Step three: Create a visual image and exaggerate it in some way to make it more memorable. If the first item is an apple, picture a big purple apple crushing your bed. Repeat the process until every piece of information is associated to an item in your memory palace.

Caption: Recall - Keep a note of your dreams.

JH: During sleep, your body rests, although your brain is busily processing information from the day to form memories. People who recall their dreams improve their memory and are more creative. Try keeping a dream diary of some sort. Just a notebook and pen, so you can write down or sketch as much as you can remember as soon as you wake up. So there you have it. Acquiring, consolidating, and finally recall. Simple tips to improve your memory.

391. Three things you might not know about Queen Victoria

Comedian Russell Kane shares a rather different side of one of the world's most famous monarchs.

Published on 30 January 2020

RUSSELL KANE: I'm Russell Kane, comedian and podcast host, and I want to talk about the icon, Queen Victoria. Born in Kensington Palace in 1819, her father died when she was a baby, leaving Victoria to a lonely childhood where she was groomed for the throne. In 1837, aged just 18, she became queen. She married her cousin, Prince Albert of Saxe-Coburg and Gotha in 1840. Victoria fell in love with Albert, his Christmas trees and his unusual down-below jewellery. Albert died of typhoid fever in 1861, but not before Victoria had squeezed out nine children. But guess what? Turns out she was an awful mother. She was disgusted by babies and she resented them keeping her away from her beloved Albert. All she wanted to do was spend time with him. She said this, 'An ugly baby is a very nasty object and the prettiest is frightful when undressed, until about four months. In short, as long as they have their big body and little limbs and that terrible frog like action,' – that's from one of Victoria's letters, so not a fan. And when her daughter Alice got married, it was according to one of our letters, 'The saddest day I can remember.' She didn't want Beatrice to marry either. And when Beatrice got engaged, Victoria used notes to communicate with her at mealtimes. Wow. Victoria using notes instead of talking to her –that's cold. Now I feel guilty because I only ever drop my mum a text. But here's a positive you maybe weren't expecting. Victoria's diaries reveal she unashamedly loved sex. She wrote, 'My dear Albert came in today from the rain. He looked so handsome in his white cashmere breeches with nothing on underneath.' But is it so shocking? Everyone loves sex. Maybe we're just shocked because it's coming from the woman we remember as the grumpy old monarch in her mourning clothes. Maybe we're just shocked because it's coming from a woman. For all her ramped up sexiness, though, there's a rumour that Victoria wouldn't pass laws on lesbianism because she didn't believe it existed. Fun and games aside, there's one dodgy fact you cannot dodge when you're talking about Queen Victoria. She was the figurehead of the British Empire. While Victoria was queen, one million people died unnecessarily in the Irish potato famine. Africa was carved up by Europeans scrambling to take advantage of the continent's natural resources. There were concentration camps in the Boer War. Men, women and children died in the 1857 Indian rebellion. Perhaps worst of all, millions of Indian people died in famines while she was Empress. A couple of points in Victoria's defence here. And I promise I'm not just pathetically grovelling for a knighthood. First of all, how involved could Victoria have been in the colonies in real terms? She only had updates every couple of weeks and she was surrounded by advisers who did the nuts and bolts business of administering the empire. Something else. She once made a personal donation of two thousand pounds to those starving during the Irish potato famine. So that would suggest she wasn't entirely comfortable with what her empire was doing. And remember, she also condemned atrocities on both sides during the Indian rebellion. And add to that she was firm in her belief that there should be religious freedom in India. So can she be held responsible? You decide. Anyway, there's some facts. Do what you will. She was an emotionally repressed nookie-addict who was also the figurehead of the British Empire. I'm off for a piercing.

392. Three tips to help you through redundancy

Career development consultant Sarah Ellis shares her top tips for surviving redundancy.

Published on 30 October 2020

SARAH ELLIS, *Co-founder of Amazing If*: The biggest misconception about redundancy, and perhaps challenge, is a natural one and it's that we all take it personally. Redundancy is usually just a reality where organizations are having to reorganize and rethink how they do things. The more you can focus on what makes you brilliant and then find the next possibility that matches that brilliance, the better. On average in the UK around 40% of us will experience redundancy, at least once in our working lives. And in my nearly 20 years of work, it's already happened to me a few times.

CAPTION: 3 TIPS TO HELP YOU SURVIVE REDUNDANCY : Start with your strengths. Your strengths are what make you distinctive and how you add value at work. And research shows that when we use our strengths we are six times more engaged and generally more satisfied in our jobs. If you need some help spotting your strengths try asking friends, family, and people you've worked with this question. What three words would you use to describe me at my best? This will give you a quick insight into the positive impact that you have on others. And once you know your strengths, don't forget to make sure they stand out on your CV and on your LinkedIn profile. Being made redundant and searching for new opportunities can be tiring, stressful, and really overwhelming at times. One useful technique for staying optimistic is to record and reflect on all your very small successes. At the end of each day for at least a week, write down one success that you've had. Perhaps it was just finding the time to go for a walk or supporting a friend in some way or writing your first blog post. Even if you've had a tough day, this exercise helps us to reflect on and recognise our positive progress. : Asking for help can feel hard. So here are a few ideas, prompted by what I've learned along the way, about what works and just as importantly, what doesn't. First, don't apologize and be specific about the help that you need. I remember being made redundant and asking someone very senior for career chat. Within the first minute of our meeting, she asked me, "So how can I help you?" And I was so grateful for her time that I hadn't really thought about a specific answer to that question. And always avoid using words like 'sorry' and 'just' in your messages and conversations, it's important to be confident in asking for the help that you need. Second, think about how you feel when you're helping someone. You're probably flattered and enjoy the opportunity to be useful. Remember, that's how other people feel too. And finally, if someone can't help you, don't take it personally. There's no limit on help, so ask as many people as possible.

CAPTION: SO, WHAT'S THE BEST CAREER ADVICE SARAH HAS RECEIVED?

CAPTION: "CHOOSE THE JOB WHERE YOU'LL GROW THE MOST. INVESTING IN LEARNING IS THE MOST IMPORTANT CAREER CHOICE YOU CAN MAKE." ADAM GRANT, WHARTON PROFESSOR AND AUTHOR

SE: This advice has really helped me to focus less on what I sometimes describe as shiny objects, like job titles or perks, and prioritise making decisions based on working with people and at places where I can learn the most.

CAPTION: "START WITH THE END IN MIND. YOU ARE 90 ON A PARK BENCH LOOKING BACK. WHAT MATTERS?" AMANDA MACKENZIE OBE, CEO, BUSINESS IN THE COMMUNITY

SE: I always remember Amanda's advice in moments where I'm feeling overwhelmed. Fast forwarding to the future helps me to be more pragmatic and prioritise in the here and now.

CAPTION: "RUN YOUR OWN RACE." HELEN TUPPER, CO-FOUNDER AND CEO, AMAZING IF

SE: It's easier than ever to compare our careers to our family and friends and colleagues, but if we fall into this trap, we forget that we're all motivated by different things. One of the advantages of careers today is that they can be as individual as we all are. So we need to invest in and take care of our own careers. I really hope this has been helpful and very best of luck.

393. Three ways to spot a conspiracy theory

The list of conspiracy theories is endless. But why - and how - do they take root? There are three key ingredients to look out for.

Made by Angel Sharp Media, 31 July 2019

Made in partnership with The Open University

VOX POP: Roswell... Bigfoot...

VOX POP: Oh, that kind of thing.

VOX POP: OK... Shape-shifting lizards. Interesting.

VOX POP: Conspiracy theories do require a wild imaginative leap.

VOX POP: I think we can explain it in scientific ways. So why do we believe some more ridiculous way.

VOX POP: Yes and of course they spread much more readily now with the advent of social media.

VOX POP: Who can you trust?

CAPTION: THE ANATOMY OF A CONSPIRACY THEORY

DR JOVAN BYFORD, *senior lecturer in psychology, the Open University*: The term conspiracy theory refers to explanations according to which events in the world are caused by an evil plan plotted in secret by a small group of powerful individuals.

DR MYRTO PANTAZI, OXFORD INTERNET INSTITUTE, UNIVERSITY OF OXFORD Some decades ago there was this tendency to conceive conspiracy beliefs as pathological, but psychologists have shifted this. They nowadays believe normal functions of our mind explain why people believe in conspiracy theories.

CAPTION: CONSPIRACY THEORIES ARE SHARED CULTURAL PHENOMENA, EACH WITH THEIR WON INTRICATE STORIES AND INTERNAL LOGIC.

DR JOVAN BYFORD: The defining features of the conspiracy theory are: the conspirator, the conspiratorial plan - the sinister plan that they're trying to bring about - and the means of mass manipulation by which the conspirator is keeping the plan secret.

CAPTION: PART 1: THE CONSPIRATOR

DR JOVAN BYFORD: Sometimes the conspirator will be defined in terms of a concrete body with an identifiable membership. The Illuminati, or the Freemasons, Jews, more recently things like the Bilderberg Group, the Skull and Bones Society, and various other secret societies. However very often, the conspirator will be defined in much vaguer terms - the Big Pharma, the military-industrial complex, global elites and so on. So they're always balancing between the need to define the enemy and the need to accept that the enemy is always going to be shady, secret and so on.

CAPTION: PART 2: THE EVIL PLAN

DR JOVAN BYFORD: Conspiracy theorists will often argue that if you destroy a group of powerful people in the world you will not destroy the conspiracy because the plan is the key thing. Very often, that plan is going to involve world domination, but if one looks at the level of cover up that would be required in order to keep all these things secret it necessitates having somebody who is actually in control of everything.

CAPTION: PART 3: MASS MANIPULATION

DR JOVAN BYFORD: Much of the conspiracist's writing will involve trying to analyse what strategies and what power the conspirators have to keep their sinister plan or their identity hidden. Very often the manipulation comes from the plausible - things like science, government, media ownership - to the ludicrous - paranormal manipulation, use of occult powers, manipulation of brainwaves.

CAPTION: WHY DO PEOPLE BELIEVE IN CONSPIRACY THEORIES?

DR MYRTO PANTAZI: Conspiracy believers, I think they genuinely believe in the theories and they really strive for the truth. It may seem naive, but there is this human tendency to underestimate the role that chance alone can play in events that occur.

DR JOVAN BYFORD: This belief that the world is ultimately controllable and that is a very powerful driver of conspiracy beliefs in moments of crisis where there is almost like a vacuum in explanation.

DR MYRTO PANTAZI: We see this more social function of conspiracy beliefs in the fact that people believe in them or not as being part of their social identity.

DR JOVAN BYFORD: The stereotype is that they're in their cellar on the internet, looking for the most recent conspiracy theory. But most people are neither believers nor sceptics but fall somewhere in the middle? And for me the key question is not what differentiates the hard believers from the hard sceptics, but how do we interpret that section of the population in the middle.

CAPTION: HOW CAN WE ENSURE CONSPIRACY THEORIES DON'T MISLEAD US?

DR MYRTO PANTAZI: Conspiracy theories can be dangerous for society - people who believe that vaccines cause autism and avoid vaccinating their children, put them in danger. A thorough thinking person could debunk one argument at a time but could not debunk all their arguments.

DR JOVAN BYFORD: The most sinister conspiracy theories, like the anti-Semitic conspiracy theories of the early 20th Century, or if you talk outlandish in terms of David Icke's alien lizards, the fundamental error is always the same. If one makes people more aware of what conspiracy theories are it enables them, when they see a conspiracy theory, to see it for what it is.

CAPTION: UNDERSTANDING THE COMMON ANATOMY OF CONSPIRACY THEORIES, MAKES IT EASIER TO IDENTIFY THEM IN DAY-TO-DAY LIFE.

394. Thumbs up! Why do we do it?

Thumbs up, chocks away, 'the American Okay' - the story behind the hand gesture that's everywhere.

Made by Dayglow Media & Pencil & Pepper, 22 August 2018

NARRATOR: Thumbs up means, well, thumbs up. Right? But it's not always been that way. In the Roman era, a thumbs up meant death for a gladiator. If the gladiator was to be spared, the referee would press the thumb to the top of the fist. If he flicked it up. It was bad news. There's a common misconception that a thumbs down meant death back then. It's thought to have stemmed from this painting by Jean-Léon Gérôme 1872, which shows a Coliseum crowd with arms outstretched and thumbs pointing to the ground. He got it wrong. It's thought the positive meaning of thumbs up started with English archers in the Middle Ages. A fist with thumbs up measured the correct brace height of a long bow. So the gesture came to mean all is, well, ready for battle. Another origin of the gesture comes from merchants in medieval times. They would seal a deal by licking their thumbs and pressing them together. So a thumbs up came to mean 'done deal.' Allied fighter pilots in World

War II used the gesture to indicate chocks away when they were ready for takeoff. And it's thought an American GI's spread the gesture throughout Europe. Even today, Italians call it The American Okay. Hitchhikers around the world hope to thumb a lift from passing traffic. But watch out in Greece, Sardinia in the Middle East, where a thumbs up sign is an insult and is more likely to get you into trouble than the next town. When a scuba diver gives a thumbs up means it's time to swim back to the surface. This signal has been known to confuse beginners. A wiggled thumbs up means a number 10 in American sign language, while a flat palm under a thumbs up is the sign for help. In the 1990s, influential US movie reviewers Siskel and Ebert used a thumbs up or thumbs down rating system on their TV show. They even trademarked the phrase two thumbs up. Now thumbs up and thumbs down signs are everywhere on the internet hoping for your approval or otherwise.

395. Top tip from Neil Nunes? Aim for the impossible

The BBC's Neil Nunes explains why dropping out of university worked out for the best for him. Also, how he makes the impossible, possible.

Published on 7 March 2018

This video was made by BBC Ideas

CAPTION: My best idea.

NEIL NUNES: My best idea is a risky idea. It's an idea that at the time, my friends and my family thought, 'you are crazy'. I dropped out of university. Now, this is not a recommended idea. But at the time, I was doing biology or sciences. My intention was one day to spend the rest of my life in a lab with a white lab coat looking down a microscope as either a microbiologist or a geneticist or something like that. But I happened to be freelancing on the university radio station. The manager there was kind to me. To me, it was just a hobby, it was something I did on the side. And everybody else kept saying, 'Maybe you should take this more seriously because this is where you belong'. And after one year, I, I left, I took a demo tape – you remember those cassettes, those Fuji films and those Sony cassettes? – well, I took one of them to another country. And here comes the cliché . . . wait for it, the rest is history.

CAPTION: The idea that I would like to see introduced.

NN: The idea that I would like to see introduced is financial and consumer education in schools and high schools from the first year of high school until you leave high school. We study for money. We work for money. We worry about money. There's government policy, about what you can buy and so on and so forth and all the rest of it. And too many young people learn too late valuable lessons that we all wish we knew years earlier. So it would be great, I think, if we could have financial education in school.

CAPTION: The idea that changed my mind.

NN: The idea that changed my mind is an idea that changed my career. It's 'fish in impossible waters'. Or as Jim Goodwin likes to put it, 'The impossible is often the untried.' When you try to do impossible things what's clear is that not many people will be doing it with you. The competition isn't as intense. Let me break it down. Throughout my BBC career, I have often asked myself as a producer, 'what's the impossible story?' The person that we can talk to that I have never spoken to this department before. And over the years, I've spoken to a whole range of celebrities and business people and you name it, who, for one reason or another, people thought it was impossible to get this person when you trying to do the impossible. It won't always succeed, but when it does, it'll be beautiful.

396. Top tips on success (from someone who knows)

Bonita Norris became the youngest British woman to reach the summit of Everest in 2010. Here's her advice on achieving success.

Made by BBC Studios, 4 May 2018

BONITA NORRIS: When you see the sunrise from the top of the world, it's just the most beautiful thing you could imagine.

CAPTION: In 2010, Bonita Norris became the youngest British woman to climb to the summit of Mount Everest. She was 22.

BN: My first tip would be to just start. The difference between my successful people and unsuccessful people is that the successful people just gave it a shot. And they just take that first step. Small steps make the biggest difference. There were so many moments when I've been in the Himalayas where I felt like I couldn't take another step and couldn't do anything more. And it's so easy to get paralysed by the enormity of the challenge and lose sight that the step in front of you is all you have to ever worry about. My next tip: visualise. I'd make a playlist for music that will transport me to the mountain as soon as I put it on and shut my eyes and I can imagine myself climbing that peak, just taking the time to really visualise what it would mean to achieve it. I think that most people give up because they lose sight of their dream. They forget why they started. Spend more time in nature. I always ran as a as a way to get fit and I would go to the forest. The things that became really highly emotional and I'd get really upset about suddenly weren't such a big deal. Stop letting your ego get in the way. Your ego can be the biggest wall that you have to climb. The most successful people in life are the ones who are able to be honest and vulnerable with others. The more you build up a wall around you, the more you have to pretend to be someone that you're not. I don't think that just getting to the top of the mountain makes you a good person or a successful person. For me, success comes down to can you get to that point by being a compassionate person to others, by being in touch with yourself? Being respectful of the environment around you. I don't believe that you have to be ruthless to get what you want in life.

My final tip is you have to trust in something, whether it's yourself, whether it's in God, whether it's in nature, or the universe. But just having that trust that it will work out somehow. And if it doesn't work out in a way I want, then maybe I'll learn something from it. When you have been to the top of the world, you appreciate such simple things. You . . . you don't want to have power or money or status or material items. You want to have great connections with your family, because when you do think you're going to die, they're all you think about. You want to feel that feeling when you've been on your feet for 24 hours and you're still climbing anything . . . wow, the human body is amazing. Those are the moments, I think, that have made me feel most successful. And ultimately, those are, in some ways, some of the hardest moments in life to find.

397. Transhumanism: Will humans evolve to something smarter?

What is socialism? How does it work? And where is it heading? Stephen Bush, political editor at the New Statesman, shares his view.

Made by Somethin' Else, 2 April 2019

STEPHEN BUSH: The A to Z of isms… transhumanism. Most of us would consider the end of the human race as a catastrophe. There are some, however, who will not only rejoice at it, but want to hasten the day it arrives, Transhumanists look forward to a future in which Homo sapiens is superseded by a better, smarter, fitter model. Humanity 2.0. Humans are in dire need of improvement. Any species that causes huge damage to our environment, can't feed itself, even though it has enough food and fights countless wars costing millions of lives must surely benefit from an intelligence upgrade. Our life spans are short. Our final years, usually characterised by diminishing health and vitality, often accompanied by a drop off in cognitive capacity. One in three people born in 2015 are expected to get dementia. Is this really the best we can hope for? Transhumanist think not. Ageing could be stopped and even reversed. Enhancements could dramatically raise our IQs and make us stronger and fitter. We might even be able to leave our fragile bodies behind and upload ourselves to computers living forever in virtual worlds. Improving humanity through science and technology could radically change us. Such a new beginning would, in effect, be the end of humanity as we know it. Many transhumanists see this as not only desirable but inevitable. The scientist and futurist, Ray Kurzweil, believes we are approaching what he calls the singularity. The point at which computers become smart enough to learn for themselves, after which they will rapidly become smarter and smarter. The future belongs to artificial intelligence. The only way for humanity to survive is to embrace it and become wholly or partially artificial ourselves. The thought of being replaced by a new form of humanity is bound to be unsettling. But transhumanists think we would be wrong to lament the end of humanity as we know it, when what replaces us would be so much better. It would be like wishing children never grew up, or that Homo erectus

never evolved into Homo sapiens. If the transhumanists are right, we could be one of the last generations of humans to roam the planet.

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398. UK's first sign language poetry slam

Deaf poets fight it out in the UK's first ever poetry slam for users of sign language.

Published on 15 May 2018

This video was made by BBC Stories

NARRATOR: This is what poetry looks like when it's signed. It's the UK's first ever poetry slam for deaf people who use sign language. 20-year-old Honesty Willoughby is waiting nervously to go on. We went to meet her back home in Bristol a few days earlier and watched her rehearse.

HONESTY WILLOUGHBY: So how do we make poetry visual? Well, there are loads of different ways you can use the same hand shapes. For example, using the V hand shape. See? Or you can repeat a sign along with body movement to create pace and rhythm. Rhythm is created through repetition. Or you can use personifications.

N: We're just a few days to go. Honesty hasn't even settled on a theme for her poem. To make matters worse, she's got stage fright.

HW: The more I think about it, the more nervous I become. I keep thinking, 'What if I get out there and freeze or forget something or sign it wrong or go way off the point.' Sometimes if you make a mistake and try to backtrack, you end up making it worse. And then it just becomes a mess. I'd be on stage looking really awkward. I've never done this before. This will be my first time and I know the other people competing have so much more experience than me, which makes me more nervous. I can feel my confidence slipping. I've actually found myself rehearsing or walking down the street and only realised when people started looking at me. That's when I nonchalantly tried to hide my hands. Anyone watching me would think I'm talking to myself. So I use my phone to film myself. I always imagine while I'm signing that it's going to look beautiful. But watching it back, I soon find out that's not the case.

N: It's the big night.

HW: Do I think I'll win? No. But I haven't totally given up hope. It's like they say, hope for the best, but expect the worst. That about sums up how I feel right now.

N: Her rivals include poems called 'Black' and 'Smell'. One about the life of a butterfly. And this one, whose title is 'reasonable adjustment'. Now it's Honesty's turn. Her poem is about a woman who buys a book that leads her into a fantasy

world. The trouble is, the real world keeps intervening. The audience chooses the winner by dropping tokens into the container with their name on. Honesty comes third.

HW: I finished in the top three, so I'm happy with that. I'm a little disappointed I didn't win, but it's still an achievement to have done it. I'm feeling content now. I can enjoy the rest of the night and whatever comes next. One thing I've noticed about this type of signing is that it takes confidence. You have to stand on stage in front of an audience. Some people might be great at it, but have a shy personality when it comes to performance. I think it can be like that for people with a beautiful voice as well. It's just that some people have beautiful signing.

399. Understanding the mechanics of hatred

BBC journalist Allan Little explores how hatred has been whipped up and disseminated throughout history.

Published on 30 August 2019

Based on a series from Radio 4

ALAN LITTLE: Hatred is a powerful motivating force. It can stir huge numbers of people to inhumanity. Combine it with fear and it becomes the means by which ordinary people can be persuaded to murder their own neighbours, to take part willingly, even gladly in genocide. How? How is such passionate intensity planted in a population? What are the mechanics of mass hatred? It is more commonplace than you might think. And more ordinary too. The perpetrators do not think of themselves as murderers. While much of the world looks on in horror, they see themselves as misunderstood. They are, in their own minds, committing acts of great virtue, performing a public service. Often they have weaponised history. They bought a version of the past in which they are the true victims. Generations of their ancestors have been enslaved. And history has granted them the chance to write the ancient wrong and to liberate themselves from the ancient oppressor. Poetry and song reinforce a shared sense of righteousness. We saw this in Bosnia in 1995, when up to 8,000 Muslim men and boys were murdered by Bosnian Serb forces at Srebrenica. Here, many Serbs believe they were completing the historic task of liberating Serb lands from centuries of Ottoman rule.

BBC NEWS, July 1995. The Serbs were mutilating some of those they caught, says this man. He saw soldiers cutting off noses, ears and limbs – claims which can't be corroborated. But the stories of Serb atrocities are too numerous and too consistent to be discounted.

AL: Members of the enemy group are stripped to their humanity. The language of pest control was mobilised, too, in the 1994 Rwandan genocide. Members of the Tutsi group were described as vermin, cockroaches, unclean carriers of contamination that must be eliminated.

BBC NEWS *May 1995:* This is Bosco, a young, illiterate farmer and the self-confessed murderer of five of his neighbours. 'We did it because we were forced to by the government. We made sure we killed every Tutsi so that if the rebels came into power, there'd be no Tutsis left.

AL: In both Bosnia and Rwanda, the state, the churches, the newspapers, the radio and television stations, the poetry, the pop songs allied themselves to a vast criminal enterprise that drew in large numbers of ordinary people. These were not sudden outbursts of mutual loathing spontaneously arising. They were planned, funded, guided in pursuit of a political goal. Half a century ago, the United States believed in the virtue of its war in Vietnam. It was defending liberty in Asia against the evils of communism. US President Lyndon Johnson told the American people that their soldiers were pushing forward the frontiers of a founding American principle: freedom.

LYNDON B JOHNSON: No one likes war. All people love peace. But the . . . you can't have freedom, Miss Hanksman, without defending it.

AL: But in 1969, when reports that hundreds of ordinary people had been murdered by US servicemen in the village of My Lai came out, it shocked the world. My Lai had not been a regrettable one off atrocity, but part of a pattern. American servicemen had been trained deliberately to hate, to see all Vietnamese, including women and children, as dangerous enemies. Even in the world's most developed democracies, where the rule of law is entrenched in the Constitution, mass hatred can be mobilised to draw people into violence. But hatred can be reverse engineered too. In South Africa I watched a nation find its way out of a dark and unsustainable history. The apartheid state was built on hatred and fear. It was legalised white supremacy. The majority black population was dispossessed over generations.

PANORAMA *June 1957*: Signs of separation are everywhere, on public and private buildings. Africans must go to their own cinemas and not to Europeans. At this place, Africans must queue to get their passes. They must carry them everywhere. If the police stop an African and he has forgotten his book of passes, they put him into jail.

AL: But the Black Liberation Movement offered the white population an alternative. It pursued freedom not through the conquest of one group over another, but through an idea, the idea of inclusion, that South Africa could belong to all those who lived in it. In the 1990s, after the release from prison of Nelson Mandela, the country's former enemies converged on this shared vision and turned the page on organised hatred.

NELSON MANDELA *BBC News, May 1996:* Because I can see the rainbow nation rising. I can see men and women who are now beginning to break loose from the succours of political indoctrination.

AL: It found a way to offer future generations alternative to walk back from hatred toward hope.

400. Unpacking the psychology of seduction

Psychiatrist Raj Persaud and burlesque performer Tempest Rose share their tips for using seduction techniques to get what you want in life.

Published on 20 August 2019

TEMPEST ROSE: So there's a great Oscar Wilde quote, which is that, 'Everything in life is about sex except the sex, which is about power.'

RAJ PERSAUD: When you think about seduction, you probably think about it in a rather narrow sense, in terms of erotic seduction or sexual seduction. Well, what if I were to suggest to you seduction is a much deeper, wider, more mysterious thing? And actually, at the heart of it is the secret to success in life. My name is Dr Raj Persaud. I'm a consultant psychiatrist. I wrote a book on the psychology of seduction as being the key secret of the heart of successful relationships.

TR: So, I'm Tempest Rose. I'm an international burlesque performer, creative director and teacher and producer.

RP: If you think about your average day and the way you make your way through your average day and the people you meet, your work colleagues, your friends and people who might serve you in restaurants and so on. If you learn the art of seduction and you seduce these people into liking you and therefore delivering what you want, you'll find it much easier to navigate your way through life.

TR: Burlesque performers are good at seduction because we're trained to understand that we make choices in how we present our art to the audience. Onstage, we learn to use our seduction techniques consciously. So I know that if I cast my eye a certain way, the way the audience will focus on certain parts of my costuming, or if I move in a certain way, it draws attention to a part of my body. And that will be part of the story that I want to tell within my act. So we learn to be very aware of even just a glance of the eye or a stroke of the hand on the body. We use all of these tools to direct the audience's gaze because we want to tell them a story. So all of these micro movements are really, really important in getting to grips with how you direct the audience to watch your act and absorb what you're trying to tell them. When we perform burlesque at a show we're clowning ideas of what attraction is and what sexuality is and what seduction is, we're playing with what might be called the traditional feminine arts. And we're using those as a springboard, really, to play with the audience about ideas of power and ideas of enticement, seducement and glamour as well.

CAPTION: If you're not a burlesque performer?

RP: Find out what that person's unmet need is and then fill it in a way it's never been filled before. In my clinic, people come in and they're often unhappy. Why are they unhappy? They're unhappy because they are frustrated with the world. The world is not giving them what they want. It's not giving them a pay rise. It's not giving them a date with the people they want to have a date with, it's not giving them popularity or love or affection. And so people are upset and they have a

demanding approach to the world. 'Why is the world not giving me what I want?' So in order to get what you want from the world, you need to understand this basic transaction. You're going to have to give something to the world to get that thing that you want. The problem is we're always thinking about our own unmet needs and it distracts us from focussing on the person in front of us. What are they after from life, what drives them? What moves them forward? And in particular, what their key frustrations are. A lot of small talk, in terms of passing the time of day, doesn't seem to be very directed, but seductive people are actually using small talk in a particular way. What they're doing is they're figuring out the direction your life is travelling in. They're trying to figure out what it is that drives you forward, what it is that you want, what it is that you need, what it is that frustrates you. They're getting inside your head. And that's the best way to find out what the unmet need is and then to fill it in a way that it's never been filled before.

CAPTION: Should you be yourself, or . . . act like someone else?

TR: One of the things that I really want the audience to go away feeling is that there is no one rule about how to be attractive, how to be sexy, how to be seductive, because each of us have our own individual power. And the importance of burlesque is to be an antidote, to be one dimensional idea that there is only one way to do these things. So each performer really roots into their individuality and then we magnify it to make this huge explosion of individual gravitas and attraction and seduction.

RP: Most people have very low self-esteem about the idea that they could learn to be seductive. They believe you are born with it. You're either drop dead gorgeous or you're not. I think seduction is a learnable skill. What I mean by that is anyone can learn to be seductive and certainly to be more seductive. So if you learn the skills of seduction, you can be as seductive as any of the most gorgeous people you've met in your life.

401. Utopianism: The search for a perfect world

Will we ever stop searching for perfection? David Quantick explores utopianism.

Made by Somethin' Else, 19 June 2018

DAVID QUANTICK: The A to Z of isms… utopianism. Utopianism is the ism of utopias. It means a belief or interest in a perfect world, or at least a world designed to be perfect. The word utopia was coined in 1516 by Sir Thomas Moore, writer, saint and opponent of Henry VIII's marriage plans, in his book of the same name. Utopia has been taken by some people at face value as a book about a perfect land. But others point to the fact that the word utopia literally means no place and that the book is a satire. But that hasn't stopped people. Through the years, there've been all sorts of ideas about a perfect society, economic utopias with no poverty, ecological utopias where humans live in harmony with nature and so on and so forth. Many cultures and religions have a myth of a perfect society in the past, like

the Garden of Eden. Communes, music festivals and naturist camps could all be seen as attempts to create a mini-utopia on Earth. There are many kinds of utopias, but one of the central qualities of any utopia, paradoxically, is that it doesn't exist. Being a utopianist essentially means being a dreamer. When John Lennon sang, 'You may say I'm a dreamer', in his famous hit single and utopian anthem, *Imagine* he was referring to exactly this quality. Utopianism's main flaw is its obsession with perfection. This can lead to absurdities like the Soviet Russian belief that one day all crime would be eradicated, because under true socialism, crime would not be necessary. Or the more sinister belief in fascist ideologies that racial purity would eliminate all evil from society. Perhaps this is why much discussion of the topic is now confined to utopianism's, dark side: dystopianism - a way of describing worlds real or imaginary, in entirely negative terms. From George Orwell's *1984* to Margaret Atwood's *A Handmaid's Tale*, dystopian fiction has become increasingly popular in books, films and television. But interest in utopias isn't going anywhere. References within books have been on a steady rise as the 1900s with clear spikes in the 60s and also, perhaps surprisingly, in the 80s. And who could deny the perfection of the world, at least in microcosm? As you sit by an ocean and listen to the sound of the waves crashing on a beach, or when you first see a blanket of bluebells in the spring. And without at least striving for a better world, where would we be? In chains with rats chewing off our faces. That's where.

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402. Viewpoint: How money can make you heartless

Can money reduce a person's empathy? Author Christopher Ryan, argues that wealth affects us in surprising and complicated ways.

Published on 22 November 2019

Made by BBC Reel

CHRISTOPHER RYAN: Wealth affects our psyche in interesting and complicated ways.

CAPTION: Are rich people heartless?

CR: Not just the total amount of wealth that someone experiences, but more importantly, the differential of wealth between someone and the people around them. What we find is that wealth differentials have profound effects on subconscious psychological processes, like, for example, the ability to read emotion on another person's face is actually diminished by greater wealth. People are less likely to stop to let an old woman with a cane cross the street if their car is more expensive. Cheaper cars are more likely to stop. There's a sense of entitlement and alienation from other people that seems to accrue with greater wealth and certainly with differentials between one's position and the position of those around them. Great wealth disparities only entered human experience with the advent of

agriculture because this is the first time that there were accumulated resources. When you have accumulated resources, you immediately start to see political hierarchies. Someone needs to decide who how to distribute the harvest, who gets what. Someone needs to organise the sowing of the fields and the working of the fields. Someone needs to organise the harvest of the food and the counting and the organisation and storage of the food. So all these things entered into human life at the same time with the advent of agriculture. What we generally do with the extra money is buy things that separate us from other people. I lived in Spain for a long time and I often think about the word 'aislar' in Spanish, which means both to insulate, like you insulate your house or a jacket insulates you from the cold. But it also means to isolate. And isolation is death for our species, literally. In hunter gatherers, if you're expelled from the group, you're as good as dead. So one of the most painful things that we can experience is when a group kicks you out, when some when your membership is revoked and you're pushed out of a group, it's emotionally very, very painful for us. The reason is that it's associated with survival. And so it's ironic that what we tend to do with our extra money, our surplus income, is we purchase privacy. We purchase separation. We get a bigger house with a bigger yard, with a bigger wall. We get a bigger car with tinted windows and air conditioning. We stay at five star hotels where we don't ever have to see anyone or talk to anyone. This is against life. This is antihuman, essentially. And yet these are the values that Western society tells us to strive for and . . . and to try to achieve. And when we look at people who have great wealth. We don't find that they're happier. In fact, we find that the correlation between wealth and happiness levels off very quickly, somewhere around seventy thousand dollars per year for an individual in the United States. In fact, the most potent predictor of longevity and health, both physical and mental, is whether someone feels embedded in a community of loving and supportive people. That's a more important factor than whether or not you smoke. How fat or skinny you are, how much exercise you do, what kind of diet you have. All of those things pale in comparison to whether or not you feel that you're surrounded by people that you can count on. It's not that . . . that unethical, unfeeling people necessarily are better at accumulating wealth. It's that when you have accumulated wealth or you've been raised in it just because of your family circumstances, you can become unfeeling and you can lose a sense of compassion because the situation in which you're living is so unnatural and so psychologically imbalanced and difficult that we develop this scar tissue to protect ourselves from the pain of being around people that we want to help but really can't. Are there exceptions to the rule or the tendency of wealthy people to be heartless? Of course there are. Yes, there definitely are. I look at . . . at money the same as I look at alcohol. A little wine with dinner is fantastic. Fifteen bottles of wine with dinner is not a good night. Right. So there are these things that in small amounts can be a tonic and in greater amounts become toxins. I think wealth is clearly one of those. So people who are exceptions to this, who really understand how to manage wealth, they are able to minimise its effects by controlling their access to it and often by spreading it around and giving it to people who really need it. And in so doing, reaping the psychological benefits of that generosity.

403. Viewpoint: It's time to end our love affair with cars,

Author, academic and campaigner Andrew Simms argues we need to rethink our relationship with the car - much as we have done for smoking.

Made by Owen Kean, 22 September 2020

ANDREW SIMMS, AUTHOR & CO-DIRECTOR, NEW WEATHER INSTITUTE: I think cars should come with health warnings like cigarettes. Why? Consider this…

ARCHIVE NEWSREEL: What cigarette do you smoke doctor?

AS: It might sound incredible now, but there was a time when doctors appeared in adverts encouraging us to smoke. You could smoke in restaurants and pubs, buses and planes. Now, cigarette packets come with stark and graphic warnings about the impact of smoking on your health – and on those around you. In the future, will we look back on this era - the rise of the car - with similar incredulity? I think so. During the height of the coronavirus lockdown, daily emissions of CO2 fell by 17% around the world. 17 million tonnes less carbon dioxide was emitted every day, with almost half of that drop because of fewer car journeys. Air pollution in some UK cities in the UK dropped by as much as 60%. There are more than a billion cars around the world. And as we reassess and restructure our world, I think we need to reassess our relationship - you could call it a love affair - with the car. What's interesting about our response to the threats from both smoking and the pandemic, is how we acted and changed our behaviour to help protect each other's health. We don't blow cigarette smoke in each other's faces anymore. Or light up inside. With the coronavirus, we quickly learned to give each other space, wear masks, wash our hands - and we got used to all the signs reminding us to do so. It's normal where there's a threat to life for us to change our behaviour and do whatever it takes to protect friends, family and other people. So why do we put up with the air pollution pandemic, when there's something we can do about it? Why don't we have reminders on cars about the consequences of street level pollution, and encourage us to walk or cycle more? Still not convinced? Here are a few things you need to be aware of when it comes to cars. Studies have shown air pollution - much of which comes from cars - contributes to the premature deaths of almost half a million people in Europe every year. The impact on our bodies is truly frightening. Air pollution can trigger heart attacks, strokes, and asthma, and contribute to stunted growth, low birth weight, and lung cancer. Car tyre wear also contributes hugely to air pollution, but it's a largely unregulated area. As you drive on the road, your car tyres shed tiny bits of tyre material - microplastics - which get washed into our drains, and ultimately our rivers and oceans. This happens regardless of whether your car is diesel, petrol, hybrid, or electric. And there's another big problem with cars – and that's their impact on climate change. You only have to drive 500 metres in an average modern car to melt at least 1 kilo of glacier ice. Since 2010, SUVs have been the second biggest source of rising carbon emissions. If SUV drivers were a nation, they'd be the world's 7th biggest carbon polluter. Every time you use your car, you're contributing to the degradation of the planet. A lot of this is just unnecessary. Here in the UK, even when trips are only between one and two miles long - 3km - six out of 10 people still drive. In circumstances no-one would ever have

wished for, the coronavirus pandemic gave us a small glimpse of what a different - cleaner, greener, less polluted, world - could be like. Putting health warnings on cars would be a stark and clear visual reminder to all of us about the devastating impact on people and the planet. And it might just help shift our attitude to cars once and for all.

404. Viewpoint: What would a world without prisons be like?

We take prisons for granted - but how effective are they? Are there better alternatives? A viewpoint from OU criminologist Dr David Scott.

Made by Flock London, 11 August 2020

Made in partnership with The Open University

DR DAVID SCOTT, Senior Lecturer in Criminology, The OU: Can you imagine what a world without prisons would look like? Happier? Safer? Scarier? Or is it just impossible to imagine? Maybe that's because it feels as if prisons have just always been part of society? Even though they haven't. The idea that prison can reform and rehabilitate is only around 200 years old. Or perhaps it's because we're told we need prisons to deter criminals? Even though there's no consistent link between the prison population and levels of crime. Or is it because we think prisons keep us safe? For some offenders, their time in prison can be a period of reflection and growth, but others struggle and can become traumatised or more dangerous, and re-offending rates are high. But just because it's hard to imagine - and we don't have all the answers yet - that mustn't stop us trying to consider a world without prisons. And asking ourselves if there a better approach? A world without prisons would mean upending our current system, and putting the needs of those who are harmed first. Right now, prisons are too often used as a kind of last resort for dealing with the inequalities and problems that our health, welfare, education and employment systems aren't solving. Which is one reason why people from some ethnic minorities, from poorer communities, those with a history of mental health problems, or people who've grown up in care, are all more likely to end up in prison. Crime won't be reduced by continuing to lock all these people up. What will help is tackling the societal problems that have led them to commit harm in the first place. So, in a world without prisons, funding priorities would need to shift. Using some of the current prisons budget might help. But this would just be a small contribution - in fact, far bigger and systemic change is needed. Because while we focus on blaming, prosecuting and punishing the harms and crimes of the poor, all too often we ignore the wider economic, structural and psychological harms committed by the powerful. A world without prisons would be fairer. But could it also be safer? Yes, a small number of people do need to be kept out of society for the safety of us all. But although the idea of evil looms large in our culture, our prisons contain fewer dangerous people than we imagine. Nevertheless, any attempt to reduce danger and harm in society, would need a new culture of safety and respect, ensuring those who may be harmed are properly protected. And preventing violence in the first place, rather than allowing it to breed in prisons and return into communities. Properly

funded interventions to safeguard vulnerable children from harm, and refuges for victims of sexual or domestic violence, would be essential. And how would victims feel in this world without prisons? Wouldn't they want… well, justice to be done? In fact, most victims don't cite revenge or punishment as their priority. What they care about most is protecting themselves and others from harm in the future. Restorative justice, or a truth and reconciliation process, is a very effective way of doing this - allowing victims to talk through grievances, accept what has happened to them, and rebuild their lives. The impact of any harm is formally recognised by the one who caused it - but also by society. This encourages communities to take responsibility for helping both victim and offender. Because when you can't simply lock someone up, everyone has a vested interest in finding ways to live more peaceably together. In a world without prisons, justice isn't about punishment. It isn't about repeating cycles of violence and harm. It's a world where justice is about righting systemic wrongs, about supporting people to meet their employment, education, and health needs. It's a world focused on social justice rather than vengeance. So a different approach isn't impossible. But maybe many of us are still imprisoned by old ideas? Imagining a world without prisons will require all of us to think outside the box.

405. Virtual sex and avatars – the future of dating

How might we be dating in 20 years' time? From virtual sex to marrying avatars, this is how we could fall in love in 2039.

Animated by Paper Panther, 22 February 2019

Made in association with Nesta

NARRATOR: In the year 2039, new developments in virtual reality could give connecting with someone you fancy a whole new meaning. Facebook already hosts a called virtually dating where couples strap on headsets and virtually spend time in exotic locations. Imagine if you could go on a date without the commitment of having to actually be there in person. A 21st century romance, or just another way to bump into the furniture of your ridiculously small housing pod before you take off your headset, only to remember there's no one there? Alternatively, maybe your VR date will go so well you'll question why you need a real life partner in the first place. A company in Japan is already offering men the chance to marry their favourite anime characters. Will you be professing your lifelong commitment to a 3-D hologram in a virtual chapel? If you're a woman, the answer may well be no. Even though research shows that people are more likely to open up to a machine than a person, it also shows that women are less likely to try virtual reality than men. A company's recent solution? Turn the headsets pink. It didn't solve the problem. If by 2039, VR is more widespread, could connecting to your partner emotionally or physically simply mean digging out your VR toolkit and plugging one of a number of . . . ahem . . . devices into a USB port? Or does the very thought of this make you want to split up, or throw up? If looking the one you love in the eye is more your thing, you might prefer glasses that use face-analysing algorithms to scientifically reveal when someone finds you attractive. A way to make dating less time-consuming, or a

virtual slap in the face. When you discover that everyone you were pretty sure fancies you definitely doesn't. Digital technology is often criticised for increasing loneliness, as people turn more to their screens for support rather than each other. However, by 2039 we could be using dating apps to connect with a multitude of people in a variety of new non-romantic ways. Will finding a partner to settle down with something your parents used to do? Either way, with nightclubs across the UK closing down and fewer young people drinking alcohol, it seems like the days of 'see you at the bar' and having one too many . . . what was it again? Only to wake up with 'Who are you?' are probably numbered. So if we're still going on real dates with real people, we'll probably need new venues. For example, a trampoline park. According to a recent report, there's been an overwhelming rise in trampolining. Imagine if this was where you meet in a hot and very sweaty diet in 2039. New kinds of immersive cinema experiences, such as 4D or 5D might also pave the way for virtual reality films, which would make the cinema the perfect place for a date in 2039, with friends, partners or anyone in between. Just like it's always been.

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406. Wake up! Foucault's warning on fake news

What would Foucault make of today's world? Here's Angie Hobbs, Prof of Public Understanding of Philosophy at the University of Sheffield.

Made by The Moment, 9 August 2018

ANGIE HOBBS: What is truth? Why do we believe the things we do? Whom do we believe and why? French philosopher Michel Foucault is one of the most cited thinkers of the 20th century. He died in 1984, but his work feels particularly timely right now as it's largely about knowledge, truth and power. 'Everything I do, I do in order that it may be of use,' he once said. So what might Foucault say about the world today, where terms like fake news and post-truth are bandied around, and with the rise of social media and algorithms? Foucault's work is not straightforward or easy to understand. Unlike Marx or Freud, Foucault didn't believe in all embracing theories to explain the world. Life is complicated and nuanced. He argued that language and the structures that underpin it helps shape the way we see things. Words matter. They frame the debate and how we understand the world. He called this the archaeological method, but he was also interested in understanding social structures like capitalism and the complicated power dynamics at play. In particular, the relation between these past structures and knowledge. He called this the genealogical method. So the archaeological Foucault would be fascinated by social media and how the original author of a post can so quickly disappear from view as the text takes on a self-replicating life of its own. The more politically engaged genealogical Foucault would focus on how it can offer a voice to marginalised groups, immigrants, for example, and in some cases even stir up revolution and the later Foucault, profoundly influenced by ancient Greek and Roman theories about

how we can best care for ourselves, would look at how social media can open up chinks in conventional power structures, gaps where we can transform ourselves for the better. But he would also say, 'Wake up!' Foucault, both the careful scholar and the cultural rebel, would sound the alarm about how social media can trap people in echo chambers. He'd argue that we have imprisoned ourselves in a system of constant surveillance, giving away so much personal data about our lives to Google, Facebook, YouTube and the rest, with barely a second thought. He'd be analysing how data harvested from our profiles is being used to control us without our knowing, to influence not just what we see and buy, but also how we vote. He would show how social media can function as yet another form of micromanagement and be all the more pervasive and powerful because the operations underpinning it, algorithms, for example, are near invisible, although they make us highly visible. And he'll be warning us that as our awareness grows that we are being observed and controlled as objects, we will be increasingly likely to monitor ourselves. We will become self-scrutinising subjects. 'Remember the Panopticon?' He would say. This was an inexpensive way of old school crowd control proposed by philosopher Jeremy Bentham in the late 18th century. Picture a central tower, in a prison, for example. The prisoners can't see in, so they never know whether they're being watched or not. The result? They effectively internalise the surveillance and modify their own behaviour as if they were. Our self-imprisonment becomes even more insidious and damaging when the walls are in fact fake, when we are controlled by fake news replicating at terrifying speed, often unwittingly through our own actions. If we believe that news to be true, then the power to shape our lives lies not with us, but with those who know it to be false. And if in time we come to think that all news is fake, if we become entirely cynical then we no longer have the vital tools we need to create ourselves as individuals or develop our communities as we'd like. But is Foucault in fact part of the problem here? Did he prepare the ground for the rise of fake news? The charge here is that he denies the possibility of objective truth, and this has opened the way for claims of competing truths and alternative facts, in Trump's America and Brexit Britain, for example. Sometimes he's even accused of helping to dissolve the boundary between true and false altogether. But this charge is itself fake news. Foucault would both relish the irony, but also call it out loud and clear. Foucault challenges specific social science about their underlying assumptions, does not question all claims to objective truth. Like those in maths, for example. As an activist, he campaigned for accurate factual news reporting. Indeed, his very notion of the care of the self is based on ancient Greek and Roman thinkers who viewed philosophy as a way of life committed to truthfulness. So Foucault would be fascinated by the opportunities created by social media to give a voice to the voiceless and to fight tyranny. But he would also be shouting from the barricades, 'Don't become a slave to the invisible forces.'

407. Was life better before the internet?

A look back at some of the simpler pleasures of the past, when we spent our leisure time playing board games and browsing record shops.

Published on 12 October 2018

This video was made by BBC Archive

EASTENDERS CHARACTER, CLAIRE: It's the Internet.

EASTENDERS CHARACTER, DOT COTTON: What? Oh, turn it off, Claire. Turn it off. I've heard about this Internet. It's a corrupting influence. I saw a programme about it.

CAPTION: There was once a time, in days of yore, when life was very different. People actually used to talk to each other in public instead of just staring at their phones. Many a pleasant hour was spent playing board games. And hanging out in libraries browsing the bookshelves.

VOICEOVER: These 19th century directories are often a comprehensive source of information and fortunately, Gravesend reference library as a complete set from 1834.

CAPTION: Sure, the internet has heralded an age of almost infinite information, all at our fingertips.

STEPHEN FRY *2010*: I challenge anybody to find a better, faster source of perfectly acceptable knowledge for almost all purposes that you would require as a normal citizen.

CAPTION: But have we lost something in the process? If you wanted to go on holiday, you could talk to someone in person who could book your flights, ferries and hotels.

TRAVEL AGENT: If you've got any other problems just pop in. Okay, bye.

CAPTION: You could spend Saturday afternoon in record shops searching for your next favourite band. The first stages of dating happened in public with nobody worrying about being blocked, ghosted or unfollowed. But maybe the dating scene has always been a bit awkward. There's no denying that the internet has made everyday life much easier. From knowing what to wear to work tomorrow, to being able to talk to anyone around the world without having to check if they're in to receive your call.

ARCHIVE FOOTAGE OF MAN USING TELEPHONE: Thank you very much for your cooperation, goodbye.

CAPTION: You can find out when the next train is without having to carry around an enormous timetable. And you can take 18,000 photos without having to send a single one off to be developed. But the internet isn't just a tool that saves our time, it's seeped into almost every aspect of our lives. And sometimes it feels like we spend almost all our waking hours online. Maybe Dot was right after all.

DC: There's lunatics and pervert lurking beyond that screen. Before you know it, you'll get sucked in.

C: It's nothing like that, Dot, it's harmless.

DC: Yeah, well, that's what they said about cigarettes and look at me.

408. Was the 1970s the decade that made the future?

From technology to women's rights to politics - how crucial developments from the 1970s shaped the world we live in now.

Published on 7 May 2019

This video was made by BBC Archive

CAPTION: People tend to think of the 1970s in a certain way. [*shots of a disco*] The decade is often remembered for being the one that fashion forgot. And for being hard and grim, without countless strikes and a winter of discontent.

NEWS PRESENTER: Life could become pretty unpleasant very soon.

CAPTION: But was the 1970s the decade that actually invented the future? The gender pay gap is big news in 2019, but it was actually the early 1970s when pay equality was first enshrined in law. The Equal Pay Act of 1970 made it illegal to discriminate between men and women in terms of pay and conditions in the UK. The same year saw the publication of Germaine Greer's seminal text *The Female Eunuch*. Though she was modest about its impact.

GERMAINE GREER *Archive*: I believe it's only been influential because it was timely. I am not a leader of the women's liberation movement and I do not, I have not ever spoken for millions of women. I simply wrote down the way it looked from my end of the telescope.

CAPTION: Women's rights were not the only area where great advances were made. Couples struggling to conceive had limited options up until the late 1970s.

UNNAMED WOMAN: I never want people to think that I don't want children. You know, if somebody says to me, 'Have you got little children?' I can never just say no. I say, 'No, unfortunately.'

CAPTION: But new advances in science meant that eggs could be fertilised in a lab – and then reinserted into the womb. In July 1978, Louise Brown was the first 'test-tube' baby to be born using this method. Her sister followed a few years later.

NEWS REPORT: The world's first test tube family produced by doctors working at an exclusive private clinic near Cambridge.

CAPTION: Over 40 years later, what was once thought to be a controversial medical intervention is now commonplace. The 1970s also brought change in other areas of life. Around 2,000 people took part in the first Gay Pride march in London in 1972, despite vociferous opposition from some quarters.

VOX POP MALE: I don't believe in this sort of thing. I think it's wrong, it's an abomination. It's filth.

CAPTION: The numbers grew throughout the decade.

VOX POP FEMALE: I think there are various important reasons for marching and being openly gay. One of them is to let other gay people who can't come out who can't tell the world that they're gay, let them know that there are thousands of other people like them to give them moral support.

CAPTION: Although there is still discrimination and prejudice against the LGBT+ community in the UK, huge strides have been made, including the recognition in law of same sex civil partnership is 2004. Much of what we know of life today began in the 1970s. From the birth of tech giant Apple to huge advances in medical technology, such as the roll-out of CT scans. There were also major political shifts. US President Richard Nixon was forced to resign in 1974, after the Watergate 'dirty tricks' scandal. The UK held a referendum on its membership of the European Economic Community.

EDWARD SHORT *February 1975*: We are planning to hold a referendum, if possible, about the end of June.

CAPTION: And in 1979, Margaret Thatcher became the UK's first female prime minister, ushering in a new era of conservatism that shaped the subsequent decade.

MARGARET THATCHER: Where there is discord, may we bring harmony, whether is error, maybe bring truth, where there is doubt, may we bring faith.

CAPTION: But while it may have invented the future, some things synonymous with the 1970s are probably best consigned to history. [*shot of Molly Sugden, tottering on platform shoes*]

409. Was this the first emoticon?

The history of the emoticon goes back way further than you think :-)

Made by Dayglow Media & Pencil & Pepper, 30 May 2018

CAPTION: In 1741 Bernard Hennet, Abbot a Cisterian cloister, signed a letter like this. [*letter with smiley face*] Was this the first emoticon? In 1862, the New York Times printed a transcript of a speech by Abraham Lincoln containing this phrase (applause and laughter ;) – winky face? Or is it just a typo? In 1963, artist Harvey Ball designed a yellow smiling face to boost morale in an insurance company. He was paid $45. Smiley, as it became known, was put onto badges. By 1971, 50 million had been sold and Smiley was an international icon. The first email smiley face was sent at 11:44 am, September 19, 1982, by programmer Scott Fahlman. He suggested it as a way to indicate a joke on internet message boards. These typographic little faces became known as emoticons and now they are everywhere. But their originator is not happy. 'Emoticon' is a grotesque label, says Fahlman, 'I prefer 'smiley''. By 1999

the little characters known as emojis had become popular in Japan. Emoji combines the Japanese words ‘e’ and ‘moji’ and roughly translates as ‘pictograph’. Oxford Dictionaries named the Face with Tears of Joy emoji as word of the year in 2015. 2.3 trillion emoji messages were sent in 2016. 2,666 emojis were listed under the Unicode Standard in 2017.

410. We are the DIY generation

DJ Jamz Supernova says economic circumstances mean her generation has had to become hustlers.

Published on 16 November 2018

Made in partnership with BBC Radio 4

DJ JAMZ SUPERNOVA: My generation and generation after the ones are doing it for ourselves, we’re taking control of our own careers and futures. I’m Jamz Supernova and I’m a DJ and broadcaster, and I’m going to be speaking to you about the DIY generation. So, the financial crash happened 10 years ago when I was actually in college. And I remember there was such a uncertainty in the air. And even the teachers, they were scared for our futures. Two years after that, university tuition fees went up. And more recently, zero-hour contracts have been introduced. And for some people, living on a zero hours contracts just isn’t good enough for them to survive. So I felt that our generation have had to be the hustler generation. We’ve had to make things on our own and build our own careers and decide how much money we want to earn. And I think that’s where that kind of hustler mentality comes, and I think we’re definitely the hustler generation. Social media has also played a massive part in the DIY generation. Literally, if you have a phone, anyone can have a business, if they have a social media account, you could do it from your bedroom. It’s given anyone a voice now. It’s cut out the middle man or woman, and it’s changed the job market. I really feel that the Internet has driven a massive change. So I’ve definitely benefited from the Internet. I started my journey on SoundCloud and I would upload radio shows every single week to my SoundCloud account and SoundCloud for those that don’t know if the music platform which lets you upload content. So music content, whether it’s productions, remixes or mixes itself. You can make money from streaming by putting your music or distributing your music onto Spotify or Apple Music or Beatport. So artists are doing that now. They’re also making money from live shows by building their following on SoundCloud they are able to get live shows and bookings. The whole game has changed. I feel like now the artist is in control and they’re the ones that have got the power and they can say, ‘No, I don’t think I want a contract like that.’ Or, ‘Actually, you might have to give me that.’ You know, ‘I’m independent.’ There’s been an incredible rise of young people run in businesses just using their social media accounts or using the social media accounts to propel their businesses. For example, you have someone like Vicki Grout, so she’s a photographer and she came up shooting up and coming grime acts, and her portfolio was her Instagram. And that’s what was used to build a following, but then also to get other work. So now she does incredible campaigns, people like Nike or front cover shoots of artists. It’s amazing to

see how she's grown. And then you've also got people like poets. Charlie Cox. She decided to write a poem a day for a month and showcase it on Instagram. And by the end of the month, she had an agent and a book deal. So this kind of online culture is really challenging nepotism. You can get headhunted just from your online portfolio alone, whether it's Instagram, whether it's Twitter, whether it's YouTube. And I think it's definitely challenges some of the old ways in which we thought we had to get jobs. And this kind of change is making us more creative. Take, for example, gal-dem, so they run an online magazine for women of colour by women of colour, and they'd created it because they weren't seeing themselves reflected in mainstream media. There's also the noticeable generation gap. So the things that my generation and the younger generation place value on is very different to what our older generation did or does. They place value on nine to five, getting a secure job, getting a pension? I definitely think that we are definitely more risk takers and we go against the status quo. And I think the things that we place value on comes down to happiness, a creative outlet and expression. So we spoke a lot about the great things about DIY generation, but of course, with everything there are going to be downsides as well. Not everyone has the financial backing to get them through dry spells, not everyone has the luxury to be able to focus on their dreams full time. And I think they're the sort of downslide that we don't often talk about. And there are lonely times as well. Imagine you miss birthdays, christenings and that can sometimes result in the breakdown of relationships, because you are so one-track minded on your dreams and your goals and what you need to do. But that's also a positive, and I think it's a common trait. We're persistent as well. So I was told for five years, 'No, you're not good enough for a radio show. Not yet. Not yet. Not yet.' And I just carried on knocking and eventually got my own radio show. The DIY generation fever is spreading. Even the older generation are starting to think more like us, so people working multiple jobs, having side-hustles, creating their own businesses as well. And I think it's going to be really exciting to see what happens with the younger generation, the with the faster Internet, with the better apps, the better phones, to see what they can create and what they can do. I think that the world will definitely be their oyster.

411. Welcome to Petra – 'A little bit of heaven on earth'

Simon Schama travels to Petra, which he describes as 'one of the most spectacular civilisations in all of human history'.

Published on 28 February 2018

Made by BBC Two

SIMON SCHAMA: There may be enemies at the gates. There may be enemies within the walls. And sometimes the very landscape and climate in which a culture grows must be conquered. It may be too rocky too arid. But here, canyons and gullies became the streets and thoroughfares for one of the most spectacular

civilisations in all of human history. This is Petra, where the sheer improbability of its location was also the secret of its spectacular flourishing. The reason why this tomb endured and survived armies and earthquakes is that the Nabateans who built it cut it into the sandstone surface of the mountain, rather than build some freestanding marble monument. The mountains shook with earthquakes, but these buildings stood intact. The Nabateans engineered systems to trap the rains, which came in winter and their desert hydraulics made this place not so much rose red as bright green. A garden city of fountains, swimming pools, groves and orchards. And the water which made all that possible also made it possible to feed a city of thirty thousand people, many of whom were immigrants from all over the region. They were Egyptians and Syrians and Judeans and Greeks and Romans. And they were all coming to Petra to enjoy what the Persians called a 'Paradaisa' - a pleasure resort, a little bit of heaven on earth. And they all brought a flourish of their own cultural styles with them. Most of the art discovered here has been taken to museums. But what survives tells the story of a cosmopolitan playground. There are curious, abstract representations of a Nabatean goddess. Carved heads from the wine soaked Hellenistic cult of Dionysus. Recent excavations have brought to light ritzy villas carved into the living rock. Inside them, 'here's to happiness' murals from that same Dionysian cult, cherubs, vine leaves, the inevitable bunches of grapes. And from the later years of Petra's life, Byzantine mosaics found beneath the sand and rubble of a ruined church. Petra had its day. Or rather, its centuries. And then it ended, not because of conquest, but because new trade routes simply made Petra commercially irrelevant. And without that commercial lifeblood, there was no longer any reason to struggle against the desert. The people left, the systems for capturing water fell into disrepair and the desert reclaimed the city.

412. Welcome to the smart city of the future

How will artificial intelligence change the cities we live in? Made with the help of Theo Tryfonas from Bristol University.

Made by Data Animation TV, 4 October 2019

Made in association with BBC Blue Room

NARRATOR: Welcome to the city of the future. A smart city that knows everything about you. From how you like your coffee, to whether you've broken the law. Or even if you've grown a beard. Sound far-fetched? While the smart city we're about to tour doesn't exist yet, all of the parts do. They're all components of real projects happening all over the world. Put them together and this is what life may well be like in the not-too-distant future. You go to work, your office building knows exactly who's coming and going and what they need, thanks to thousands of inbuilt sensors collecting data. The energy efficient building is designed for your comfort, reacting to changes in the weather and the number of people in the building and adjusting its climate accordingly. Wherever you sit, the lighting will adjust to suit your

preferences. The building will even recall your regular coffee order and there's no chance of it getting your name wrong. On your way home, you pass lamp posts laden with sensors and HD cameras that monitor and record the world around them 24/7. Air quality and traffic flow data tell you the quickest and cleanest route and alert emergency services to accidents. You arrive home, to a nutritious meal made from locally grown avocados using hydroponics, so no need for soil. Sensors allow urban farmers to make constant adjustments to temperature, light and water and monitor the plant's responses, so it's easier and cheaper to grow fresh food in cities. The level of control smart technology gives can also be used to make food tastier. In Singapore, they've already found a way to make kale sweeter and softer, so even the fussiest of eaters will enjoy their greens. Your health is flourishing, thanks to your perfectly balanced diet but you also regularly update your doctors using data sent directly from your smartwatch. They analyse it and prescribe personalised drugs and supplements that are quickly 3D printed just for you. Your baby stirs and you're alerted by its smart blanket. Reassured that all is well, child mortality rates are at an all-time low, you go to bed but the sensors in the street never sleep. They're busy policing antisocial behaviour, identifying people smoking in unauthorised zones or throwing rubbish from high-rise buildings - crime rates are negligible. While much of this might sound pretty idyllic, it is not without issues. Smart cities go hand-in-hand with gathering and storing huge amounts of personal data and using it to control city life. For governments keen to control certain populations, this is an incredibly powerful tool. Every moment of your daily routine can be tracked, anyone with access to this data can find out where you live, where you go every day, the places you visit at night and who you're with. This data can be used by people with far more nefarious aims than making you the perfect soya latte. You could leave your phone at home, with an advanced facial recognition CCTV in the mix, authorities can easily keep tabs on you. In places like Xinjiang in China, where growing a beard can already get you reported, this is a frightening prospect. So are the benefits of a smart city worth giving up privacy and freedom for? Can governments and corporations be trusted with such huge datasets on all of us? What happens if there's a mistake in the system or you want to overthrow the system itself? Whether you think smart technology means we're sleepwalking into a dystopian future or enabling us to live a vastly more convenient and sustainable lifestyle, it's coming soon to a city near you.

413. What Greek tragedies can tell us about life today

What can Greek tragedies tell us about life today? Quite a bit, says Man Booker Prize-winning writer Marlon James.

Published on 15 April 2019

Filmed at The Man Booker 50 Festival at Southbank

MARLON JAMES: One of things that I am attracted to with the ancient myths is that most of them weren't even written, but when they were written to be read aloud, most people were illiterate. But there is a power in this sort of oratory, there's a power in the oral quality of words that we have sometimes lost and that I,

in going back to these stories, try to recapture. Before I write every book. I reread Greek tragedy and I read lots of Roman poetry. I think the Greeks were real about human frailties in ways in which we still can't admit to ourselves. The characters in Greek tragedy do these horrendous things. And yet we still have to look at them as . . . as people and we still have to regard them and complexity. We can't dismiss them. In Greek tragedy not only have I killed your children, I've fed you them for dinner. And I'm still supposed to regard you with a sort of three dimensionality. The Greek tragedians demanded of themselves and of their audience that you have to recognise the humanity in even the most evil people, that you have to find the human behind the monster. I think even though we're surrounded by evil all the time and we're surrounded by people doing monstrous things, we really don't know how to process it. And I think the Greek tragedians understood that in ways in which we're still trying to figure out. We still go, 'They must be insane for doing these horrible things'. Perfectly rational people do horrible things all the time. This is why we ended up with concentration camps. This is why we end up with the Killing Fields. I find myself going back to these sort of seminal texts where they got all of that, the essence of human nature, the beauty of it, the pain of it and the horror of it. They got it absolutely right the first time. So, of course, when I want to write about it, even today, I have to go back to the past to figure out how to talk about now. Why are we interested in gods and monsters and flying creatures and demons and witches? I think because we are always looking for ways to explain the inexplicable. We are often in this very sort of modern world faced with situations that are inexplicable. There are times when reality is crazier than the wildest fiction. So I think that we end up going back to the fantastical as a way of explaining what is going on with so-called reality. Sometimes it's the only way we can deal with it.

414. What Stephen Hawking thought about his Simpsons cameo

The theoretical physicist explains why he agreed to appear in the iconic television show.

Originally on The Culture Show, BBC Two, 14 October 2006

Made by BBC Two

NARRATOR: Anyone who's anyone from the world of politics and showbusiness has been in it and they're not afraid to aim high.

SIMPSONS: Stephen Hawking! The world's smartest man.

What are you doing here?

STEPHEN HAWKING: My daughter, Lucy. Knew one of the scriptwriters from The Simpsons. He said he would like to write an episode involving me. I accepted immediately, because it would be fun. And because the Simpsons is the best thing on on American television . . .

SIMPSONS: I'm sure with Dr Hawking means Israel . . .

SIMPSONS HAWKING CHARACTER: Silence. I don't need anyone to talk for me.

SH: The episode was very funny and almost as many people know me through The Simpsons as through my science.

415. What Wimbledon has done for fashion

From Centre Court to catwalk - how Wimbledon has shaped fashion through the years.

Made by Worldmark Films, 6 July 2018

NARRATOR: Wimbledon and fashion two things that have nothing whatsoever to do with each other, right? Well, you may not realise this, but from its earliest days, tennis has had a huge influence on the way you dress today. Quelle surprise that it was French couture leading the way when tennis's first superstar Suzanne Lenglen were an outfit that flew in the face of conservative sensibilities of the day: a knee length pleated skirt, a sleeveless top and an orange bandeau, if you will. Women were expected to play in full length skirts and corsets, even showing a little ankle was strictly taboo, meaning Lenglen's outfit caused many a dropped monocle. Inspired by her bold style designer, Ted Tinling began creating outfits that got him into hot water with the tennis establishment. The most infamous being his design for gorgeous Gussie Moran. Wearing the shortest hemline ever seen on centre court, Gussie drew gasps from the crowd, quickly turning to outrage when her skirt revealed glimpses of the most unmentionable of unmentionables: frilly laced knickers, Gussie'ss gusset made headlines and Tinling was promptly banned from the championships. The men still played in traditional sweaters, dress shirts and long trousers. That changed when a crocodile entered the stage. Inspired by polo players, French player Rene Lacoste began sporting light short sleeved shirts, sporting a nifty business opportunity. When the Lacoste retired, he began manufacturing them. Branded with a crocodile, inspired by his nickname, which confusingly was originally The Alligator, but to mistranslation, he became known as the crocodile and the name stuck. When he began producing his shirts in different colours, they became one of the first items of sportswear to become popular as everyday wear. By the 60s, the clothing had changed, but their footwear hadn't evolved. Players were more athletic. And German brand Adidas came up with a cutting edge, all leather shoe that was light, durable and had incredible grip. Then Adidas signed up world number one Stan Smith, and when he won Wimbledon in them, they became a hot property, igniting a long love affair with the public that made the Stan Smith a style icon and one of the first sports shoes to become popular street fashion. In the late 70s, two superstars emerged who led tennis to dominate popular fashion. Bjorn Borg and John McEnroe. They oosed style, and after their epic Wimbledon clash in 1980, the clothes they wore became must have streetwear. Football fans fell in love with them, too. Although football was their game, it was tennis that inspired the look of new tribes, of casuals and Perry boys, whose track tops polo shirts and trainers gave them status

and street cred on the terraces. Andre Agassi in the 90s brought a whole new look to the sport, more heavy metal guitarist than tennis player. He stayed well clear of Wimbledon. But when he eventually relented, it led to weeks of press speculation over what he would wear. He surprised everyone by wearing the whitest of whites, won the hearts of Wimbledon and a year later won Wimbledon itself. In the new millennium, players began creating their own signature ranges and stars like the Williams sisters led the way with styles that were equally at home on catwalks. Fast forward to today and a century on, culture has come home with players wearing retro classic designs that would make Suzanne Lenglen proud. And with high end fashion re-embracing the sport, tennis players are as likely to be seen in the style magazines as supermodels. But one thing you can be sure of is that the relationship between tennis and fashion never stand still. And every summer, fashionistas look to tennis and SW19 for their latest inspiration. So if you're ever wondering about what you should be wearing, Wimbledon may just have the answer.

416. What a bruised boxer tells us about ancient art

Mary Beard argues that a 2,000 year-old sculpture of a brutalised boxer represents an attack on the body culture of the ancient Greeks.

Published on 6 March 2018

Made by BBC Two

MARY BEARD: In under 200 years, Greek sculptors seemed to have developed the tricks and techniques to weave the illusion of a living human body. So radical was the change that it has been called the Greek revolution. The exact cause of this revolution is one of the great mysteries of the history of art. Some believe it was Greek democracy and its new respect for the individual that launched it. Others, the Greek artists just got better. In truth, we don't know. But whatever the causes over the next centuries, it was to have some truly astonishing artistic consequences. This is one of the places that the Greek revolution leads. It's impossible not to see this as an amazing work of art. Dating it is hard, but my guess is that it was cast around 100 B.C. Here, the hallmarks of the Greek revolution are brought together and trained on the body of a battered and bruised boxer. Boxing was always an important part of the ancient athletic repertoire. And you can tell that he once had a fit body, but it's really suffered. What's equally striking is the loving care with which this wreck of a human being has been depicted. It's got broken nose and cauliflower ears, flabby from where he's taken all those blows. And in fact, he's still bleeding from fresh wounds. There, the bloody shoaling copper, and the bruises on his cheeks are brought out by the slightly different colour of a slightly different bronze alloy. It's almost as if the bronze has become the man's skin. What makes the boxer so impressive isn't just the extraordinary technique. It's the point the piece is making. The artist who used the descriptive powers of this version of realism to launch a devastating attack on the body culture that obsessed the ancient Greeks. He introduces a very different type of character from those early, youthful, well-toned athletes, not just in the wounds and the scars, but in the emotional collapse in a

world in which there was something of a cult of youthful athletic prowess. All those telling realistic details add up to a reminder that the body, beautiful, was not so very far from the body brutalised. This work of art is pointing at the awkward underbelly of Greek culture.

417. What adults forget about childhood

It's sometimes hard to remember what it was like to be a child. Here's a helpful reminder.

Made by Quintessence Films, 26 October 2018

DAN: Adults forget that children are not adults and they just want to have fun.

VOICEOVER: What adults forget about childhood, scene 112, take two.

PHOEBE: Adults forget that children can be independent.

D: Adults forget that children are entitled to their own opinions.

FRANKIE: Adults forget that children have feelings.

D: Adults forget that children can be silly and happy.

P: Adults forget that children can make their own choices.

D: Adults forget that children have a voice.

F: Adults forget that children like adventures.

D: If I had a magic wand, I'd make adults behave like children. I devised a lesson to help adults rediscover the child inside them. (*to classroom full of adults*) Hello.

ADULTS IN UNISON: Hello.

D: Today I am doing a lesson on how to pick the right kinds of sweets. So first you need to know the types of sweets. I have some samples here if you would like to pick one and then pass it on. You need to choose your sweet like it's your soul animal.

FEMALE ADULT: I want a mint, but I don't know if that's wrong.

D: You can have a mint.

FA: Thank you, I will do then.

D: You can't trust what the sweet looks like. Let's say you pick this sweet because you liked the look of wrapping. Well, you need to actually know the quality of the sweet. And also you need to smell the sweet. If it smells like really strong, then it's had too much flavouring and it's bad. Any questions?

FEMALE ADULT 2: And is this how all children buy sweets?

D: Yeah, most people do that. Okay. Unleash the power of the sweet. Pick your sweet like your life depends on it. So be happy and be a child again. Let's go. It's break time and I've taught the adults how to play tag. There is a child in every adult, a little one per cent. Find your inner child and you'll be a better adult.

418. What can therapy teach us about national crises?

Author Jared Diamond explains why he believes that nations have much to learn from how we deal with mental health crises.

Published on 10 May 2019

JARED DIAMOND I'm Jared Diamond. I'm professor of geography at the University of California, Los Angeles. I got my PHD in gallbladder physiology with the birth of my twin sons in 1987 made me realise that the future of my boys was not going to depend upon gallbladders but on history and geography.

CAPTION Jared Diamond has published over six books and 600 articles He is 81, has learned 13 languages and was awarded the Pulitzer Prize. His latest book, Upheaval, looks at how nations cope with crisis.

JD: I'm looking at national political crises from a new perspective and that's the perspective of the personal crises that all of us have to deal with as individuals. We all undergo crises from, for example, the break-up of relationships, of marriages, of other relationships, or from the deaths of loved ones, or from setbacks to our health, or our career, or our finances. Naturally I'm interested in personal crises because I've experienced my own share of them but also because my wife Marie, is a clinical psychologist with a specialty in crisis therapy. Crisis therapists have to figure out fast how to help their clients because of the risk that the client may try to take their own life. Each week, Marie would come home from her office and tell me about the discussions that she had with a fellow therapist about what makes it likely that this person will or will not deal successfully with their crisis. It began to dawn on me that similar factors, in some cases, virtually the same factor also apply to the outcomes of national crises even though national crises obviously pose unique problems that don't arise with personal crises. For example, a first step in a personal crisis is to acknowledge that you're in a crisis. If you don't acknowledge you get nowhere. Another first step is to accept responsibility, that you can do something about the crisis to avoid falling into the trap of being a victim and pitying yourself and just blaming others because again, if so, you will get nowhere towards resolving the crisis. It's important at the outsets to do what's called 'building a fence' namely to recognise that it's not that everything in your life has gone wrong but there are some things within the fence that need changing and the rest of you outside your life, is OK. We all experience that it's important in a crisis to get help from others - something that's called ego-strength. Having confidence in yourself makes a difference. Honest self-appraisal is essential. So all of those are examples of the

factors that make it more or less likely that a person will deal with a personal crisis but as Marie talked about these things I realised that similar things apply to national crises. Countries do or do not get help from other countries. Countries do or do not acknowledge their responsibility. They do or do not acknowledge that they are in a crisis. But there are differences - that countries have leaders and we as individuals, don't have leaders. The United States' geography gives us a lot of freedom of choice. We have a strong national identity -we have a history of flexibility - that might make one optimistic. Reasons why one might be pessimistic about our future are that so many Americans don't recognise that we're spiralling into a crisis. There's a conspicuous lack of honest self-appraisal in the United States today and the United States is reluctant to learn from other models. We have this neighbour Canada, and Western European countries that have dealt successfully with the same problems that we are facing - problems of health and education and immigration but because of our belief in American exceptionalism, the belief that the United States is like no other country and can't learn from any other country, we refuse to look to these models of countries that have dealt successfully with our problems. To continue with a cheerful note - there are the problems that the world is facing not just the US and the UK. Among the big problems that the world faces today are the risk of a nuclear holocaust, the fact of climate change, the fact of unsustainable resource management that can go on for only so long, and inequality around the world. The fact that consumption rates in the US and the UK, and first world countries, are on the average 32 times consumption rates in developing countries like Kenya. All of those things might make one pessimistic about the future of the world. But again, thinking of Marie's outcome predictors there are grounds for optimism. The fact is that the world has dealt successfully in recent decades with really difficult problems. We've had world agreements that have eliminated smallpox. We've had the world Montreal Protocol to protect the ozone layer. There was the MARPOL Agreement to make oil tankers on the high seas safer. So the world really does have a track record of solving difficult problems. Frankly, I regard the world today as engaged in a horse race. A race between the horse of destruction and the horse of hope. But this is not the normal horse race where the two horses run at constant speed for the whole course - instead this is an exponentially accelerating horse race where the horse of destruction is racing faster and faster but where the horse of hope is also racing faster and faster and within a few decades we're going to see which horse wins the race. So, in short, we are in a world crisis, we are in national crises. There are many countries that have successfully overcome crises just as we people usually overcome our individual crises. We know what works. What is essential now is for the world to learn from its previous experience of crises and do the things that it takes to get out of a crisis. I hope that we do it.

419. What can we learn from the Spartans?

The Spartans of Ancient Greece are known for their bravery, discipline and witty one-liners. But do we need a more nuanced view?

Published on 11 December 2019

EMMA ASTON, UNIVERSITY OF READING: What do we mean when we say Spartan? As an adjective, Spartan means austere, tough, without luxury. This comes straight from the ancient stereotype of the Spartans, the inhabitants of Sparta in southern Greece. The Spartans were the ultimate warriors, raised from childhood to endure terrible suffering and hardship. The Spartan character is summed up perfectly by the ancient accounts of the Battle of Thermopylae. In 480 B.C., the Persians invaded Greece and the Spartan King Leonidas, with 300 Spartans, held the pass against them and died in the attempt. They didn't succeed in stopping the Persian advance, merely slowing it down, buying precious time for their fellow Greeks and giving their lives in the process. The battle exemplifies so much of what we admire about the Spartans. Their loyalty to a cause bigger than themselves. Their devotion to liberty and the preservation of their homeland. In the course of their fighting they managed a kind of grim humour, which is familiar to us today from all sorts of action heroes whose pithy one liners are uttered at the moment of ultimate peril. For example, when the Persians demanded that the Spartans lay down their arms, Leonidas famously replied... COME AND GET THEM Likewise, when a hail of lethal Persian arrows blocked the sun, Leonidas quipped to his companions... THIS IS EXCELLENT! WE WILL FIGHT IN THE SHADE. We can also admire the Spartans' association with great physical fitness and toughness and endurance. In the present day they have given their name to a particularly extreme kind of obstacle race, which challenges people to achieve their own athletic and physical best in the face of enormous hardship. What is more, Spartan women were just as tough and as strong as the men. We're told by the ancient sources that they exercised, they received an education, and they were able to own property in their own right. All things denied to the women of other parts of Greece. However, I think there are some ways in which we need to hesitate before accepting the Spartans as the perfect icon of our modern values today. First, they can become figureheads of the xenophobe. The Battle of Thermopylae can start to stand for holding out against the encroachment of an alien invader. The most pernicious example of the Spartans usage of this kind is in 1930s Germany, when they came to stand for the ancestry of the Aryan master race and essentially legitimated anti-Semitism and other extreme forms of xenophobia. Another question is whether we today really want to claim the Spartan paradigm of masculinity. Emotion was anathema. The individual was nothing. The state was everything. As we realise more and more the need to encourage people to express rather than deny their emotions and to show the distress they might be feeling, maybe the Spartan ideal of masculinity is not the one we actually want to claim for the present day. It's no coincidence that the Spartans inspired the British public school system of the 19th and early 20th Centuries. A system in which ideals of discipline, endurance and austerity were paramount. Even the toughness of Spartan women is suspect. The ancient sources tell us that they trained their bodies to produce strong sons, so even the athleticism for which they were famous serves ultimately the Spartan war machine. And the grim joy with which they saw their sons go to their deaths in battle is unpalatable today. Spartan women are said, by the author Plutarch, to have told their menfolk going off to war... COME BACK WITH YOUR SHIELD OR ON YOUR SHIELD. On one's shield of course meant dead. Evoking

Sparta is often a way of trying to recover values which are thought to be lost or receding. Old fashioned values of resilience and self-denial, which some in modern society feel that we have squandered. In fact, however, historians of ancient Sparta have long challenged the historical truthfulness of the ancient stereotype of the Spartans. For decades now, they have been trying to put forward an alternative Sparta with a richer, more complex culture. Art, music and a much more complex range of values than have traditionally been attributed to them. There is no sign however of this happening. We are too addicted to the Spartan stereotype, however inaccurate, to give it up in favour of a more complex and nuanced reality.

420. What crows can teach us about getting ahead

From money management to problem solving, us humans could learn a thing or two about success from these "feathered apes".

Made by Big Deal Films, 29 July 2019

BEKI HOOPER *Wild cognition researcher:* They're really clever. They have these amazing cognitive abilities. They're more like feathered apes.

CAPTION: What can crows teach us about getting ahead?

DAVID HUGHES *Bird Keeper:* This is Betty. She's a female raven. She's the biggest of the corvids and corvids in general, a very, very intelligent birds.

CAPTION: Corvid is the name for the crow family of birds, which also includes ravens, rooks and jackdaws.

CAPTION: Lesson 1: Creativity solves problems.

BH: They can creatively problem solve so they can put together sort of sequences of behaviours that they've learnt into a novel way to solve a problem.

DH: You can see, she'll look at things, she'll cock her head, you can actually see her working it out. 'What is it? Can I get . . . can I benefit anything from that?' The hard part is trying to stay one step in front of her.

CAPTION: Lesson 2: Adapt to your circumstances

JAMES DYER *Survivalist*: So, there's a classic military line that says 'improvise, adapt, overcome'. And that's a really positive way of thinking about anything. It's about trial and error and the resilience to keep going.

BH: New Caledonian crows create multi-step tools, which are essentially tools that are strong and thick at one end and then flexible at the other end. And that means that they are able to put these tools easily into crevices and extract food items.

CAPTION: Lesson 3: Get in the habit of saving.

ROB GARDNER *Financial Educator:* Albert Einstein described compound interest as the eighth wonder of the world. Crows really understand compound interest. So when they save that bit of food and bury it in the grass, they know that over time maggots will come in. And from the crows perspective, they'll have even more food. It's found its food, it's saved it, and now it's buried in the ground somewhere where it gets compound interest on its investment.

DH: She's burying food in the summer, you've got flies, flies, lay eggs, maggots, hatch out the eggs when she goes back to the food, not only has she got the rotten food she's cached anyway, but she's doubled it in size by having all the maggots on it as well.

CAPTION: Lesson 4: The best things come to those who wait.

BH: For a long time, it was thought that delayed gratification was something that was unique to humans and non-human great apes and some primates, but it has been found that corvids will delay gratification. So they will deny themselves an immediate reward in order to get a reward of better quality in the future. They form really long term relationships, and those relationships are themselves an example of delayed gratification.

RG: Crows have absolutely nailed delayed gratification. There's this seminal book called *The Marshmallow Test* by Walter Mischel, which studies young children and as they've grown up and their ability to delay gratification, their ability to look at a marshmallow and wait. And if they wait long enough, they'll get two. What that study showed is that those children were able, later on in life, to be better at managing money, better at managing relationships healthier, more likely to exercise, more likely to eat well. So delayed gratification is the key to sort of putting off those short term gains for long term benefits.

421. What did the suffragettes do for you?

A hundred years after some women won the right to vote in the UK, Scarlett Moffatt tells the story of the suffragettes.

Published on 5 February 2018

SCARLETT MOFFATT: Imagine living at a time in which basic rights are denied to half the people you know. Imagine that you have to be born a certain sex to have any say in how the country was run. Imagine being told that you couldn't vote because you weren't clever enough to know what you were voting for. 1832, the Great Reform Act was brought in to change a confusing political system. Intended to make the system fairer, the act explicitly banned women from voting. Women began campaigning for the right to vote in the mid-19th century, and in 1903, the suffragette movement was launched by Emmeline Pankhurst and her daughters, Sylvia and Christabel. The suffragettes used increasingly extreme methods to promote their cause. Throwing stones, smashing windows and burning down

unoccupied buildings. Many were imprisoned and went on hunger strike. In June 1913, Emily Wilding Davison died when she protested by walking onto the track at the Epsom races and was hit by King George V's horse. Many believe her death marked a turning point in the campaign, bringing it to the widest public audience. Although no one knows whether Davison had planned the tragic act. That August, Emmeline Pankhurst suspended campaign activity. She committed the movement to supporting the war effort. And in return, the government released imprisoned suffragettes. The suffragettes focus on war work boosted their profile and led to some women being granted the vote in 1918. At first, the Representation of the People Act meant that a limited number of women over the age of 30 could vote. Had they been given the same voting rights as men, they would have been in the majority because so many men died during World War I. Approximately 8.4 million women were newly enfranchised. But about 22 per cent over 30 still couldn't vote at all. Finally, the 1928 Act extended the vote to all women aged 21 and older. At last, women had the same rights that men had been permitted 10 years earlier. Today in the UK, all women aged 18 and over that are allowed to vote. However, women continue to protest for their rights, just as the suffragettes did. From the hashtag #TimesUp movement, which saw actresses and activists come together at the Golden Globes to protest systemic sexual harassment, to hashtag #powertothepolls, a movement that brings women together to support female political candidates. The influence of the suffragettes is evident everywhere, and their legacy inspires us to fight sexism and push for progress.

422. What do lucky people do differently?

Why is it that some people seem to have all the luck? And can we improve our fortunes? Tui McLean explores the ins and outs of being lucky.

Published on 14 August 2019

TUI MCLEAN: Ever wondered why some people seem to have all the luck? We've been trying to improve our luck for centuries? Lucky Charms, amulets and talismans have figured in virtually every recorded civilisation. Early Europeans believed iron had magical qualities. So hanging horseshoes in your house is meant to ward off spirits. Touching or knocking on wood is said to date back to Celtic rituals that were designed to rouse the tree gods and call on their protection. Throughout history, people have recognised that good and bad luck can transform lives. A few seconds of bad luck can overturn years of hard work and moments of good luck can save years of striving. Superstition represents people's attempts to improve and control their luck. British psychologist and author Richard Wiseman undertook a 10 year study on the science of luck. In one experiment he asked people to look through a newspaper and count the number of photographs inside. On average, it took the people who thought of themselves as unlucky around two minutes. People who thought of themselves as lucky, on the other hand, took a few seconds. Why? Because on the second page there was a message that said in a massive font, 'Stop counting. There

are 43 photographs in this newspaper.' The lucky people, it seems, were more open to possibilities other than the ones they were searching for.

RICHARD WISEMAN: There are four main psychological principles that separate lucky people from unlucky ones. So, first of all, lucky people are more open to opportunities, spotting them and making the most of them. Second, they tend to be optimists. And that becomes a self-fulfilling prophecy, they're pushing forward, they're expecting the best. Also, differences in terms of intuition. Lucky people tend to have lucky hunches and trust their intuition. And finally, they're more resilient: when bad things happen, they're good at turning that bad luck into good fortune. So big differences in the way they think, the way they behave.

TM: But whilst it's true that if you train hard, you are more likely to win a sporting event, or the harder you swot for an exam, the more you increase your chances of the best grade you're capable of. Here's the kicker: no amount of positivity, work or preparation will reduce the chance of, say, being kept awake by noisy neighbours the night before an exam, or slipping on a wet patch as you run during a race.

RW: It would be wrong to think that all of someone's good or bad luck is entirely due to the way they're thinking and behaving. When it comes to people who aren't quite so successful or happy in life, we shouldn't think it's all their fault. It could be down to where they're born or th society they're born into or chance accidents or illnesses. And you need to take all of those factors into account.

TM: In 2012, at a campaign rally, Barack Obama caused controversy when he said, 'If you're successful, you didn't get that on your own. If you're successful, somebody along the line gave you some help.' And he raises a key factor when considering the role of luck. There's a whole bunch of hardworking, positive thinking people out there who aren't successful and certainly aren't lucky. Obama's statement sparked debates with several online publications railing against him and public figures like Republican rival Mitt Romney openly rebuffing him. For many, Obama's comments were seen as an insult to the American work ethic and the idea that success was achieved through merit. But as the economist Robert H. Frank argues, talent and drive will get you so far. But luck and life chances will also play a huge role.

ROBERT H FRANK: What if you ask the question, where do your talents come from? Where does your propensity to work hard come from? But if you're a hard working person who has a lot of talent, you got those traits from the environment you grew up in and from the genes you inherited. You're not in any strict sense, in a position to claim moral credit for them. And so we're . . . we're comfortable enough saying that you are lucky to have those traits. But what about the person who works hard? Is that person not entitled to congratulate herself for the effort she put forward? What we know is that putting forth effort in trying circumstances is difficult. It requires often a Herculean will to go forward in the face of one setback after another. If you're the kind of person who's been taught that your temperament alone determines whether you'll be persistent and your temperament is just a matter of luck, I think you're more likely to sit back and wait and see what happens. If instead you view yourself as the captain of your own fate and think, 'it's up to me to make it happen', you're much more likely to persist against a series of setbacks.

TM: So it's like Richard Wiseman said earlier, lucky and unlucky people are often determined by the way they think. Which suggests that there is hope for change.

RW: I think that anyone has the capability and the potential to make themselves luckier. It's realising that lots of that good fortune is due to the way you're thinking, the way you're behaving. Understand the mindset of the lucky person and you can bring more good fortune into your life.

423. What do neutral dress codes really mean?

Neutral clothing policies at work can split opinion. What's really going on here? Journalist and academic Myriam Francois shares her view.

Published on 30 March 2017

MYRIAM FRANCOIS: Imposing neutral clothing is just discrimination in disguise. If I come to work wearing a headscarf or a face veil or a cross or a hoodie, or dress head to toe in tweed and a flat cap, what am I saying? Our clothing speaks to our background, our class and our ideals. And I'd argue that all of those are political. A recent European Court of Justice ruling upheld that workplaces with a so-called neutrality policy were within their right to ban items they thought weren't neutral, such as a cross or a headscarf. For some, enforcing political and religious neutrality is key to a harmonious working environment. But for others, it's just discrimination dressed up in fancy language. So what is neutral? Neutrality is what is normal for the majority of people. In white, secular Europe, neutrality reflects the norms of white secular people. If we think of religiosity as a spectrum from areligious to religious, no single position on that spectrum is any more neutral than any other. Dressing in a way that's areligious is just as political or just as neutral as dressing with religious markers. Either way, you're saying something with your appearance. That's the very basis of advertising. Are slogan T-shirts, which are all the rage, a political statement? What about dreadlocks or wearing a red or blue tie? What about wearing your afro hair natural or choosing rainbow coloured accessories? Neutrality is a myth. It crystallises a vision of what's normal and is used to erase the differences that bother us. Banning the headscarf at work, which, let's face it, is what most conversations about neutrality in Europe are all about, cannot be separated from broader discussions about Muslims as a problem community. Neutrality is being used to marginalise identities that don't fit the myth of secular progress. And that's just discrimination disguise.

424. What do our eyes say about us?

Our eyeballs have evolved from a tiny, light-sensitive patch to the complex organs we have today. But what can they tell us about ourselves?

Made by BBC Scotland, 9 April 2020

NARRATOR: Throughout human evolution, eyes have been vital to our survival. They've evolved to be round so that they can swivel to spot delicious prey and easily roll when your cousin talks about his new car for the third time. But to get to that point, our peepers have come a long way. They most likely developed from a tiny light-sensitive patch on single-celled organisms that would help them move towards light in the hope of finding food. As the creatures evolved, this patch started to curve inward to better focus light. And now, a whole bunch of evolution later, what we've arrived at are two twinkling spheres that are capable of seeing about a million colours. Not bad, eh? We might actually be on to something with that 'window to the soul' stuff too, as our eyes can portray more about our emotions than you might think. Your pupils dilate when you're scared, nervous or excited. That could be why they enlarge when we make eye contact with someone we, like, like-like. Research has also shown that even making eye contact with a portrait painting sets off a whole raft of brain activity. Our eyes are also responsible for another universal emotional reaction - a good old weep. But we actually have three types of tears, each with their own chemical makeup. Basal, which lubricate the eye. Reflex tears, caused by irritants like dust or chopped onions. And psychic, or emotional tears, the kind that appear when you find out about Bambi's mum for the first time. When it comes to our pupils, it's not just the size of them that varies - the shape of an animal's pupils can tell us if it's predator or prey. Some have horizontal pupils, making them more adept at scanning for predators while munching on grass... found on your local goats, sheep, and moose. Vertical pupils like those found on foxes, cats and crocodiles are better for ambushing and hunting at night, and have become synonymous with animals that you just do not want to mess with. Our round pupils are kind of a best of both worlds and help us in active foraging and chasing down prey. Which, you know, we totally do, all the time. There are quite a few animals who do a better job of seeing than we do. The elephant hawk-moth, which sounds like that band your dad might have been in, was the first animal proven to be able to see colour in the dead of night. Their large, sensitive eyes allow the maximum available light to pass through. However, this does impact their ability to detect fast-moving objects like a rolled-up newspaper. Human eyes might not be perfect. Parts of them are even useless, like that little pink bit in the inner corners. That's the remains of a third eyelid like the ones cats, dogs and camels have. Our eyes aren't just physically interesting, but culturally too. Much loved by conspiracy theorists the world over, The Eye of Horus may symbolise the Illuminati to some, but its origins lie in Egypt where the eye is a symbol representing sacrifice, healing and protection. In Turkey, some believe that a sideways glance can cause genuine pain. And thinking back to high school, they're not wrong. Glass pendants, also eye-shaped, are worn to protect against this evil eye. So whether round, monolid, hooded, downturned, upturned or almond, words you're probably familiar with if you spend as much time watching makeup tutorials as me, your eyes are unique to you. The two are even unique to each other. But one thing does unite us all... we can't for the life of us keep them open when we sneeze.

425. What do your table manners say about you?

Elbows on the table? How to navigate the world of eating etiquette.

Made by Preston Street Films, 8 July 2019

CAPTION: 'The world was my oyster, but I used the wrong fork' – Oscar Wilde.

NARRATOR: Where do table manners come from? And what do they say about us?

BLUE SHIRT ASIAN MAN: I always see it as there's no point presenting yourself well with what you wear if you can't have proper table manners. It's kind of like wearing a suit, but not having good hygiene.

N: What are your biggest gripes?

GINGHAM SHIRT BLONDE WOMAN: I really hate it when people blow their nose at the table.

GREY JUMPER SPANISH WOMAN: Licking the knife.

PURPLE T-SHIRT TURKISH MAN: Don't eat too quickly. I don't have big bites.

PINK CARDIGAN WHITE WOMAN: Elbows on the table.

WHITE SHIRT WHITE WOMAN: The elbow on the table.

DARK SHIRT ORIENTAL WOMAN: Elbows

BLACK SHIRT BLACK WOMAN: Elbows

GINGHAM SHIRT BLONDE WOMAN: Elbows

BLACK T-SHIRT WHITE MAN: Elbows

PURPLE T-SHIRT TURKISH MAN: Elbows on the table.

PINK CARDIGAN WHITE WOMAN: Maybe they made a mess. Maybe they were putting dirty elbows on a clean table?

N: In medieval times, when tables were simply boards balanced over trestles, it avoided tipping the long table and gave room to your neighbour. In times when the tablecloth was the napkin. It was best to keep your elbows raised.

BLACK SHIRT BLACK WOMAN: It makes me feel more powerful in the conversation. If I have my elbows on the table.

NR: The importance of manners rocketed during the Renaissance as a way of implying civility, sophistication and status. Even the simplest of foods developed complicated rules.

PURPLE T-SHIRT TURKISH MAN: Do it like this. I don't know how to describe that.

PINK CARDIGAN WHITE WOMAN: I believe the correct way to use a soup spoon is to hold it in your right hand and to take the soup away from you and then to sip from the soup spoon.

GREY JUMPER SPANISH WOMAN: And we never blow the food because if you do eat, everything can be a sprayed everywhere.

BLACK SHIRT BLACK WOMAN: I just don't eat soup. I just don't.

WHITE SHIRT WHITE WOMAN: I tend to dislike when people make noise while eating.

DARK SHIRT ORIENTAL WOMAN: You're allowed to make noise, especially when you eat ramen.

WHITE SHIRT WHITE WOMAN: Especially when it comes to soups.

RED TURBAN BLACK MAN: It's not nice.

DARK SHIRT ORIENTAL WOMAN: It looks tastier somehow.

N: Around the world, we use all sorts of different tools, including our hands to eat. In France, in 1699, pointed knives were banned at the table, because there was a very real risk of stabbings. That's where we get the fork and blunt knives we tend to use today. In parts of Asia all this was avoided by the use of chopsticks, which in China have been used for over 3000 years. Using chopsticks keeps you fit, involving over 30 joints and 50 muscles. But they come with their own social rules.

BLUE SHIRT ASIAN MAN: You're not allowed to stab your chopsticks vertically because this kind of like replicates when you're at a funeral trying to pay respect for someone. They normally like, put incense into soil and stuff. So that's like the . . . the whole idea of it.

GINGHAM SHIRT BLONDE WOMAN: This is a fish knife. I've never used one of these.

PINK CARDIGAN WHITE WOMAN: We rarely, rarely see these these days, mainly because the fish we get now is filleted, where we used to get it on the bone. And I think the use of the fish knife was to clear the fish from the bones.

RED TURBAN BLACK MAN: Knife and fork is wonderful. But it's as if you're feeding someone else, you're not in touch with your food.

BLACK T-SHIRT WHITE MAN: Even aristocrats eat chicken with their hands. So do the same thing. And finish the bone.

RED TURBAN BLACK MAN: I believe the food is better because you get to lick your fingers, don't you? If it's not nice, you wouldn't like your finger, would you?

N: The rules are endless.

RED TURBAN BLACK MAN: Food time is enjoyment time. If you're going to enjoy you don't hurt somebody. If you're going to enjoy and you don't disrespect somebody, then why are you putting rules.

BLACK SHIRT BLACK WOMAN: It's definitely the way for people in an upper class or in the middle class to feel superior to people that just want to eat with their fork.

PINK CARDIGAN WHITE WOMAN: The basis of manners is respect. Respect for the food, respect for cook. Respect for your fellow guests.

PURPLE T-SHIRT TURKISH MAN: The food is not just for survival. It's not just so that you can carry on. It's . . . it's a social thing. Food really is the glue that sticks friends together and family and relatives. It has to be enjoyed. It has to be fun. It has to be with people.

N: So maybe we should forget the rules and let dinner just be fun. As long as you don't lick your chopsticks. Blow your nose. Cut your salad leaves, speak with your mouth full, (*fades out*)

426. What does freedom mean to a child?

The freedom to breathe, and to dance - that's what matters most to eight-year-old Dylan and 11-year-old Sienna.

Made by Tiger Lily Productions, 24 May 2019

DYLAN: Wehey!

SIENNA: Into the park.

DYLAN: I'm Dylan, I'm eight years old and I love doughnuts. Plus I'm the best.

SIENNA: I'm Sienna, I'm 11 years old, I love pizza and I'm the best!

DYLAN: Liar! DYLAN: Though we're three years apart, we're best friends.

SIENNA: We usually play Minecraft together.

DYLAN: And she has the worst name in Minecraft.

SIENNA: No I don't.

DYLAN: Yes you do, "Space Unicorn". It's just weird.

SIENNA: Your name's "Steve".

DYLAN: I'm trying to change it, how do you change your name? We're trying to make drawings that help people realise and see what's actually going on.

SIENNA: I'm drawing the world when after climate change, what are you doing?

DYLAN: I'm drawing the world before climate change. It relates to freedom because we need to be free and breathe air.

SIENNA: I want people to stop using so much gas and petrol.

DYLAN: Freedom is not just for our own sake, but it's for everybody else. To a tiny ant to a giant elephant we are all equal and we are all the same. You should treat people and anything the way you would like to be treated. Right now I'm drawing some flowers, what are you drawing now?

SIENNA: I'm drawing a penguin on an iceberg.

DYLAN: Alone?

SIENNA: In the middle of the ocean.

DYLAN: Let's just say you were like a little penguin and you were stuck on an iceberg. You would feel really scared, wouldn't you?

SIENNA: I'd be really angry at humans.

DYLAN: That looks really good.

SIENNA: Thank you.

SIENNA: Yours looks very happy.

DYLAN: I see a giant spaceship. Like a saucer.

SIENNA: Well I see a giraffe that's got the head of a plane.

DYLAN: I see a giraffe and I see a chilli and I see a—

SIENNA: You always see chillies!

DYLAN: And I see a chilli and I see a leaf. I like it when people understand why I have my emotions. If I'm going through something really stressful or something really good, they know how I'm feeling. Freedom is you expressing things, not keeping them to yourself. If you express things to people you know and love it helps you feel better. They can help you deal with your situation and then you can just forget about it and think only the happy things. I like to be free when I have my own path, like going swimming without a teacher, and I like doing dancing my own way.

SIENNA: Dancing is freedom.

DYLAN: Freedom, freedom!

427. What does it really mean to act your age?

Adults sometimes tell children to "act your age". But what does that mean? These 10 and 11-year-olds tell us how they see it.

Made by Quintessence Films, 26 October 2018

KENDRA: You're too young for that.

SCARLETT: You need to be more mature.

K: Are you kidding me?

S: Act your age more.

K: That's too old for you.

S: Be more like your sister/brother.

K: That's so babyish.

S: Don't you dare be childish to me.

VOICEOVER: Age – scene 142, take three.

CAPTION: The Age I Act – a poem by Zak.

ZAK: Parents, teachers sometimes say, 'act your age' and even granny in her light up sneakers says, 'Come on now. Act your age.' When you're child it's fun to climb trees but mums and dads ruin the day by saying, 'Come on now, act your age.' When you're 40, it's still fun to climb trees. But kids say, 'What are you doing? *You* should act your age.' When you're eleven, it's fun to race a trolley around the aisles, down the fruit, along the dairy, almost at the finish line when someone says, 'Stop it now, act your age. When you're 11, what does it mean to act 11? No more shooting peas through pasta straws or bumping down the stairs. 'Use your fork, be polite, tidy up, cook and clean, oh, and don't forget to put the recycling out.' – Not the kind of extra responsibilities I had in mind. I would rather walk into town on my own and buy a bubble tea or parachute from a plane in Dubai and fly around up in the sky. But you must be 18 to parachute, so I'm not going to be doing that now. I say there is no age to act your age, as long as you're having fun. Unless there's an age limit, of course, and you're not hurting anyone. I'm 11 and that's the age I act.

K: My dad says it's better to be a child than an adult.

Z: My dad says not to wish your birthdays away.

S: And my mum sometimes says, 'Hey, you're a kid, just have fun.'

ALL THREE: We say spend the rest of your life being an adult, so don't rush into growing up too soon.

428. What does that backwards P-symbol mean?

Pilcrow? That backwards P-symbol? Never heard of it? Well, it's pretty busy keeping our paragraphs in check.

Made by Dayglow Media & Pencil & Pepper, 10 January 2018

CAPTION: In old manuscripts the pilcrow showed where a paragraph began. It is still there when we indent the first line of text. You just can't see it. Pilcrow is form the Greek *paragraphos*, becoming *pelagraphe* in Old French then *pylcrafte* in the Middle English of 1440. Ancient Greek playwrights like Aristophanes divided *paragraphos* with a horizontal line in the left-hand margin, to indicate a change of speaker. In those days, there was little punctuation and no gap between words. By the 2nd century AD, the letter K was used to mark the start of a new idea. K for kaput (Latin for *head*) But by the 12th century it had been replaced by the latter C. C for *capitulum or little head* – the origin of our word *chapter*. In medieval monasteries a rubricator added punctuation to texts. Rubricators were named after the red ink they used when punctuating manuscripts. They began to decorate the *capitula* with vertical lines. By filling in the shape it became the modern pilcrow. In the early days of printing punctuation was still added by hand. The printer would leave a space for the rubricator to add a pilcrow. It soon became impossible to keep up with demand, and the spaces remained blank. This is why we indent paragraphs today. When you type on a computer, the pilcrow is still there, scattered through the text. It's still doing its job, but hidden.

429. What does the Lion Man tell us about humanity?

The story behind the Lion Man - a mysterious 40,000 year-old sculpture - told by Neil MacGregor.

Published on 20 October 2017

NEIL MCGREGOR: August 1939, two men are hurriedly digging at the back of a German cave. Suddenly, they make a heart stopping discovery. Tiny fragments of mammoth ivory worked by prehistoric human hands. But there's no time to investigate. Europe is about to go to war. And both men have been called up to fight. Decades passed before the fragments from the cave can finally be pieced together. And what then emerges is extraordinary. A figure of a being that cannot exist in nature. He stands upright on human legs with human arms at his sides, but his torso shades into a strangely strong, thick neck and then into the head of a lion. This lion man crafted 40,000 years ago, comes from a world that exists only in our imagination. Yet he is here, and his pricked up ears are listening to us and his eyes are watching us. Who or what the lion man was we shall never know. But the answer mattered enough that a small community living on the edge of subsistence, haunted by what lurked outside their cave, mammoths, lions, that somebody spent 400 precious hours carving this figure, carving out a story that was told by generation after generation around their fire, so that the lion man's torso became smooth as he was passed between them. These people possessed something precious. A shared story which showed each person their deep connection to one another, to the dead and the as yet unborn, and gave them a place in this world. And the worlds beyond

that story, whatever it was, ended up buried in fragments. But tens of thousands of years later, here we are, as much in need as they were of a shared story that pieces us all together, assures us the stake that we have in one another's lives, helping us to face together whatever lurks outside the cave.

430. What dying taught me

What's it like to have a near-death experience? And how does that change your perspective on life - and what really matters?

Made by Branded Video Productions, 30 August 2019

EMMANUEL BOTCHWAY: So as soon as I'd gone into arrest, I'm just lying on top of my body. So I could see myself. I could see the nurses and the people around me. And my mum was there.

CHARLOTTE FANTELLI: And I just remember the drug hitting my chest and all I just remember is this beep beep beep beep going beeeeeeep… and looking over my shoulder, and just watching that machine that was going so fast just going in this absolute straight line.

PAUL SCATES: I'm on the floor and it was excruciating agony. Now what I now know is I knocked myself out and it was a deadly silence.

CAPTION: What Dying Taught Me

CHARLOTTE FANTELLI: I'm Charlotte Fantelli. I'm a wife and a mum. I own a production company and on two occasions I watched my own heart being stopped.

PAUL SCATES: I'm Paul Scates, I'm alive and well but I did kill myself and it's from there that I learned to live again.

EMMANUEL BOTCHWAY: Hi, my name's Emmanuel Francis Botchway. I'm 41 years old, I'm from Croydon, Surrey. Sickle cell is a blood disorder that I have. Our cellular structure for blood cells are usually circular, however whenever there's infection or stress the blood cells change from a circular shape into a half-crescent, half-moon or like a sickle shape. My childhood has been the best a young man could have, I was never made to feel different.

CHARLOTTE FANTELLI: Four years ago I was travelling, making films and pursuing the career I loved and one Saturday morning I woke up and very quickly realised I really, really wasn't very well. And the doctor came out, and my resting heartrate was 186. We went through two years of not knowing whether I was going to live or die. In fact I remember there was a two week period where we were more convinced that I was going to die.

PAUL SCATES: From what I get from my parents is that I was a very happy child and it all then just changed the day that the abuse started. So that child was then stolen

and died. I was abused from the age of eight - that's a long time to be in torture. And that's what I couldn't get people to understand. Why would you live in misery?

EMMANUEL BOTCHWAY: I was rushed into hospital after a swimming gala. I actually had what we call a chest crisis where I basically stopped breathing. So as soon as I'd gone into arrest, the first thing that I remember, it is no word of a joke, I'm just lying on top of my body so I could see myself. I could see the nurses and the people around me. And my mum was there. I just remember flying around over my body and following my body from a bird's eye view, going into the lift and then following my body back on the bed going into ICU.

CHARLOTTE FANTELLI: I was rushed into hospital. The doctor came in and said, "We're going to have to take you into resus. I just have to let you know this is going to hurt like hell." And they injected me with this drug, literally down this vein, holding my arm up in the air so it goes straight to my heart... And I just remember the drug hitting my chest and I remember the beep beep beep behind me and my heart was going so fast and all I just remember is this beep beep beep beep going beeeeeeep… and looking over my shoulder and just watching myself flatline and just watching that machine that was going so fast just going in this absolute straight line.

PAUL SCATES: So I remember on the day that I decided, "That's it." I was in this tunnel vision that nobody was in my head apart from, I've got to die. I remember waking up in a hospital bed, I always remember this old boy who was sadly on his way out through cancer and he said, "Don't waste it."

CHARLOTTE FANTELLI: The biggest fear I had was that my little boy was going to grow up without a mum. So this is the letter I wrote when I didn't think I would be coming back. It is so hard to know where to start a letter to impart my wisdom and convey my love. I had hoped for a whole lifetime to do that. Your courage, your kindness and your enthusiasm for life fills me with so much joy. Don't ever change that. Life may be tough at times, but every day is a gift. So if I can teach you anything, jump into life with both feet. I love you bigger than the sky and twice as wide. If you have babies, hug them every chance you get. Watch the nightlight twinkle in their eyes, as I did yours, and never be in too much of a hurry to let those precious days of their childhood pass you by. And know, wherever I am, I have been blessed because I was lucky enough to call you my son.

NORMAN SCATES: It was just devastating, destroying. To try and pull him through it has been horrendous.

PAUL SCATES: Because I've been through all this I want to live now, I don't want to sit in this hole because what have I got to lose? Nothing. My life now is completely different because it's a privilege to sit in people's lives. It's also a privilege to be able to share my wisdom and experience with them and to then see them flourish. If I can just ask that question, "Do you want to die or do you want the pain to stop?" Nine times out of ten, it's "the pain to stop." And I say, "I've been there. I know where you're at. We can do something about this pain."

EMMANUEL BOTCHWAY: Since my near-death experience my level of vanity has dropped tremendously. I used to be all about the huge, bulking muscles, big chest, six packs. The body is only a vehicle for the spirit. You know, I know that I'm here for a purpose and I have to fulfil my purpose. God's not done with me yet.

CHARLOTTE FANTELLI: I had lived my life chasing a feeling of wanting to be good enough. That experience really, really taught me in the eyes of my husband and the eyes of my son, I already was. I was very busy chasing tomorrow whereas now I very much appreciate today.

PAUL SCATES: The man upstairs does not want me to go, I need to learn to live.

EMMANUEL BOTCHWAY: I'll tell you something, I don't fear death. I don't fear death at all.

CHARLOTTE FANTELLI: Because if I can face that and not be afraid, then what the hell else is there to fear?

431. What elephants can teach us about life (and death)

From staying connected to dealing with grief, us humans could learn a thing or two about life from elephants.

Made by Big Deal Films, 29 July 2019

IAN REDMOND *Conservationist:* Elephants are so different from us anatomically that you would think there would be very few parallels. And yet the more we learn about elephant society, the more parallels we see.

CAPTION: Lesson 1: Family really matters.

DR LISA YON *Zoologist*: They seem to have very strong social bonds. Females stay in their family groups their whole lives. And the males will stay in their family group until they become teenagers. And then they'll move out and they'll hang out with other males in what's known as a bachelor herd. The calves get raised by their relatives as well as their mum. So sisters, brothers, aunties, cousins, grandma, all contribute to the raising of the calf, much like we used to.

CAPTION: Lesson 2: Stay in touch (even if you're far away)

EMMA SERLIN *London Speech Workshop*: Elephants are really amazing at staying in touch.

LY: So elephants will communicate with each other using vocalisations, making sounds that are within human hearing range. But we know that they also use something called infrasound, which is a very low frequency sound. And the thing about infrasound is that it travels over very long distances. It can travel many miles. And so we believe that elephants, when they separate from each other in groups

that they will keep in touch with each other using infrasound, and they will use that to coordinate their movements with each other, eventually meeting back up together again.

ES: For us in the Western world and in big cities with so many people, loneliness is a problem. It's a massive social illness.

CAPTION: Lesson 3: Grief is natural, don't hide your emotions.

IR: The behaviour of elephants suggests that they are aware of death and that they do grieve and show emotion when members of their family die. And they also show interest in the remains of elephants that they might not have known, and I quote someone called Kyle Owens, who was working in Burkina Faso in 1986. He witnessed a remarkable scene while watching a herd of eight elephants with a tiny baby. He saw that the baby was ill throughout the morning. The mother tried everything to raise the calf to its feet. He says that at dusk he returned, the baby had died. His tiny body was barely visible as the other elephants had covered him with dirt and grass and leaves. The mother positioned herself over her child and began to rock. Occasionally, other elephants would stroke her back affectionately or intertwine trunks. But she continued to rock as darkness fell.

NAKEISHA MASON: Like elephants, we grieve. It's normal and it's very common and it's something that we're all going to experience in life. Even though you have to go on without this person in your life, you can live through the memories you've had over the years.

CAPTION: Lesson 4: Become a hugger.

LY: Elephants touch each other with their trunks. And this physical contact seems to provide comfort. So an elephant that has appeared distressed, when an elephant, another elephant comes over to it and seems to be comforting it, using its trunk and touching it. The other elephant seems to then relax and seems to show less distress. So similar to hugging.

NM: Comfort, affection, touching, hugging, kissing is quiet a reassurance that, okay, there's some support there. You want people to feel supported. You want them to feel that you know what? They are part of this society, they're part of this world and they've got a purpose here.

432. What exactly is an algorithm?

What is an algorithm? It can feel like a big, abstract, concept. So here's presenter Jon Stroud with a step-by-step guide.

Made by Jist Studios, 20 September 2019

JON STROUD: They're everywhere. Apparently. Algorithms are in the social media apps we use every day, in search engines, even in dating apps. But I'll be honest I've

got absolutely no idea what they actually are or how they work or who makes them. Should we be worried about them? Can they think for themselves? Rather than be baffled by science, I'm going to go find out.

CAPTION: WHAT ON EARTH IS AN ALGORITHM?

JS: Where does every good piece of research start? A search engine. So what is an algorithm? Can I even spell it? Oh, I think so. OK. A process or set of rules to be followed in calculations or other problem solving operations, especially by a computer. Sounds like a riddle. After an hour of searching about the internet it all felt a little overwhelming. So many different definitions without any clarity in what they actually do. During my search I came across professor Victoria Nash from the Oxford Internet Institute. I called to pick her brains. Speaking to Victoria has helped me understand what algorithms are but how can the same thing that helps me bake a cake, also give me the best results from a search engine? No idea. I'm taking a trip to Oxford to visit one of Victoria's colleagues, Dr Bernie Hogan. Bernie, great to see you.

BERNIE HOGAN, Oxford Internet Institute: Jon, nice to see you.

JON STROUD: Where on earth are we?

BERNIE HOGAN: So this is our university's data centre. You know, it's pretty big. It's really noisy.

JON STROUD: Really noisy.

BERNIE HOGAN: There's a lot of computation happening here. Each one of these belong to different departments. They're doing different kinds of calculations.

JON STROUD: So there's thousands of algorithms going on in all these massive boxes like now?

BERNIE HOGAN: Thousands? Try billions.

JON STROUD: Billions?

BERNIE HOGAN: Billions of algorithms.

JON STROUD: Shall we go somewhere a little bit quieter and talk in a little bit more detail and try and get a better understanding of how all of this works?

BERNIE HOGAN: Sure. Let's do it.

JON STROUD: It's weird to think how much of our lives go on in nondescript server rooms all over the world. But what exactly are these billions of algorithms doing?

BERNIE HOGAN: So the reason that we use a list of instructions is because we have a lot of data and we have to deal with that data. Now data could be anything. Data could be a list of towns in the UK and how I get from one town to another, or it could be a number of tweets. Which tweet is going to show up at the top of the list?

JON STROUD: Right.

BERNIE HOGAN: Algorithms calculate based on a bunch of features, the sort of things that will put something at the top of the list and then something at the bottom of the list.

JON STROUD: So if it's that simple, should we be scared of algorithms?

BERNIE HOGAN: Well the trick with algorithms that we perhaps should be a bit concerned about is what happens in the black box.

JON STROUD: So is that like, when you search for something you don't know what their algorithm is doing because we can't see it.

BERNIE HOGAN: Well a classic case of this is people talk about searching for prices for flights, and depending on which day you search on you might get a different flight, where you search from. And so this can mean difference of hundreds of pounds. That's an example where an algorithm is not transparent and perhaps should be.

JON STROUD: Can algorithms think for themselves?

BERNIE HOGAN: Well we wouldn't necessarily think of a computer as thinking, but we know that algorithms can learn. They can learn from other algorithms and algorithms can create their own instructions now. But the basis of it is still the same. Data goes in, goes through instructions, result comes out.

JON STROUD: I'm beginning to get it, but I've still never actually seen an algorithm. I don't even know what they look like. So I'm heading to one of the UK's leading coding schools to see for myself what goes into making one.

JON STROUD: So this is code, right?

ISABEL MACCABEE, Northcoders: Yeah.

JON STROUD: So what's the difference between an algorithm and code?

ISABEL MACCABEE: Coding is algorithms that a computer can run the instructions for you. So we have to do it in a language which the computer can actually understand. So we've written this in Scratch and it's really nice to use, really intuitive, and you can just drag and drop these blocks and we've got these instructions for the drone to follow.

JON STROUD: It's going to do a flip?

ISABEL MACCABEE: It's going to do a flip. I hope it's going to do a flip.

JON STROUD: It's time for a challenge - a drone race. Izzy's algorithm versus me.

ISABEL MACCABEE: So the course is through the hoop, do a flip, come back round, land and again.

JON STROUD: So technically, because yours is programmed by an algorithm, you should be able to do exactly the same thing three times without a problem.

ISABEL MACCABEE: That's the plan. You ready?

JON STROUD: Challenge accepted.

ISABEL MACCABEE: Three, two, one.

JON STROUD: I don't know what I'm doing.

ISABEL MACCABEE: Take off. Yes.

JON STROUD: OK. Right.

ISABEL MACCABEE: So we're going set the speed. Fly up. And then it's going fly left.

JON STROUD: You're already ahead but I think mine's more reliable.

ISABEL MACCABEE: Hopefully it's going go forwards. Go forwards, there we go. Nice.
JON STROUD: No, how did it do that? Yes.

ISABEL MACCABEE: Full turn.

JON STROUD: I'm going to make the time back in speed. Speed.

ISABEL MACCABEE: And then forwards. Jon Stroud: No!

JON STROUD: Go, go, go, go, go, go, go, go, go.

ISABEL MACCABEE: Yes, oh, oh, oh!

JON STROUD: Oh. Woah, woah. Sorry cameraman!

ISABEL MACCABEE: I can just go and make a cup of tea. I'm just going to leave it.

JON STROUD: No! [LAUGHS]

ISABEL MACCABEE: And down. Oh look how calm.

JON STROUD: Have you done your three laps?

ISABEL MACCABEE: I did do the three laps, yeah.

JON STROUD: So you've won?

ISABEL MACCABEE: Yes. So I think some of the big benefits of having algorithms versus humans is that you don't have the human error that, no offence, I think you had. You don't have the human error in the same way. The computer goes through the instructions and that's all they know how to do. The person writing the code could have written an error and that's where problems can arise but the computer doesn't make mistakes it just does what it's supposed to do.

JON STROUD: A computer might only do what it's supposed to do, but what are the ethical considerations around algorithms making so many decisions for us? One of the public concerns is that computers are taking over the world, robots are going to take over the world, algorithms are going to take all of our jobs. Is that going to be the case?

DR ALLISON GARDNER, *Women Leading in AI*: Taking our jobs, it's possible. But also deskilling humans if we become too dependent upon them and too trusting of them, it can deskill us as well. But on the flip side of it, they can be hugely beneficial and useful speeding up decision-making, making whole processes efficient, maybe spotting things that we might not have spotted ourselves. So we mustn't be frightened of them, we just must use them in the correct manner.

JON STROUD: What have we learnt then? Algorithms are actually remarkably simple. Just like Bernie said - data goes in, follows a list of instructions and a result comes out. In some parts of the world, algorithms are now used in the criminal justice system, in social care, in credit checks - they're prolific machines making decisions that directly affect our human lives, not just the adverts that you see on the internet or the people you match on dating apps. The question for society isn't the algorithm, it's who controls the algorithm and where the data comes from that goes into them.

433. What exactly is deja vu?

Deja vu is pretty weird. We've almost all experienced it at some time. But what actually is deja vu?

Animated by Flock London, 31 January 2020

NARRATOR: What can explain that eerie, unsettling feeling we sometimes get that we've experienced a new situation once before? It might just be the weirdest experience you'll ever have sober, but what exactly is deja vu?

CAPTION: WHAT EXACTLY IS DÉJÀ VU?

N: One thing it definitely is - is common. Two thirds of us have had it, with younger people, globetrotters and film fans likely to get it more frequently. Because of its inherent weirdness, deja vu was long thought of alongside paranormal events like clairvoyance and reincarnation.

CAPTION: EMILE BOIRAC FRENCH PHILOSOPHER 1851-1917

N: In fact, it was parapsychologist Émile Boirac who first named the feeling in the 1870s, using the French for 'already seen'. The focus on the uncanny has persisted, and in films like The Matrix, deja vu is a glitch in the computer simulation. So what's actually going on? The truth is, no one is 100% sure, but psychologists have suggested dozens of possibilities combining theories of memory, perception and cognition.

CAPTION: DIVIDED PERCEPTION

N: One is ‘divided perception’. Maybe our brains process a situation in a quick and shallow way before we become fully aware of it, and then we get a jolt of having seen it before. Another is ‘dual processing’. Incoming signals enter the temporal lobe from both hemispheres of the brain, one a millisecond later than the other. And it’s in this moment of delay that deja vu occurs.

CAPTION: DUAL PROCESSING

N: Others speculate that errors around the hippocampus, the ‘brain’s librarian’, are to blame. The problem with studying deja vu is that neurologists can’t very well wait around for it to happen. One solution has been to look at people with temporal lobe damage. Many find that they get chronic deja vu. Another way to study deja vu is to induce it under lab conditions. In 2012, one study used virtual reality to immerse people in different 3D environments, some of which were very similar in layout. For instance, a doctor’s waiting room and an aquarium, with furniture arranged in the same configuration. People were more likely to report deja vu when they encountered environments that had a similar layout to previous, forgotten scenes - suggesting it’s a memory phenomenon. A 2014 study had very different results. Those who took part were shown a series of words with a secret common theme - words like ‘bed’, ‘pillow’, ‘nap’, ‘dream’. The linking word - ‘sleep’ - never appeared. Viewers were asked to keep note of any words beginning with S. Those who took part were later asked if any words began with S, and sure enough they said no. But many also felt that they had been shown the word ‘sleep’. For two thirds of people, this confusion was tantamount to deja vu. Neurologists have used this method to scan the brain during deja vu. They found that rather than being a memory error in the hippocampus, deja vu involved the frontal areas of the brain, responsible for decision-making. This led some to suggest that deja vu is a sign your brain’s memory-checking mechanisms are actually working well. But if you’re looking for something a bit more ‘out there’ to explain deja vu, try ‘quantum entanglement’. Perhaps, through the mysterious affinity of subatomic particles, deja vu might actually be a window into a parallel universe, or else a blip in time.

CAPTION: WORLD OF WEIRD

434. What happens inside us when we sing?

Why are we so often shy to sing? What makes it so powerful - especially when we sing together? Does singing have the power to heal?

Made by Mat Hale, 20 February 2019

CRESSIDA LINDSAY *Music Therapy Tutor, Guildhall School:* Your first communication with the outside world is sound, and that’s why I think it gets all of those hormones going, because it’s the first communication you ever have.. So all emotions, that music can show to people in those first moments.

CAPTION: Healing with the Choir.

LAURA *Mental Health Choir Member*: I often feel that my voice is stuck when I'm having conversations, or I don't know what to say or I'm shy, but with the singing it just cuts through all this. I'm quite fragmented person. But somehow I just keep coming back to this. You're aligning your voice, your inner self, with lots of other people that you may not even know.

CRESSIDA LINDSAY *Music Therapy Tutor, Guildhall School:* Your voice is so personal to you, compared to an instrument. That's why we're so sensitive about singing in front of different people. But it's also what gives us such a buzz because we are being watched for exactly who we are, no holds barred. If you're really low and down, then singing could be the scariest thing you could think of doing. So if you can get over that fear by having a supportive environment like a choir, then you're off.

BRYAN: I was happily married with three children for 20 years and then the wife turned around and divorced me and I got thrown out with no money, no job, no children, nowhere to live. We're all different people, different problems. When we're there, we're all one. We've got to all depend on each other?

CL: Music accesses more parts of the brain than any other activity. They're also making pathways between each site. It fires off so many different parts of the brain. Surely things are going to be starting to change. We've evolved to be a species who want to be in communication with other people. Music has actually evolved to be a tool to do that. It's like a biotechnology. You have to breathe together. You have to sing in tune, well we don't have to, but . . . you have to sing in rhythm with each other. You might move together. You're suddenly in it together and that builds trust, because you know that everyone's doing it for the group.

LOUISE: The particular choir is unique because it gives you courage, makes you feel connected. It's a bit like having a hug I suppose. It brings you back to being a human being. And singing is an unusual expression. It sort of throws your insides out. It doesn't bother me now that I am not a perfect musician. It just matters that I can actually stay alive.

CL: I found that so much working in the mental health world, is that somebody would be very happy to sing a very intensely emotional song, but to talk about anything afterwards would be really difficult. Because they don't know where it's going to go, but they know the song is going to end.

BHARTI: When I had a spine problem, I had chronic depression. Your physical health can lead to your mental health. You don't have to be good. The first thing you have to feel, that 'I want to sing' and that's it. You know, you don't have to be a hundred percent, you don't want to be a hero every day.

CL: In philosophy, there's epistemological solipsism, your brain makes up your world. So we've all got our own little worlds in our heads. And so we're all very individual because all our brains are not linked by the internet. That's where music is such an important, vital tool. Because if we're all individual, we could just say, 'I want your cheese sandwich, I'm just going to take it.' Or, 'I want your house. I'm just going to move in', or, 'Actually, I want your wife, I might just kill you.' These are the

animalistic kind of things that an individual primal being would do. So the way that we can then process these primal feelings is to do it through a safe way, sublimated, and do it through music.

435. What happens to humans when we can't touch?

Touch is how we first communicate as babies. And it's fundamental to human wellbeing. So what happens when we can't touch?

Made by Daniel Nils Roberts, 5 October 2020

Part of Anatomy of Touch from Radio 4

DAVID LINDEN, *Author, Unique: The New Science of Human Individuality*: Human interpersonal touch is crucial. It's social glue.

ROBIN DUNBAR, *Evolutionary Psychologist*: I think we underestimate how important touch actually is in our social interaction. Human touch is key to our survival. It's in our DNA.

DAVID LINDEN: Touch is deeply under-researched. There are probably 100 papers on vision for every one on touch. We tend to take touch for granted.

KATERINA FOTOLOULOU, *Professor of Psychodynamic Neuroscience*: Touch relies literally on the whole of our skin. It's the organ of touch. But what happens when we touch other people? And why is that special? Touching other people is processed by the brain with different mechanisms. We discovered very late - only in the 1990s that in humans we have a specialised set of cells in the skin, which then travel with specialised pathways to particular parts of the brain. And this system is called the C-Tactile System.

CAPTION: TOUCH APPEARS TO BE PART OF OUR NATURE. CAPTION: PRIMATES SPEND 10-20% OF THEIR WAKING LIFE GROOMING. CAPTION: HUMANS NO LONGER HAVE FUR... BUT WE SHARE MUCH IN COMMON WHEN IT COMES TO TOUCH.

ROBIN DUNBAR: The hand strokes parting the fur sends this signal to the brain saying, "You're in close physical contact with your best friend here." And what that does in the brain is trigger the endorphin system. We feel very relaxed, and - particularly important trusting in the person we're doing this activity with. And that creates this sense of friendship.

CAPTION: THE HAIRY PART OF THE HUMAN ARM IS DESIGNED TO BE STROKED, AND IT'S MOST EFFECTIVE AT A PARTICULAR SPEED...

ROBIN DUNBAR: Light, slow, stroking at exactly 2.5cm a second.

DAVID LINDEN: This is the caress that we are hard-wired to like.

VOX POP: It's comforting!

INTERVIEWER: What happens here then?

REBEKKA MIKKOLA, Hug Therapist, Nordic Cuddle: So the cuddle sessions take place at one of the pods. Cuddle therapy involves hugs, stroking, squeezes all sorts of forms of platonic touch. It's a very simple practice. Yet it can actually have rather powerful effects on people.

CAPTION: STUDIES HAVE SHOWN THAT TOUCH IMPROVES WELLBEING AND CAN EVEN ACT AS A PAINKILLER. CAPTION: TOUCH IS THE FIRST SENSE WE LEARN AS A BABY. IT'S HOW WE FIRST COMMUNICATE... AND IT'S VITAL FOR EARLY DEVELOPMENT.

REBECCA SLATER, *Professor of Paediatric Neuroscience*: It can stabilise their heart rate. It can improve their weight gain. And some studies for low birth weight babies even suggest that the time they stay in hospital can be reduced if they have lots of touch stimulation. It's really forming the first part of social bonding.

ROBIN DUNBAR: Which is why I say if you really want to know how somebody feels about you, don't listen to what they tell you, just feel how they touch you.

CAPTION: BUT ACCORDING TO THE TOUCH TEST SURVEY OF ALMOST 40,000 PEOPLE IN MORE THAN 110 COUNTRIES, MORE THAN HALF OF US SAY WE ARE NOT GETTING ENOUGH TOUCH IN OUR LIVES. COMMISSIONED BY WELLCOME COLLECTION. DEVELOPED BY GOLDSMITHS UNIVERSITY (JAN 21 - MARCH 30 2020) CAPTION: THE PROBLEM IN ITS MORE SEVERE FORM IS KNOWN AS "TOUCH HUNGER". CAPTION: AND THERE ARE CONCERNS IT COULD START TO AFFECT MORE OF US...

DAVID LINDEN: If we have a situation where we're not able to touch the people in our daily lives that we normally touch, it's not like everything is going to fall apart instantly. But our feelings of connection, of empathy, of trust will slowly degrade.

DEBBIE ANSELM, Teaching Assistant: Anybody who I care about, you get a hug. So my biggest struggle is not being able to hug my mum, to wash her hair, to do all the things that we do bonding - paint her nails, I do her feet for her. That one broke my heart. Still when I think about it, I could cry.

KATERINA FOTOLOULOU: If you deprive an animal of touch, the animals become literally sick both in the mind - they develop a lot of anxiety and also they live less, and they're less healthy in the long term.

REBECCA SLATER: The whole social concept of touch is really changing in society.

INTERVIEWER: Does it feel like the pupils are learning not to touch?

DEBBIE ANSELM: It does feel a little bit like that, which is sad.

KATERINA FOTOLOULOU: When people during lockdown were exposed to films where there was natural touch, people had a jump. They started talking to the TV, "No, you can't do that!" So that's a good sign of how quickly we learn to inhibit ourselves.

REBECCA SLATER: I don't think you'll see people interacting in the same way that we did before the pandemic.

ROBIN DUNBAR: I find it very unlikely that we would ever lose the sense of importance of touch. You should never say never, when it comes to evolution. But it will all depend on whether other forms of behaviour that allow us to trigger the endorphin system in the brain to create friendships, really start to work better or more efficiently than physical touch. And I suspect that's unlikely unless we give up all notion of having romantic relationships.

DEBBIE ANSELM: I think the future should be hugs - all day. All day, every day.

436. What happens when fans take it too far?

What happens when fans turn against their idols? Steve Rainey of Radio Ulster explores what happens when things get obsessive.

Published on 1 February 2019

This video was made by BBC Archive

STEVEN RAINEY, BBC *Fan Aficianado:*When we think of fans, images like this may spring to mind, (*girls screaming at the Beatles*) but fandom can take many forms.

NATIONWIDE 1974, FEMALE STAR TREK FAN: In the name of Beyond Antares Wimborne in Dorset, I salute you.

SR: Star Trek fans are notorious for their fanatical devotion and obsessive attention to detail. Thousands of devotees collected memorabilia or attended conventions, fostering a sense of community and prolonging the success of the show.

NATIONWIDE 1974, INTERVIEWER: What's the appeal for you of this series?

FSF: Everybody has something in common. You find fantastic amounts of friendships. This is one of the main things that all Star Trek fans say they find.

SR: This was the first generation of adults who had the freedom to indulge in this kind of behaviour, whether it was dressing up as their idols, forming fan clubs or reading and writing fanzines. But sometimes devoted fandom can cause issues for stars when the interest veers into the obsessive.

INTERVIEWER: What is Star Wars to you?

FAN: Star Wars is everything really.

SR: Film maker Ryan Johnson faced the wrath of a vocal subset of fans who hated The Last Jedi so much that they launched a fundraising campaign to try and remake it the way they wanted it. Entitlement is increasingly becoming a problem with obsessive fans, where they think they deserve something, simply by virtue of their

fandom. This sense of entitlement was also seen in the backlash over the decision to remake Ghostbusters with a female cast. In video games, the ending of Mass Effect 3 produced an online backlash so huge that the developers were forced to release a different version of the game. Over 50 years ago, singer songwriter Bob Dylan upset the apple cart when he started playing an electric guitar. In 1966, a disgruntled fan shouted 'Judas'. My theory on this is that it's actually one of the key moments of the 20th century. His fans didn't want him to change. But by putting him in an artistic straitjacket, his fans actually compelled him to bigger artistic heights. Would Dylan have plugged in the electric guitar if it wasn't for the fans? Would it have had the same impact? Probably not. So fair play to that guy who shouted Judas. We owe him a lot. We can also talk about the recent uproar over the decision to cast Dr Who as a woman.

RADIO 5 LIVE BREAKFAST: My point is. Doctor has always been a man because he was a grandfather in the first series. He wasn't grandmother. The way things are going he could have ended up being a zebra or a donkey.

SR: Intrinsic in a certain kind of fandom is the idea that change is inherently bad. Things must stay true to themselves and any kind of evolution is seen as evil. For the poor doctor, her female transformation is seen as being motivated by politically correct forces, which are, most damningly, outside of Doctor Who fandom. Of course, not all fandom has to be problematic. I'm a firm believer that fandom is largely positive, both for fans who seek community, as well as for the creators who get constant feedback and become aware of how their stories are affecting their audience. But as for how this relationship continues to evolve, I'm sure that the fans will have plenty to say on that topic.

437. What happens when you cross ! with ?

Introducing the interrobang - the handy little sign that combines an exclamation mark and a question mark.

Made by Dayglow Media & Pencil & Pepper, 23 January 2018

CAPTION: In 1962 New York-based advertising executive Martin K Speckter noticed his copywriters liked to end a sentence with a question mark followed by an exclamation mark to express an attitude of sceptical surprise. Speckter, a keen amateur typographer, felt he could improve on this. He proposed the idea of a new, single mark and asked colleagues for ideas and designs. Suggestions like 'emphaquest' and 'exclarogative' were submitted. The name Speckter proposed and the design by his art director Jack Lipton turned out to the favourites. The interrobang was born! Interrogatio is Latin for 'rhetorical question' and 'bang' is printers' slang for an exclamation mark. By 1966, the interrobang was in the Americana typeface. It was included in Palatino Linotype in 1999. By 1968 it was on some Remington typewriters. Sadly we don't have a Remington 68 typewriter, so we had to improvise! It was in vogue briefly in the 60s but the limitations of pre-digital typesetting and the conservatism of punctuation habits held it back. By the early

1970s it had largely fallen out of use. But it's back and has gained a cult following with bands, podcasts, architects and grammar enthusiasts all tapping into its charm. Cool or what . . . ?

438. What if all the wasps disappeared?

Wasps are not exactly the most-loved creatures, but they are hugely important to the eco-system - and us all.

Made by Maia Films, 4 March 2020

NARRATOR: Wasps… they're pretty annoying. But what would happen if all the wasps in the world just disappeared? Well, before you start celebrating, let's have a little look at some of the lesser-known wonders of wasps. If there are no wasps, it's not just the insect that would be lost, but a complex society with some surprising similarities to our own. All wasps have a role to fulfil - be it as a queen, or the wasp equivalent of a caretaker, a guard, or even a nanny. They're also a lot smarter than we give them credit for. Some wasps can recognise each other's faces, so they know where they are in the hierarchy, and if they're friend or foe. And they can be trained to detect explosives and illegal drugs. Wasps are a key predator, and the loss of any predator would have a huge knock on effect on the ecosystem. This is because wasps protect plant life, crops, and other creatures from spiders, millipedes, flies, caterpillars, aphids, and much more. In fact, they catch around 14 million kilograms worth of insects every year in the UK alone, most of which they take home to feed their young. So without wasps, you'd see many plants left unprotected, and a big rise in the number of uninvited creatures in your home. The bee population has gone down significantly over the past 30 years because of pesticides, changes in land use, and climate change. Wasps face a similar threat - they just don't capture the public imagination in the same way. Studies show people associate bees with more positive, cuddly imagery - like honey, flowers, and pollen. While wasps evoke more negative terms - like stinging, pain, and rage. But this is unfair because wasps perform many of the same functions as bees, and wasps are crucial pollinators too. In fact, if wasps didn't exist, we'd lose over 100 different types of orchids and figs too. That might not sound like a big deal, but every species of fig relies on its own species of pollinating fig wasp for fertilisation. In turn, more than 1,000 tropical birds and mammals depend on figs - and therefore wasps - to survive. There are also thousands of species of wasps out there, most of which go about their business quietly. And only 1% of these are the type that buzz around your picnic. The most off-putting feature of the wasp is its ability to sting, but that sting has some interesting features. It contains a toxin, which lab studies suggest could have anti-cancer properties. So wasps have a lot to offer. By the time they're out and after your ice cream, they're in the last throes of their life, which is only two weeks to a month long. Because when the queen has no more need for them they have to leave - confused, jobless, homeless, and desperate for a sugar fix. So let's give the wasps a break. After all, without them we'd have more pests, less biodiversity, and more global food insecurity. So as much as it's our instinct to panic and flap our arms

whenever we see them, don't. Stop and watch them, and see just how amazing one of the world's most disliked, and wildly under-appreciated insects actually are.

439. What if everyone in the world planted a tree?

Made by Maia Films, 26 February 2020

NARRATOR: Around 30% of our planet is covered in trees. Trees are majestic, help biodiversity and can reduce climate change. But we're cutting them down at an alarming rate. Since the start of human civilisation, it's estimated that we've cut down almost half the trees on earth. So, what would happen if all of us - and that's all 7.7 billion of us - planted a tree? Well, there might be 7.7 billion of us, but it's estimated there are currently over 3 trillion trees on the planet. 7.7 billion more trees would be a valuable step forward. But we'd need to go further to make a really substantial difference to the environment. But we could. In fact, according to one estimate, if we planted 1.2 trillion trees, we'd cancel out a decade's worth of CO2 emissions by the time the forests mature. So that's more like 160 trees per person. Trees take carbon dioxide out of the air and release oxygen – making them a natural source of carbon capture. Planting 1.2 trillion more trees could capture up to 160 gigatonnes of CO2, on top of the 400 gigatonnes captured by all our existing trees. Trees planted near the equator can be especially beneficial, as they grow much faster in the warm, wet and humid environment. Let's imagine that happened. In as little as 20 or 30 years, entire woodlands and forests would be established. And in 100 years, these trees would grow and mature, safeguarding habitats that otherwise get cut down. We'd also see a rise in biodiversity as trees get older and start to decompose, because they, along with dead trees, offer a habitat to all kinds of fungi and insects. On top of this, we could see a positive impact to our mental health, as studies have shown trees can lower stress and make people happier. In Japan, they have a term for it - "forest bathing". But despite how much trees offer us, we're getting rid of them at an alarming rate. Currently, it's estimated that 15% of all greenhouse gas emissions are the result of deforestation - because when we cut down trees they emit carbon instead of absorbing it. And we're cutting down 15 billion trees a year – that's almost 500 trees a second, 29,000 a minute, 1.7 million an hour, and 41 million a day. So, although tree planting is a valuable part of tackling climate change, it won't be effective unless we reduce the number we cut down in the first place, and make big changes to the way we live. So, if everyone on the planet planted a single tree, it would be a powerful symbolic act. And if we kept on planting them and stopped cutting them down, it could go a long way to protecting and safeguarding our world.

440. What if the UK legalised drugs?

Sue Pryce from the University of Nottingham and US drug policy adviser Kevin Sabet offer two different views on drug legalisation.

Published on 20 December 2019

SUE PRYCE: Prohibition didn't stop my son becoming a heroin addict. And it hasn't stopped many other young people from dying or becoming addicted. I'm not sure that legalisation is the answer, but I am pretty sure that prohibition is not.

KEVIN SABET: Drugs are already dangerous by legalising them we will commercialise them and make them even more dangerous by allowing all different kinds to be promoted. We do not need more addiction, for profit industries in this world.

CAPTION: The most widely-used drug globally continues to be cannabis, with an estimated 188m people having used the drug in 2017.

SP: We're witnessing a global shift in drug policy. It's slow, it's glacial pace in some areas, but we have got many states in America now legalising recreational marijuana. We have Canada legalised it. Uruguay has legalised it. There are many countries decriminalised it. The problem with decriminalisation is that it does mean young people won't get a criminal record for personal possession of a drug. But drugs are still left in the hands of criminals to produce them and traffic them. They are still of unknown strength and they are still of unknown purity.

KS: When it comes to the current drug policy, There's a lot of improvement that could be made, but there are also ways that we can make it worse. And I don't want to see us make current policy even worse than it already is. But we do need improvements in both in the US and UK, we need to do a better job of managing criminal justice populations because, you know, addiction, whether we like it or not, can have a nexus with crime, just like alcohol does, as well as illegal drugs. Both legal and illegal drugs have a nexus with crime.

CAPTION: In England and Wales there were 2,917 deaths from illicit drugs in 2018, the highest since records began.

SP: Under the current system of prohibition, we do increase the health risks of young people. Firstly, they don't know the strength of what they're taking. Therefore, it can quite often be double the dose they bought the day before if it was ecstasy or heroin or anything else. Prohibition, in effect, makes drugs about as harmful as we could possibly make them, especially as it encourages dealers to produce stronger and stronger versions, so you can sell less for the same amount of money.

KS: By saying, 'At least we know the purity' well, the purity of heroin, even if it's 100 percent pure and not adulterated, is extremely dangerous and fatal. It's not like that makes drugs safer.

SP: The current system leads young people to experiment with all sorts of synthetic designer drugs, and the NHS is put under more strain by those drugs because we don't know what's in them and we don't know how they affect people.

KS: Drugs cost money to society. So I think they would totally overwhelm the NHS. They would totally overwhelm the US health care system. If we legalised heroin, cocaine, methamphetamine, marijuana tomorrow.

CAPTION: In the US the number of past-year users of cannabis rose by some 60% between 2007 and 2017.

KS: We're still going to have an underground market, an illegal market when you legalise drugs, why? Because the underground market will undercut the legal price, they will sell whenever and whomever they want to sell to. They're not under any kind of regulations. And we're seeing in the marijuana legalised states a thriving black market, a thriving illicit market for cannabis and frankly, other drugs. As a result of legalisation, you still need money to buy heroin, cocaine, methamphetamine, marijuana. So there will still be crimes committed.

SP: If drugs were legal, you could make them cheaper. You could prescribe for them. Not everybody is sitting here waiting for heroin to be legal and going out to use it.

CAPTION: The rate of drug deaths in the UK is now more than double the European average.

SP: I don't take drugs. And I have a son who's a heroin addict and that has wrecked both his life and our lives in many, many ways. But I still think that having drugs illegal means that they are much more dangerous for young people.

KS: Some people will always use drugs. They will always seek a thrill. I'm not under any illusion that we're going have a fully 100 percent drug free society tomorrow, of course. But we don't want to encourage unhealthy behaviour.

SP: To pretend that serve as a simple answer to drugs does us a disservice. Drugs are complex, as are people.

441. What if the whole world went vegan?

What if the whole word went vegan? What impact would it have in terms of climate change and the environment?

Made by Maia Films, 7 February 2020

NARRATOR: The average person eats about 40kg of meat per year. In developed countries, it's double that… or about the same weight as an adult dolphin. But experts now advise cutting down the amount of meat we eat, to help reduce climate change. So, here's a thought experiment… What if the whole world turned vegan? Around 15% of all greenhouse gasses emitted by humans are from livestock production. If we all became vegan, these emissions would be slashed. Eating meat takes up space… a lot of it. Around 80% of all farmland is dedicated to meat and dairy production. That's about the size of Europe, the US, China, and Australia combined. Meat and dairy typically provide 18% of our calories, but account for 60%

of greenhouse gas emissions from agriculture. A report by the UN's climate body, the IPCC, recommends we all reduce the amount of meat we eat. And also how much we waste. The report found 8-10% of all global emissions are down to food loss and food waste. But not all meat is the same. Large-scale farming of beef has a particularly high impact, and has been a big factor in the loss of the Amazon rainforest. When cows digest their food, they produce methane a powerful greenhouse gas that's about 28 times more powerful than carbon dioxide over 100 years. And when cows burp, this methane is emitted. One cow releases between 70 and 100kg of methane every year, and there are around 1.5 billion cattle in the world today. But it's not that simple. A lot depends on how the meat is produced. Most meat is mass-produced by large-scale industry, and this can come with a heavy environmental impact. But small-scale farming of animals can have a lower environmental footprint. And sometimes - for example in the case of traditional grazing it can be beneficial in terms of biodiversity. Vegan alternatives can also come with their own problems. For example, large-scale production of soya can lead to deforestation, and almond production requires huge amounts of water. But if everyone switched to a plant-based diet, it could bring several positive health benefits. One study estimated that if everyone ate a vegan diet with lots of fresh fruit and veg around eight million deaths could be avoided around the world by 2050. There are no simple answers. But if everyone were to change how they look at food, cultivate it, and eat it in a sustainable way, we could, potentially, change the world.

442. What is 'black joy' and why do we need it in our lives?

Author Irenosen Okojie says we need to make space for black culture - film, art, music and literature - to be celebrated.

Published on 4 July 2019

IRENOSEN OKOJIE: I'm Irenosen Okojie, I'm an author. In my humble opinion, black joy should be embedded within the fabric of our culture and shouldn't just be temporary or fleeting. So black joy is expanding the notion of what black artistry is and it's contributing to the culture, it's shaping what conversations we have. It's being completely free and unencumbered in terms of ideas and having absolute agency. And I think being your most authentic self, because sometimes it can be difficult operating within the Western structure in terms of how we express ourselves as artists and how we celebrate our culture. If I were to give concrete examples of what black joy means to me, I would say it's reading a June Jordan poem, it's watching a Barry Jenkins film, it's listening to a Fela Kuti record on a hot day, it's looking at an image of a Basquiat exhibition. All of these things represent black artistry and black innovation and the complete freedom and joy that I think is important as an artist. There's so much happening that signifies black joy at the moment. We're seeing our stories filter into the mainstream and finally this idea of whose story is valuable is coming to the forefront. And black stories are taking precedence, not only coming to the forefront but shaping cultural narratives and

having a really huge impact. So, if we look at for example Black Panther, I would say that that's a huge cultural moment in terms of black joy and just the ripple effect it had globally. It shattered every preconceived notion or myth about whether black stories are valuable, whether they translate into the mainstream, whether they're too niche or audiences will go and see them. Here we have a film about an imagined African kingdom that celebrates black innovation and black culture and authenticity, but told using an Afrofuturist aesthetic, and it just made people sit up and take notice. I think the issue for me is that very much what's happened a lot of the time and for a long time is black trauma has been something that's been at the forefront, so problematic areas like knife crime, and what that does in the long term I think is that it creates a warped sense of what black culture is. So we don't see enough of black achievement and black celebration, what you get is this idea of a community being majorly problematic and there are problems in any community. So now more than ever with these stories coming out, it's just a great counter because it shows that's not all we are. I think our cultural gatekeepers need to be more open minded, need to feed themselves more and read more and listen more and create spaces to talk to people from those communities and from the black community in particular. And I think that will shape and change things. So, it's just about being more open, being more empathetic, listening and thinking about not just seeing yourself reflected, but other audiences. So if you're somebody in a position of power, say for example you're a commissioning editor or a producer, look around you. Who's at the table? What do they look like? If they all just look like you, then that's an issue. Thinking really imaginatively and creatively and wanting to be very, very experimental in terms of how I approach what I do. So again to counter some of the negative ideas or stories around black culture, so thinking about celebrating what we've achieved. So for example, my debut novel, part of it was set in the Benin Kingdom, and my family are from Benin, so it was about reclaiming a lost heritage, a kind of lost legacy, and how fantastic it was to know about this kingdom, to know about the level of art and history, we need to think more imaginatively about what the fullness of blackness is and that it's complicated and nuanced and really interesting and to mind that and present that to the forefront.

443. What is 'normal'? Who decides?

Autism is not always well understood. Here Eleana Re gives a very personal insight into what's it like for her.

Made by Carousel, 19 February 2019

ELEANA RE: This is Eleana Re, the real me. What is normal? Who decides? I made this film share a different view of autism and the different sides of my personality. Atypical autism, like autism, you are in your own dream bubble, your own personal world. But it's quite different from other autism. It's less well known. Elena, the beige, normal me that tries to fit in. I, I wear like beige clothes, and there's always a bit of orange peeping out. There's two sides, there's your inside me and there's the outside me and this is one of the outside mes I show. I like to be the person that I am

really, but to be able to fit in and to make friends, this is what I'm told, that I have to be. Neuro-divergence. This is a catchall term that really anyone can use – any learning difficulty, mental health conditions, disability, anything really. This is me, when I'm trying to fit in with the cool kids, you know, like, I'm . . . I'm trying to act like it's well legit and it's repping the norm and street conformity. Why? Even then, even when I look cool as, they don't think I'm cool. What's not to like. Come on. Mania. Even when I'm in brightly coloured clothes, I'm looking really happy on the superficial side, I can be, like . . . like this (*pulls hat over* face) on the inside. Only you know what's inside. And there's a core to everything. The orange is always more messy on the inside. This is me. This is me. The real me, on the outside. What shall we call it? Eleana, Eleana Re under the skin. The juice and nothing but the juice. No, the juicy bits between the peel, that's really good yeah. No, cringe. Yeah. The real squeeze, the misfit. Always original, natural and concentrated.

444. What is a skeuomorph - and why are they everywhere?

Electric candles, rivets on jeans....Skeuomorphs are all around us, pretending to be things that they aren't.

Published on 20 August 2019

This video was made by BBC Archive

NARRATOR: You may not be familiar with the word, but look around and you'll see skeuomorphs everywhere. Some of the earliest examples of skeuomorphism are the decorative stone features located on ancient Greek temples. These were derived from those of earlier wooden temples and were created purely ornamental purposes. Fast forward to the 20th century, and skeuomorphism started popping up in everyday life. You had the perfect example of the skeuomorph in the electric candle or take the rivets on your jeans. They're an aesthetic hangover from a time when denim was too thick to be held together just by stitching. So in the context of jeans, rivets are skeuomorphic. How about cars? Wagons or bikewheels used to need spokes, but car wheels still retain them purely for the way they look. See also the hood ornaments of luxury cars which have evolved from being mere radiator caps to ornamental features. Electronics synthesisers can emulate anything from orchestral sounds to electronics squeaks and bleeps. They may be no nonsense boards with sliders and knobs, but they often skeuomorphically take on the look of traditional instruments like piano keyboards. There are many more examples in the physical world, but it's in the digital world that we see most skeuomorphs today. With the proliferation of computers in the 80s, a brave new world of skeuomorphism opened up as a means to make operating systems more intuitive. So if you wanted to delete a file, you would drag it to a representation of an actual bin. Files were stored inside folders which looked like their physical manilla counterparts and clicking on a magnifying glass allowed you to zoom in on objects. After going out of fashion for a while, skeuomorphism came back with a vengeance when smartphone usage became more widespread. A whole new lexicon of skeuomorphs came into use. Ironically, the cordless phone icon now represents phone functionality, Polaroid

camera icons abound when accessing photography features. Or think of the shopping cart or baskets we now encounter when online shopping. In digital music production software plugin instruments are designed to look like their analogue counterparts right down to the feeders, metres, pots and even the wooden finishes on certain types of equipment. And what about the future? Electric cars often retain design tropes from their petrol fuelled counterparts despite not needing to. Or consider the smartwatch, even though it tells the time, it's not a watch. It's a computer. Can we call this skeuomorphic? While creative design can move us into more abstract territory. There seems to be a reassuring familiarity about skeuomorphism that means it won't go away, even when its origins are unclear.

445. What is flow and how can it help you achieve more?

How tennis players achieve 'flow' - and a few tips on how it can help you too.

Made by BBC Scotland, 10 July 2018

Made in partnership with The Open University

MATTHEW GIBSON-SMITH *Elite Junior Tennis Player:* Maintaining flow is similar to catching a occurrence in the ocean. Once you're in it, you seem to be gliding with the flow, rather than always trying to hold onto it. It's something that just comes to you and you stay with it.

CAPTION: Flow was a term that became popular in the 1990s, originally coined by the psychologist Mihaly Csikszentmihalyi. But what is flow?

JEFFREY WEBSTER *Performance Consultant:* Flow is when a person is in a highly-focussed mental state where nothing else seems to matter. It occurs when your perceived skill level and the challenge at hand are equal and you are as in control of your mind and body as you can be.

MGS: when I experience flow, I just feel really, really focussed and everything seems to work for me.

EMILY GATES *Senior Tennis Player:* You just feel confident in everything you do. There's no negative thoughts coming in, so you just feel like you can perform to your best each time.

JW: The key aspects of flow are being able to perform a task, seemingly automatically, having absolute concentration on the task at hand. Maintaining a sense of control over the performance and a loss of self-consciousness.

CAPTION: There are physical changes that happen when an athlete is in flow. The brain releases neurochemicals – including: dopamine, which helps cognitive awareness. Noprepinephrine, for concentration, Endorphines which have a positive impact on our mood. But it's not that simple.

MGS: In tennis, there can be tons of things that can distract you.

JW: When it comes to sport, many athletes focus on the outcome of the game, the match or the race. The desire to win or they become distracted by how they played in the last point. When athletes dwell in these egocentric thoughts we will often even start to lose focus and their performance starts to deteriorate.

EG: The most difficult thing about staying in flow is the external things.

MGS: Your opponent is, obviously, can be one of the most distracting things. And just to . . . to isolate yourself sometimes from your opponent and simply focus on what you're doing really helps for a more focussed and flow display.

JW: Although being in a state of flow is something that's usually associated with high level athletes, it's something that potentially anyone is able to achieve from playing an instrument to a surgeon carrying a complex operation. But what can you do to give yourself the best possible chance of achieving a state of flow? Here are my tips to help increase the probability of flow in your everyday life. Always be present. Sports psychologist Barbara Taylor highlighted the importance of letting go of memories of shots, good or bad, and focus on the here and now as it really helps you focus on the process and what you are specifically doing at that moment in time. This can be achieved through setting mastery-oriented goals that you can recite to yourself at times throughout the performance. Give yourself immediate feedback. A key characteristic of flow is immediate feedback. This can be provided by team-mates coaches or yourself as you complete the activity. When possible, try to figure out what you're doing well and why? As well as what you could be doing better and how. This will make you an active learner and aid the development of future goals and targets necessary to achieve your desired outcome. Be a better practitioner of your skills, not a goal chaser. This feedback could be based on your preset mastery-oriented goals. Am I achieving these are not? What can I do to achieve this? Doing this as quickly as possible will help you effectively move on from situations and focus on the present. Challenge yourself. If the task is too easy. Then focus is extremely difficult to achieve and it may become tedious. If the task is too difficult, you may feel anxious about whether or not you can meet the demands. Make sure you always set yourself goals that match your skill level, but also challenge you. When you achieve these goals, set yourself more challenging targets in order to remain in flow.

MGS: I personally find flow quite easy to remain in, but hard to find. But once you find it, you're in the zone as it says, you just . . . you just flow through the match.

446. What is hauntology? And why is it all around us?

From TV to art to design - why a "nostalgia for lost futures" seems to be everywhere.

Published on 1 March 2019

This video was made by BBC Archive

CAPTION: There's no need to adjust your television set. There are no ghosts in the machine. Hauntology and the present of the past is all around us. But what does hauntology mean? It's a portmanteau of . . . Haunt – to appear in the form of a ghost, and Ontology – the study of the nature of being. It was coined by philosopher Jacques Derrida who used it to describe a 'nostalgia for lost futures.' It's the way we are haunted by our past, in our media, our art, our entertainment. And it's a field of critical theory that's flourished online. In the UK it has commonly been associated with a sense of loss of a post-war utopian future that was never quite reached. Large scale rehousing projects moved people from inner city slums to high rise streets in the sky. But these ambitious projects often resulted in social isolation. This was an era when British society was still battling over its future shape (*shot of Margaret Thatcher, campaigning in favour of EEC*) and a time of political and economic turmoil. A generation grew up glued to the television exposed to a world where much of what they saw seemed slightly unhinged. The BBC's *Play for Today* series tackled bleak, harrowing subject matter that had never before been seen on British TV.

PLAY FOR TODAY *Robin Redbreast*: This knife is very sharp. Your Auntie Viga uses it cut the head off chickens. (*Also clips from Whistle and I'll come to you of a man groaning, in fear? And Redshift, with a man pushing a woman into a wall*)

CAPTION: Even daytime TV shows could project a sense of unease.

THE AFTERNOON SHOW: Now, I would like you to look very closely at the tablets that I have here. Some of them are sweeties and some of them are drugs.

CAPTION: *The Changes* was a children's TV show about a society that had reverted to a pre-industrial age after the population had destroyed all technology. Hauntology evokes a particular graphical and musical style. (*BBC 2 ident from 70s and The Open University logo and theme*) To those accustomed to watching late-night television at the time, the feel of old TV idents lent them an other-worldly quality. And the visual style of school textbooks or Penguin's non-fiction titles of the time shared a very definite aesthetic of functional idealism. (*Protect and Survive advert*) these could marry together for terrifying effect, such as the government's terrifying public information films. By reimagining and misremembering all of the above (*two ads side by side, 'Labour isn't working' and 'Voting isn't working'*) a new generation of artists has been able to conjure a parallel Britain. Richard Littler's book and blog, Discovering Scarfolk and the TV show Look Around You playfully deconstruct these hauntology aesthetics. In a different way, the films of Adam Curtis use archive footage, evocative music and montage to explore how we are haunted by our past. Cult record labels are exploring similar themes. But hauntology is not a fixed label with unmovable boundaries. It's more a feeling evoked by disparate cultural artefacts of a certain time. There are many other visions of what could be construed as 'hauntological'. In the US, music genres such as Vapourwave, Chillwave and Hypnagogic pop have emerged which take cultural cues from a different era namely the accelerated consumer culture of the 80s. Whatever era it's from, hauntology is more interested in the aesthetics we can imitate rather than new aesthetics we can create. Hauntology has blossomed in a time where technology

may be changing faster and faster but where new forms of cultural production have arguably stagnated. It's a world where the presence of the past is all around us.

447. What is the fascination with the Illuminati conspiracy?

The BBC's Sophia Smith Galer looks at where the Illuminati conspiracy stems from - and why it's enjoyed a resurgence in recent years.

Published on 3 October 2019

Made in collaboration with BBC World Service

SOPHIA SMITH GALER: Is Jay-Z really in the Illuminati? Is Donald Trump? Is Katy Perry? Am I? Everyone from the BBC to Beyonce has been accused of being part of the Illuminati, a secret group said to comprise of the world's most powerful people seeking to establish a new world order. Even if you haven't heard of the Illuminati. Chances are you've probably seen one of the symbols associated with them: pentagrams, goats, even the all seeing eye that's found on US banknotes. References have also cropped up in music videos such as Rihanna's S&M., which featured a fake newspaper with a headline declaring her Princess of the Illuminati. So why do musicians and artists like to play around with references to the Illuminati?

DAVID BRAMWELL *Journalist and Author*: I think quite simply they're just having fun, they're just entertained by these stories, like many of us are. I'm reminded of a conspiracy theory from 1966 that Paul McCartney of the Beatles had died in a car crash on the way home after doing some recording. And he'd been replaced by a Canadian DJ who looked a lot like him and quickly learnt to play the bass and sing. Paul McCartney has never denied this conspiracy theory. He's always kept quiet about it. And I think McCartney, like Jay-Z, Rihanna and others, is just entertained by the story.

SSG: So who are the Illuminati? Are they really a shadowy elite to control the world? The Illuminati were, to the best of our knowledge, a Bavarian secret society formed in the 18th century. It opposed superstition, religious influence and state authority. They even created a rule book which stated that 'The order of the day is to put an end to the machinations of the purveyors of injustice to control them without dominating them.' The Bavarian group eventually faded into irrelevance and has nothing to do with modern concepts of the Illuminati. The conspiracy theory that we know about today stems from the Discordian movement. The story goes that Discordianism began in 1965 in the office of a Texas drug attorney. Two schoolmates, Greg Hill and Kerry Thornley used the office photocopier to publish copies of the Principia Discordia, the movement's founding text. The book promoted the idea that chaos is as important as order and discordianism gathered steam throughout the 60s and 70s, with Hill and Thornley actively trying to cause mischief and spread disinformation. The mission was expanded even further by two other Americans, a writer called Robert Anton Wilson and his friend Robert Shea.

DB: Wilson was editor at Playboy, and the two of them decided they would write a novel and they would throw all of the great conspiracy theories into this novel and call it Illuminatus. And in fact, they enjoyed it so much, they turned it into a trilogy. They decided that it would be fun to try and spread a little chaos and misinformation deliberately about the Illuminati. And they did this by writing letters to the mainstream press, by writing letters to fanzines, which were popular at the time, but also through the letters page of Playboy itself.

SSG: They would also write in letters from imaginary readers saying that the Illuminati weren't real at all or were kind of sitting on the fence. It didn't really matter. What did matter is that all these people seemed to be generating this conversation about the Illuminati. The idea was that you as the reader, were supposed to question that, interrogate it, ask are they really real? The myth travelled far and wide. Wilson and Shea's The Illuminatus Trilogy attributed some of the mysteries of the time, such as who shot John F. Kennedy, to the Illuminati. Although the multitude of conspiracy theories that appear in the trilogy are imaginary, they're blended with enough truth to make them seem plausible. Probably the oddest theory was the suggestion that Adam Weishaupt, the founder of the Bavarian Illuminati, assassinated George Washington and assumed his identity as President of the USA. Believers of this theory point to Washington's portrait on the US one dollar bill, which they suggest is actually the face of Weishaupt. Despite its lack of mainstream sales, the trilogy became a cult favourite. It was even made into a mammoth eight hour stage play in Liverpool, launching the careers of British actors Bill Nighy and Jim Broadbent. The 70s print magazine culture seems distant now from our globalised, hyper-connected Internet. But Illuminati rumours are still rife on Web sites such as 4chan and Reddit, where believers swap their favourite versions of the conspiracy and champion evidence to prove it's still in existence. Ultimately, it's not down to a shadowy elite whether you choose to believe in the Illuminati conspiracy theory or not. It's up to you.

448. What really happened to this £10m racehorse?

One of the world's most valuable racehorses disappeared in 1983. Thirty-five years on, Alison Millar finds out what really happened.

Made by Erica Starling Productions 31 July 2018

CAPTION: The Shergar Conspiracy.

NARRATOR: In the early 1980s, Shergar was the most famous racehorse on Earth. An amazing winning streak had turned him into a global superstar and the public adored him. He was valued at £10 million and his own owner, the Aga Khan brought him back to Ireland for breeding.

CAPTION: Co. Kildare.

N: On the 8th of February 1983, Shergar was stolen from a stable by an armed gang, never to be seen again.

JIM FITZGERALD *Shergar's Head Groom*: These gangsters come in with guns, they brought me down to the stable where the horse was. And I put him in the small horse box, for those gangsters to take him away.

N: 35 years on and the disappearance of Shergar remains one of Ireland's most famous unsolved crimes.

NICHOLAS WITCHELL *Former BBC Ireland Correspondent*: It had become a story almost along the lines of the disappearance of Lord Lucan, that sort of thing. It had become a mystery.

N: Until Shergar's bones are discovered, conspiracy theories are all that remain. Francis Hyland is a well-known Irish bookmaker and racing historian.

FRANCIS HYLAND *Bookmaker and Racing Historian*: We already knew what we read in the papers or what we heard on television. I still remember that guard scratching his head and saying he hadn't got a clue what was going on. (*laughs*)

N: Francis has extensively researched the Shergar conspiracies.

CAPTION: Conspiracy 1. The New Orleans Mafia.

FH: The one is a story about the Mafia. They did it because a French bloodstock agent was found dead in his burning car in Kentucky in 1982.

CAPTION: Lexington, Kentucky.

N: Jean Michel Gambet was a bloodstock agent from Lexington, Kentucky. His business was buying and selling thoroughbred horses.

MILTON TOBY *Journalist and Attorney:* He was trying to cut a deal with the Aga Khan to buy one of the Aga Khan's horses. Instead of borrowing money from the bank, he actually borrowed it from the Mafia in New Orleans. And when he couldn't repay the loan, he was killed.

N: Jean Michel was found with a bullet wound in his head in a burning car two miles from Kingland Racecourse.

FH: The theory is he failed to pay and it was reconned that the Mafia said the Aga Khan owed them a horse and they stole Shergar.

CAPTION: Conspiracy 2. The Arabian Connection.

FH: The second one was that he was stolen by a mad Mullah, to have in his private study out in Saudi Arabia.

LANCE PRICE *BBC Journalist, BBC News – 17 February 1983*: If Shergar is in the Middle East then the obvious question is, why take him? His enormous stud value depends on his identity being known. So do you think Shergar could have been smuggled out of Ireland easily?

INTERVIEWEE: There are very few ports, really, that you can ship out of now with a horsebox. And I don't think he went out by boat.

CAPTION: Conspiracy 3. The Murty Brothers.

N: The Murty Brothers, identical twins from Kentucky, had successfully bid on a collection of breeding horses in France, or so they thought, the Aga Khan, in a pincer move, managed to convince the French to sell the horses to him, leaving the Murty's furious.

GUY WILLIAMS: It was only when Shergar went missing that people began to think back. Now wasn't some sort of an old grudge going on there, And could this have any bearing?

N: In fact, despite the rumours, the Murty brothers weren't involved at all. And the real culprits were much closer to home.

CAPTION: Conspiracy 4. The IRA.

CAPTION: Co. Kildare.

FH: The most common theory at the time was the horse was stolen by the IRA.

N: The IRA had been kidnapping wealthy business executives in order to raise money for their campaign. Their first kidnapping had ended with money exchanging hands. Then Shergar, worth £10 million returns to Ireland for breeding. Was this an opportunity to good to miss?

KIERAN CONWAY *Former IRA Intelligence Chief*: I didn't encounter anybody that objected to the IRA kidnapping a horse. And, I mean, the IRA have never publicly acknowledged that it was them. But clearly it was.

N: Conway confirms the IRA took Shergar, even though no remains have ever been found.

CAPTION: Aughnasheelan, Co. Leitrim.

N: It's widely believed that Shergar ended up buried in a bog close to the Northern Irish border. But in these areas, a conspiracy of silence remains.

FH: I think many people know the answer. But these people they'll take this to their graves.

CAPTION: 35 years on, no arrests have ever been made in connection with the disappearance of Shergar.

449. What really shapes your worldview?

People are divided into two groups - with completely different worldviews, argues David Goodhart, author of The Road to Somewhere.

Published on 15 March 2017

DAVID GOODHART: Welcome to Britain's hidden divide. Anywheres vs Somewheres. The old divides are superseded. Our country is now split into two rival value blocs, the Anywheres versus the Somewheres. Anywheres tend to be educated and mobile. They value autonomy, openness and fluidity. They see the world from well, anywhere. Somewheres tend to be more rooted and less well-educated. They value group attachments, familiarity and security. They see the world from particular places, from somewhere. We Anywhere's are mainly graduates and affluent. We are less than a quarter of the population, but we dominate politics and society, regardless of which party is in power. Here are four examples. One, a knowledge economy designed for the highly educated in an hourglass labour market that has wiped out the middling jobs that used to give Somewheres status. Two, universities. We massively expanded higher education, a world that our children flourish in. But we eviscerated the technical training that used to give Somewheres decent jobs. Three, mass immigration. We ignored or labelled as xenophobic the discomfort that many people felt over rapid ethnic change across the country. Four, an anti-domesticity family policy that has represented the interests of some professional women but has done nothing to stop the decline of the traditional family. We Anywheres care about the world, but we can be guilty of a kind of self-regard and a naive liberalism, too. We're wary of most group identities because we just don't feel them ourselves. But it's not chauvinistic to value your national identity, and it's not racist to feel more comfortable amongst people like yourself. We Anywhere's have ruled in our own interests and called it the national interest. On June 23rd, the Somewhere's said 'Enough. It's time for a new settlement in British politics.'

450. What to do if your boss is an algorithm

Digital sociologist Karen Gregory on how to cope when your boss isn't actually human.

Published on 2 April 2019

Made in association with Nesta

KAREN GREGORY *Digital Sociologist:* It's entirely possible that in the future, many of us will work with algorithms and increasingly our workplaces will become places of data gathering, analysis and interpretation. It's possible that your boss may become an algorithm, or it's possible that your co-workers will become algorithms.

CAPTION: There are 2.8 million workers in the UK's 'gig' economy. *UK government, 2018.* 'Gig' workers count as self-employed – in businesses such as Uber and Deliveroo, their work is managed by an algorithm.

KG: Up until now, we've more or less thought that when your boss is an algorithm, perhaps you're working on a platform or you're working through an app or it's a new kind of work. But in many ways, algorithms and data science are actually changing education. They're changing the way professors teach. They're

changing the way healthcare will be provided. They're changing the way insurance providers work. They're also changing things like police and policing.

CAPTION: It's estimated that 20% of UK workers will be displaced in the next 20 years. *PWC, 2018.*

KG: Data science and algorithms pose a real challenge for workers, in many ways, and especially from recent research, we see that workers lose autonomy. They lose control in the workplace. They feel very stressed out. In part because algorithms and data science, or the data science that's managing their workplace, is often invisible. They can't see it. They don't know what data goes into the algorithm. They don't understand why the decisions are coming out as they do.

CAPTION: So how can workers cope when working for an algorithm?

KG: In an ideal world, workers would be made privy to the nature of the algorithm. They would understand and control the data that's being gathered. The data would be transparent. They would have access to understanding how decisions are actually being inspired or governed by that algorithm. And I think in an ideal world, workers would just have much more say over management decisions. When is it appropriate to rely on data science? When we talk about algorithms being your boss, we really do need to go workplace by workplace and understand the way in which data and data science are being brought into the job and restructuring the job.

CAPTION: SO WHAT AN YOU AS AN INDIVIDUAL DO?

KG: If you want to go up the corporate ladder, you'll need to increase your own data skills. You'll need to build up your data literacy. And you'll probably see yourself as becoming more of a data scientist. Workers who are more privileged, workers who have better education or access to education, access to this kind of data training will probably succeed in a data-fed workplace. Workers who lag behind and who become subjected to the whims of the algorithm are going to find themselves increasingly displaced. I think the best thing that they can do is actually speak to other workers and begin to think about possibilities for organising. In the absence of that kind of worker mobilisation and worker organising, we may find ourselves back in the same old historical situation where management does have the upper hand and workers have been truly displaced.

451. What was Stephen Hawking's greatest wish?

In 2017, the physicist spoke of his greatest wish - and his greatest achievement.

Published on 14 March 2018

Made by BBC News

PROFESSOR STEPHEN HAWKING: A cure for motor neurone disease, otherwise known as ALS, or at least a halt to its progression. When I was diagnosed at 21, I was told it would kill me in two or three years. Now, 54 years later, albeit weaker and in

in a wheelchair, I am still working and producing scientific papers. But it's been a great struggle, which I have got through only with a lot of help from my family, colleagues and friends.

INTERVIEWER: You've done so much for science and science communication and inspired so many people. Of all the things you've done., what would you like your legacy to be?

SH: I think my greatest achievement will be my discovery that black holes are not entirely black. Quantum effects caused them to glow like hot bodies with the temperature at its lower, the larger black hole. This result was completely unexpected and showed there is a deep relationship between gravity and thermodynamics. I think this will be key to understanding how paradoxes between quantum mechanics and general relativity can be resolved.

452. What will family life be like in the future?

Super-sized families, co-operative living and robotic relatives – how and where we live could change radically over the next 20 years.

Animated by Paper Panther, 22 February 2019

Made in association with Nesta

NARRATOR: In the past, a photo of a traditional family was likely to include a briefcase-wielding dad and stay at home mum doing something with a rolling pin. By 2039, more of us could be living with friends, partners or strangers in housing cooperatives, which offer cleaning services, film screenings and shared workspaces. Imagine living with dozens of new family members who share your interest in terrible 90s rom coms and flexible working patterns. What about my 107 year old grandmother, you might also be thinking? Since the 1980s, more people have been living with parents and grandparents in what's known as multigenerational homes. However, with the average age increasing and the population becoming increasingly ethnically diverse, perhaps by 2039, the super family will have grown even more. In which case, an Englishman's or woman's home would quite literally need to be the size of a castle. A giant house castle would be the perfect venue for my forthcoming wedding, you probably won't be thinking in 2039, as the growing popularity of civil partnerships with both gay and straight people may have left marriage feeling as fashionable as last year's smartwatch. New discoveries in stem cell research mean that it could also soon be possible for a same sex or infertile couple to have a baby who shares both of their DNA. In China, it's already worked with mice. However, the extortionate cost of the treatment is probably going to mean you will still need to work. Let's just hope the robots haven't taken your job unless your job's now caring for five elderly relatives. Robots could assist with eating, bathing and dressing. Imagine waking up to the steely face of the latest Carebot, a dystopian nightmare or a welcome break from your partner? But how would you feel if instead of a person, they looked more like a vacuum cleaner? If the answer's 'I hate my family and would

happily replace them with a household apparatus,' you might be interested to hear that an artificial intelligence company is attempting to bring relatives back from the dead using information gathered from social media as well as photos, videos and audio material. Comforting or creepy? How would you feel if a virtual you was able to carry on your life, long after you've ceased to be in it? And how much access would you want to give your loved ones to your digitally preserved secret hopes, dreams and desires? Maybe your family aren't so bad after all. You might now be thinking as you stared into the cool computerised eyes of a digital family member. Perhaps you'll arrange a get together at Christmas, but instead of the lounge, it will take place in an immersive 3-D dome. Your sister's girlfriends doing her annual speech about how all the best singers and musicians are dead. No problem. In the cushioned comfort of the dome, you'll be able to flip a switch and watch the holographic supergroup of your dreams perform an almost live concert accompanied by your dancing ancestors. In fact, you haven't had this much fun since your great, great, great grandmother mistook your great, great, great grandfather for the personal carebot and tried to reprogramme him with the smart screwdriver. They say you can't choose your family, but when they're being this crazy and entertaining, maybe you wouldn't want to anyway.

453. What will we eat for breakfast in 2039?

Fancy a bowl of insects? How about music-infused coffee delivered by drone? Welcome to your future breakfast.

Animated by Paper Panther, 22 February 2019

Made in association with Nesta

NARRATOR: Scrambled egg whites, a vegetable smoothie or whole grain cereal with low fat milk. That's how pop megastar Beyonce described her bootilicious breakfast a few years ago. However, eating cereal has declined by over 11 percent over the past five years, with 40 percent of millennials dismissing it as inconvenient because it involves washing up. Meanwhile, the kind of farming that produces bacon and sausages is criticised for contributing to climate change through the carbon emissions it produces. So by the year 2039 meat, cereal and even dairy may be much harder to find on the breakfast menu. Instead, you might be tucking into a plate of insects. According to researchers in the Netherlands, insects cost less to raise than cattle, consume less water and don't really leave a carbon footprint. Plus, in many cultures around the world, in fact, 30 percent of the planet's population, they're already considered pretty tasty. Robyn Shapiro, founder of Seek Food, says crickets are earthy and nutty, which makes them good to pair with nuts and granola. So while a rasher of bacon may become an illicit luxury only available in a fancy restaurant, crunchy nut cricket flakes could mean starting the day with a bowl of creepy crawlies from your garden biosphere. Probably not if you're vegan or vegetarian, like one in eight Britons are. Or how about lab meat, grown from animal stem cells with no need for real life pigs or chickens to become dead ones? A guilt free slice of black pudding where there's blood on the plate, but not on your hands. Maybe the

thought of this has you desperately reaching for that one cup of coffee you're allowed per year thanks to climate change rationing. Researchers and chefs, including Heston Blumenthal, have discovered that what you hear can affect what you taste. So in 2039, your coffee might seem like it's full of sugar, even though there isn't anything sweet in it, apart from The Sound of Music. With immersive dining experiences on the rise, from mediaeval banquets to murder mystery stories, or even a gastro physics journey through space, could breakfast in the future be less about traditional tastes and more about living out your culinary dreams in a flavour-filled fantasy land. By 2039, it looks like most of us, 70 percent in fact, will live in cities. To cut transport costs, maybe we'll want to grow the onions to go with our stem cell sausages, more locally? However, if the current housing crisis continues and luxury flats fill in every remaining space, where would we plant our greens. Perhaps the answer is underground. In cities around the world this is already happening. Urban farmers swap sunlight for LED light and use a system called hydroponics, where plants are grown in water so there's no need for soil, despite being surrounded by it - perfect for farming seaweed widely considered a sustainable superfood of the future. With cities increasingly full of people and traffic by 2039, we may need new ways to transport the ingredients that end up in our breakfasts. Could this be where drones flying? Following the rise of takeaway delivery services, a company in China has been trialling drones as a way of getting food to customers. If this takes off, maybe delivery drivers will be a thing of the past. However, would you be happy to have a drone rather than a person popping by with your music-infused coffee or seaweed sandwich spread with increasing numbers of us working flexibly? Perhaps the need for a quick breakfast before dashing off to work will no longer be necessary. Maybe instead we'll start to actually treat breakfast as the most important meal of the day rather than just talking about it. But whatever's on your wheatbran plate, you probably won't have to wash it up afterwards because you'll be able to eat it. Great news if you're a 57 year old millennial.

454. What will your digital legacy be?

How has social media changed the way we experience death? What will your digital legacy be?

Made by Jono Namara, 11 February 2019

ELAINE KASKET *Author, All the Ghosts in the Machine:* People across cultures and across millennia, they've always had the instinct to stay connected to the dead. And they have pulled the available technologies of the day into service to try to get hold of the dead. But now or at a point where the dead live in the tech already, it's easy to connect to the dead because they're everywhere.

CARL OHMAN *Oxford Internet Institute*: Nearly everyone knows someone who had a Facebook account, who passed away.

JAMES MESSIAH *Poet & Dj:* There was a friend of mine who recently took their own life, and I found out purely by reading statuses and comments and images from several accounts of social media.

CO: We can all identify with the experience. And it's . . . it's kind of a new experience that we haven't had before in the pre-digital era.

JM: I got a direct message from someone saying, 'Hey, are you going to come to the service tonight?' And that was really strange because, again, like I say, all of the interaction around the very real passing happened purely in the digital world.

CAPTION: But is all this disturbing the grieving process?

EK: If the dead person is leaving behind this hugely multifaceted online footprint, it gets in the way of people doing that process. It's like, okay, here's the durable biography. It's two thousand pages and it's really complicated, you know? And here's the image the person presented to the world. And here's their search history. Somebody can go off on a detective trail trying to kind of work out who was this person. And so you can open a door. And you can go down and keep on finding stuff and finding stuff and finding stuff. That's the kind of not letting go that can then maybe be deleterious, and not allow people to rest in their grief for someone.

CO: Servers are filling up with data about dead people.

CAPTION: If Facebook continues to grow at the same rate, there will be 3.6 billion dead profiles by 2100. *Ohman, C. and Floridi, L (2018)*

CO: And if you keep archiving data, sooner or later, you will have to ask yourself the question: what data should we save and what should be deleted?

JAMES WILSON *Senior Lecturer of Philosophy, UCL:* When everything is . . . is online, when the majority of what we do becomes virtual, it will be maybe one of the most important questions that people can . . . can deal with.

CO: We should think about what we leave behind on the Web as part of who we are.

CAPTION: What will your digital legacy be?

EDINA HARBINJA *Media and Privacy Law, Aston University*: I opted for deletion of my Google data through inactive account managers, so if I'm inactive for 18 months on any Google service, including search engine, all of my data on Google will be deleted.

JW: People maybe need to be saving in order that other people can digitally curate the memories of their digital selves after they die. Maybe that's a future job that people could do.

EK: I'm going to be managing what I put online with what I feel is most important and most valuable and keeping it that reduced to keeping it that curated, keeping it that edited so that, for one, it's not going to be that avalanche of things that my descendants inherit.

JM: Separate from any kind of thought about my own death, I'm just always aware when I'm like sharing poetry or just kind of like pithy thoughts, that it's going to live on.

455. What would Florence Nightingale make of big data?

Florence Nightingale on big data. It's not as random as it sounds. Statistician David Spiegelhalter looks at a little-known side to her.

Made by The Moment, 5 April 2019

STATISTICIAN DAVID SPIEGELHALTER: Florence Nightingale on big data It might sound like a random pairing, like Marie Curie on Wikileaks, or Charles Dickens on twerking. But it isn't. We know her as a nurse, the lady with the lamp, gliding through blood-soaked army hospitals. But maybe we should call her the lady with the bar chart, because she was at least as illuminating in the world of statistics. So, what would she think of big data? Florence loved statistics. She said she found them "more enlivening than a novel". And a friend said, "However exhausted Florence might be, the sight of long columns of figures was perfectly reviving to her." For Florence, statistics were God's work. She said, "To understand God's thoughts we must study statistics, for these are the measure of his purpose." So, although she's famous now as a nurse, she actually trained first as a statistician. It wasn't until the beginning of the 1840s - when she was in her early twenties and saw hunger and unemployment all around her - that she became a nurse. She'd combined her nursing and statistics to become an experienced hospital manager, just in time for the Crimean War. At the time, nurses were seen as ignorant and lower class. But Florence changed that. Florence volunteered to lead a team of nurses in the war. Before she arrived, the military hospitals didn't even bother to record many of the deaths. Florence collected data about everything, so she could show that changes in diet and sanitation had brought the hospital's death rate down from 42% to just 2%. It's only when you gather data methodically that patterns emerge. Things that were hidden suddenly become clear. That might sound obvious now, but it wasn't back then. Florence's work made a huge impact and laid the groundwork for things we now take for granted - like being able to compare hospitals' performance, or just the fact that hospitals are clean. Florence showed what could be achieved by following the evidence, instead of gut instinct, prejudice or tradition. Another little-known side of Florence is her talent for infographics. She turned data into pictures, making it impossible for MPs and civil servants to ignore. So, she would love the data journalism we have today. She would love the way big data makes all this possible. But she'd hate some of the ways that data are abused. She knew that people can game the system to make their performance indicators look better. So, when you hear of hospitals fiddling operation waiting times, think of Florence. And I think she'd be appalled at using data to target adverts and manipulate people on social media. This would not be God's work. Although largely confined to her room for over half a century, she worked tirelessly behind the scenes in coordinating campaigns, and she always had a careful media strategy. So, I think she might like other aspects of social

media. She'd enjoy the opportunity to communicate on a grand scale, with ideas going viral and so many people being able to take part in the debate. Her compassion brought her fame. And she used that fame ruthlessly, along with her incredible intellect, to save lives on an unprecedented scale. If she were alive now, she'd challenge us to do the same. To look at how we can use the vast amount of data now available to save lives. To make the world a better place. To shine a little more light on us all.

456. What would Freud make of our obsession with selfies?

If he were alive today, what might Sigmund Freud make of our obsession with selfies? Here's psychologist and author Tomas Chamorro-Premuzic.

Made by The Moment, 25 March 2019

TOMAS CHAMORRO-PREMUZIC: Go to any of the most beautiful places in the world and you'll see people taking pictures of themselves. We think of this as a new thing. 'Selfie' only made it into the Oxford English Dictionary in 2013 when it quickly became Word of the Year. But selfies are about as old as photography. The first was taken in 1839 by an American named Robert Cornelius. So why have we used photography, this miraculous invention, to take pictures of something we can see in our bathroom mirror every morning? Something odd is clearly going on. And who better to explain human oddities than Sigmund Freud? Freud invented psychoanalysis and popularised many ideas like the ego, the unconscious, and talking to a therapist. One of those ideas is narcissism or excessive self-love. In a Greek myth, a young man called Narcissus sees his reflection in a pool and spends so long staring at his own beauty that he loses touch with the rest of the world and eventually drowns, trying to embrace his own image in the water. Freud thought that a bit of self-love was a natural part of being human. But Freud also thought that self-love can turn into a psychological disorder when someone loves himself to the exclusion of everyone and everything else. And that's what we usually mean by narcissism. Psychologists have developed tests for measuring personality traits like narcissism. Here are some results. Narcissists do tend to be more active on social media, and posting selfies is strongly related to narcissism, but only if you are a man. Women tend to be less narcissistic than men, even though women post more selfies. Perhaps more worryingly, narcissism is rising. The psychologist Jean Twenge has shown that over the past few decades it's risen at roughly the same rate as obesity. Freud derived most of his insights from everyday life observations. So he would have been very interested in all this data. He would have concluded that narcissism is only part of what's going on in the rise of selfie culture. Some people are posting selfies not because they're in love with themselves, but because they want other people to be in love with them. Freud would have seen that need for approval as neurotic or hysterical. Freud began his career in the late 1800s, a much more sexually repressed time. Men and women were kept strictly separated, and they were told to be ashamed of feeling sexy. Many of Freud's female patients in Viennese high society suffered from hysterical paralysis, an inability to walk that had no physical cause.

Freud believed that these women were, without knowing it, stopping themselves from walking because they wanted attention. So if we need attention so badly, that will paralyse ourselves for it, why not post a few selfies? Isn't that better? Well, Freud would find something unhealthy about selfies. Not just because of what they say about the people taking them, but also because of what they do to the people seeing them. Selfies show people's best moments, carefully curated and heavily stage-managed. So we're increasingly surrounded by images of other people's apparently perfect lives and bodies. Recent studies show that this makes us feel more envy, inadequacy, isolation and insecurity, making us, in Freud's terms, more neurotic. Freud said the aim of psychoanalysis is to replace neurotic misery with ordinary human unhappiness. So next time you reach for the camera, remember Narcissus and focus on your friends instead. You may not get as many likes, but you'll get a thumbs up from Freud.

457. What would Simone de Beauvoir make of #MeToo?

Simone de Beauvoir's book The Second Sex came out in 1949. Seventy years on, what might she make of #MeToo, asks writer Beatrix Campbell.

Made by The Moment, 26 March 2019

BEATRIX CAMPBELL: 'Women were burned as witches simply because they were beautiful.' That's Simone de Beauvoir, an icon of feminism and one of the great philosophers of the 20th century, talking about how women are being punished for their sexuality, kept in line and objectified. So what would de Beauvoir have thought of the #MeToo movement? Her book, The Second Sex, was a founding text of modern feminism. It caused a scandal when it came out in France in 1949. In it, de Beauvoir scorned the idea that inequality and abuse were women's fault. She insisted that what was then called 'the woman problem' was always the problem of man. The Second Sex was published only four years after French women got the vote. President de Gaulle had just launched a campaign to repopulate the war ravaged Republic, telling women to stay at home and make babies *por la France.* De Beauvoir argued that this was exactly the cause of women's disadvantage. As mothers, they did the bulk of parenting and domestic labour. When they returned to work, it would be part time and poorly paid, and they'd still have to do all the housework. The Second World War had transformed the balance of power between nations, but not between sexes. De Beauvoir delved into history, the economy and, of course, sex, to try to find out why everything was so skewed. 'Woman is always judged. She is always the object,' said de Beauvoir. 'She lives under men's sexual surveillance. This male-centred culture holds,' she said, 'that humanity is male and man defines woman not in herself, but in relation to himself and for himself.' The persecution of witches was part of this - women being burned or buried or drowned, for not conforming, for being too alluring or not attractive enough, and for being, one way or another, too sexually threatening. So what would de Beauvoir have made of #MeToo? Ignited by multiple allegations across the film industry, including, most notoriously, those surrounding movie mogul Harvey Weinstein. Women said *J'accuse*

as they exposed the predatory world of Hollywood. They invoked a slogan coined in 2006 by Tarana Burke, an African-American civil rights activist. For her, it had been a way of organising solidarity against sexual abuse. Within 24 hours of the first tweet on the 15th of October 2017, an estimated five million people used hashtag #MeToo to share their experiences. De Beauvoir would have seen #MeToo as a leap forward, and she would have been disappointed that after all this time, we still have so far to go. De Beauvoir said, 'If you live long enough, you'll see that every victory turns into a defeat.' Victories like getting the vote can come to seem like defeat if they don't truly push things on. Take rape. A recent survey in the UK found that a third of people still think that rape is only rape if it's violent, blood and bruises. And it's not rape if a woman flirts on a date. Women are still walking over the proverbial flaming coals to prove that they weren't somehow asking for it. De Beauvoir would have seen #MeToo as just the catalyst. She would say men can take charge of their own change. 'Customs cannot be deduced from biology,' she wrote. This is no longer the 'woman's problem', it's everyone's problem.' Yet for all its hope, #MeToo showed that women are still routinely treated as sexual objects. Equality seems far away. The World Economic Forum estimates that women won't get workplace equality for at least 200 years, if ever. De Beauvoir would ask, 'What about justice for me too, you, too? Will women still be blazing for justice when we're all dead?'

458. What would a world without humans be like?

What would happen to our world if humans suddenly disappeared? With scientific advice from the OU's Philip Wheeler.

Made by Tandem Productions, 2 May 2019

NARRATOR: Here's a thought experiment. Every single human on the planet has gone. We don't know how. That doesn't matter. What we'd like to know is what happens next? What would a world without humans be like? Within days, the electricity grid fails as fuel supplies run out. And there's nobody to override the power stations' failsafe mechanisms. Within a week, the subways we built under the watertable flood. The 47 million litres of water that was pumped out of the London Underground every day inundates tunnels. Without heating or air conditioning, mould flourishes on moist surfaces in homes and offices and ice bursts pipes. Within weeks plants begin to take over buildings as the strongest species compete for space. No one's there to cut them back. Fast forward in time. The lines between city and countryside are blurred. Windows fall out of rotten frames and wildlife recolonises towns. Farmland is blanketed by scrub. And then trees and scattered on the surface are the things that will never degrade. Metals, corrode plastics, start to break down and disperse. But stainless steel pans, stranded granite worktops and billions of car tires remain. Nuclear facilities fail as their fabric degrades. Some explode, irradiating the local ecosystem and causing many animals to die. The radiation leads to mutations in others, creating new evolutionary lines. Meanwhile, the tiniest of plants are stubbornly breaking up even the motorways. Mosquitoes are having a great time. They've lost their enemy in us, but they've moved on to other

animals and they're busy pollinating plants, as they love nectar as well as blood. Endangered animals have a chance and space to multiply again. Lions and elephants could even reach Europe, the strongest swimming across the Suez Canal. Massive whirlpool islands of plastic carry on spinning in our oceans. Each piece of plastic is ground down until microscopic grains of it are everywhere. Bacteria may evolve to digest plastic, but this will take millions of years. Could the Earth ever recover? Atmospheric carbon dioxide is absorbed by the vegetation that carpets the land. Global temperatures and sea levels begin to fall. As chemical pollutants break down and sink into the earth, rivers become cleaner, animals and plants flourish. Is this a New Eden? Perhaps the Earth is a breathing organism that has lived with us for a fraction of its life. Our human ingenuity has led to extraordinary changes to the world. The planet would survive, indeed thrive without us. But it would never be able to forget us. We'd have left our mark.

459. What would happen if you fell into a black hole?

Stephen Hawking explains what happens inside a black hole and why they 'ain't as black as they are painted' - from his BBC Reith Lecture.

Published on 26 January 2016

This video was made by BBC Radio 4

STEPHEN HAWKING: From the outside, you can't tell what is inside a black hole. You can throw television sets, diamond rings or even your worst enemies into a black hole. And all the black hole will remember is their total mass and the angular momentum, an electric charge. Quantum mechanics implies that the whole of space is filled with pairs of virtual particles and energy particles that are constantly materialising in pairs and then coming together again and annihilating each other. One member of a pair of virtual particles may fall into the hole, leaving the other member without a partner with which to annihilate the forsaken particle or antiparticle may fall into that black hole after its partner. But it may also escape to infinity, where it appears to be radiation emitted by the black hole. The message of this lecture is that black holes aren't as black as they are painted. They are not the eternal presence they were once thought. Things can get out of a black hole both to the outside and possibly to another universe. So if you feel you are in a black hole, don't give up. There is a way out.

460. What would life be like without the state?

In the first in a new series, Newtopias, artist Gregory Sams sets out his radical vision of a world where the state no longer exists.

Made by Somethin' Else, 5 April 2018

GREGORY SAMS: Could we survive without rulers, without the state? We have survived for centuries, despite them and their destructive wars and stifling oppression, crippling taxes, sucking half our wealth away, sprinkling just a fraction back. It has been done before. Archaeology shows some of our ancestors living in peace for a few thousand years before armed rulers appear on the scene. Not in caves, but in cities with tens of thousands enjoying civilisation we would recognise. What would life be like without the state? Less complicated, divisive and confusing. For a start. Poverty would be slashed with half our wealth back in circulation and none wasted on wars and political schemes. Enterprise and innovation flourish without the regulation that favours large corporations. We do things voluntarily never because we are threatened with damage for non-compliance. It is a climate in which our cooperative and charitable nature can flourish when joined up in a free system. We find effective ways to meet our community's needs. We develop systems in which cream rises to the top instead of scum. Online vendors value their reputation. The state's only vital function is protecting us from other versions of itself. Everything else we could do ourselves. We could even develop a less rigid justice system with no victimless offences that benefits from a reduction in crime and fear. We could deter, punish and protect with levels of digital exile tailored to the offence – jails are just so last century. Civilisation developed through the connection and cooperation of people. We are more connected now than at any time in human history. We have the tools to develop structures that self-govern from the bottom up, evolving as times change. Could we survive a crash of the global banking system and the nation states they underwrite? We could survive and eventually thrive.

461. What would the UK be like without immigration?

Jonathan Portes of King's College London argues that the economy and society of the UK would be markedly different without immigrants.

Animated by We Are Covert, 14 January 2020

Made in collaboration with BBC Briefing

JONATHAN PORTES: Over the last two decades, immigration to the UK has run at rates unprecedented in our history, changing many aspects of our society and our economy.

CAPTION: WHAT WOULD THE UK BE LIKE WITHOUT IMMIGRATION? A viewpoint by Jonathan Portes, Professor of economics

JONATHAN: But what would Britain look like without immigration? How different would our lives be? Well, some of us of course wouldn't be here. About one in seven people living in the UK was born abroad. That's up from less than half of that at the turn of the 21st Century. Without immigration, the UK's population would have been shrinking for quite some time. If you think we're a small crowded island, that might sound good. Although remember, only 6% of the UK's land area is built on. Our

highstreets would look rather different, there would certainly be less traffic in our most populous cities. Less curry certainly, and fewer kebab shops. More fish and chip shops perhaps? Although guess what, it was Jewish immigrants who invented that dish back in the 1860s. And when populations shrink, places hollow out. In the 1970s, when more people were leaving the UK than arriving, the population of inner London fell by more than 20%. Jobs, growth, tax receipts all fell - only crime was on the up. It looked like London might go the way of Detroit. Not anymore. And perhaps more noticeable than fewer people would be that we'd be on average much older. More than a third of babies born in the UK have at least one parent from abroad. So our schools would be a lot emptier, but hospitals, nursing homes and residential care wouldn't be. Unless we got a lot better at training medical staff, we'd have fewer nurses and doctors. Just look at what's happened since the Brexit vote, but they still have almost as many old people to look after. And with far fewer workers to pay for them, either pensions would be lower or taxes would be higher. Because while immigration does add to the demand for services like the NHS, schools and pensions, immigrants pay taxes. And overall, they pay in more than they take out. So whatever you think of austerity, things would be worse if immigration had been lower. The current welfare state would be unsustainable, the numbers just wouldn't add up. With less competition, wages might be higher for some low paid workers but not by much, and not by enough to outweigh the wider economic downsides. Most of us would be poorer. Just like trade, immigration has made the UK a richer, more productive economy. We don't just rely on immigrants for nurses, construction workers and fruit pickers. Without immigration, our world-leading universities would no longer be world-leading. Well over half of research staff in science and engineering subjects are from abroad. Nor would London have become a global financial hub, or Cambridge a centre for biotechnology. If you want another example, look at football. Champions League and Europa League finals were an all-English affair. But with all four clubs managed by foreigners and a remarkably diverse set of players. Beyond economics, the country would look and feel very different. Almost all of us would be white, we'd be much more... This would be less noticeable in some sectors than others. High Court judges, prison staff and army officers would look pretty much the same as they do now. But we'd be less connected, less global, and more insular. The overall balance sheet? Well, that's up to you.

462. What you really need to know about having a baby

Do you poo in labour? Midwife and blogger Clemmie Hooper answers those awkward questions.

Published on 2 February 2017

This video was made by BBC Woman's Hour

CLEMMIE HOOPER: You probably will poo in labour. I wouldn't worry about it. There's many more important things you need to be focussed on in labour than whether or not you do a poo.

CAPTION: A midwife's guide to pregnancy with Clemmie Hooper, midwife, blogger, mother of four.

CAPTION: Morning sickness.

CH: Stupid word, really isn't it's all day sickness. I had it all evening with my first two. And then with the twins, I had it from the moment I woke up until I went to bed. It was horrendous. I always say to women, as soon as you wake up in the morning, no matter what you're doing, eat something then. And it's little and often. So I used to have just like a packet digestives, in my bedside drawer, and I just nibble on that. And just eat whatever you can. You don't need to worry about being super healthy. I lived off, like, really fizzy, chewy, sweets.

CAPTION: There will be blood.

CH: It's like a very, very heavy period, certainly for the first 24 hours. Every time you stand up, you're going to feel a bit of blood coming out or quite a lot of blood coming out. So you need to buy really big sanitary towels. None of these flimsy ones with wings. You want the solid, massive ones. I

CAPTION: Sleep.

CH: I know everyone hates it when I say this, but you have to try and sleep when the baby sleeps in the day. That's why in those first couple of weeks off, you've had your baby, really limit your visitors because that might be your quiet period. Babies tend to sleep quite a lot in the day, babies haven't got a sort of day and night sorted.

CAPTION: Breastfeeding.

CH: Actually, it can be really hard, breastfeeding. It's a skill that you need to learn and your baby needs to learn. So you've got to do it together. You're not going to nail it straightaway. And it may take a good few weeks, even months, to really feel confident that breastfeeding is going well. So don't expect it just to click straightaway.

CAPTION: Sex?

CH: There is no right and wrong time to do it. But you just need to do it when it feels right for you guys. I mean, the chances are you're not really going to be thinking about having sex. You've got a very young baby to be tending to. Sex is almost the bottom of the pile. Talk to your partner though, men can actually get really jealous, because suddenly the focus all on the baby and they're a bit, 'What about me?'

CAPTION: Competitive mums.

CH: Be wary about the people who you're hanging out with, because they're your kind of lifeline at the beginning when your baby's first born. They're the ones that you want to call upon and say, 'I haven't slept I need coffee and cake. Can I come over or can we meet in a local cafe?' If you're finding people are being really competitive and saying, 'Oh, my baby slept through the night', and that's making you feel really rubbish, they're kind of probably the women that you don't want to hang

about with. A lot of it is a bit of a front. Not everyone's baby sleeps through the night. In fact, I don't know anyone's baby that slept through the night at the beginning. It's not normal for a baby to sleep through the night. They need to feed. They need to grow. They need to eat.

463. What your clothes say about you

Neil MacGregor, former director of the British Museum, on how we define our identity through our clothes.

Published on 3 November 2017

This video was made by BBC Radio 4

NEIL MACGREGOR: Do you dress to stand out or to fit in? So much of what we wear, does both. A football shirt or a school uniform tells people who we are and who we're not. Dressing up for a night out, we want to get noticed, but we still want to feel at ease in our own group. For centuries, German immigrants living in Transylvania relied on their faith and their churches to preserve their identity, their culture and their sense of community. And so women and men around the turn of the 20th century celebrated Sundays by wearing a special sheepskin coat. On the inside warm fleece, on the outside, multicoloured floral patterns in leather applique and fine embroidery. This coat was a piece of art worn for protection against uncertain weather and uncertain times, a statements of who you were and where you belonged. Wearing their kirkenpelts, their church furs, people wouldn't dream of smoking or drinking. What they would do, as good Lutheran Protestants, was sing because 500 years ago Martin Luther had the epoch making insight that nothing in the world brings people together better than putting meaningful words to a singable melody and having everybody join in. From pop anthems to school songs, from football chants to club nights, we still define our identity and build our community, in what we listen to and what we sing along with together. For all our desire to stand out from the crowd, there's a freedom to be found in being together.

464. What your skirt length can tell you about the economy

The hemline index predicts that women wear shorter skirts when the economy is in good shape. How accurate is it?

Made by The Derek Jarman Lab, 13 February 2019

NARRATOR: Since the 1920s, economists have used everything from Big Macs to Lipsticks as barometers to forecast economic change. The idea that sales of specific products can be used to predict the rise and fall of stock markets can be traced back to the economist of George Taylor in 1926. Taylor came up with the Hemline Index, which argued that you can predict the strength of the economy based on the length of women's skirts, that the shorter the skirt, the stronger the economy. Born into a

family of textile manufacturers in Pennsylvania, Taylor became an expert in industrial relations in the Philadelphia textile industry. He developed the Hemline Index as a way of making the industry become more efficient. Taylor observed that during an economic boom, when ordinary women might be able to afford silk stockings, the fashionable length of women's skirts went up. He concluded that this effect was partly due to women's confidence in showing off their legs and their ability to afford luxury goods. Indeed, he predicted that when women had less money to spend, they would choose longer hemlines. In 1929, a stock market crash in the US brought a long period of recession. Known as the Great Depression, millions became unemployed in America and Europe. And with this downturn came a trend for longer hemlines and more conservative clothes. Just as Taylor predicted.

JOSIE MISICK *Senior Lecturer in Fashion Business, University of Westminster*: There's three kind of key dates or decades that relate to the Hemline Index specifically. So the 1920s and the flappers, the flapper hemline was very significantly, much shorter. It was above the knee, which was considered to be really quite shocking, that women would show their knee for the first time and that bare leg. Then you've got the 1960s and the mini skirt.

N: In the swinging 60s, new mass market fashions brought a trend for shorter skirts, in line with the stronger post-war economy. And again in the 1980s, miniskirts became popular alongside the free market boom of the Reagan era.

JM: That's where we started to see the return of the miniskirt. It was the ra-ra skirt. So it was this little ruffled short skirt, kind of young and fun and practical, brightly coloured. But then there was also the more formal miniskirt in the 1980s that was linked to the kind of shoulder padded suits of the times and the kind of empowerment of women in the boardrooms.

CAPTION: So, how useful is the Hemline Index today?

N: While many economists at the end of the 20th century were sceptical about the index in 2010, two academics at the Erasmus School of Economics, Marjolein van Baardwijk, Philip Hans Franses, examined data from fashion magazines against measures of GDP from 1921 to 2009. Their study argued that the headline lengths were indeed an accurate reflector of economic fluctuation. However, they found that these changing trends and skirt length typically lag three years behind market shifts rather than being an immediate effect. So while you shouldn't make investment decisions when you see miniskirts back on the catwalk, the Hemline Index proves an inextricable link between the worlds of fashion and economics. The Hipster Beard Index. Anyone?

465. What your toaster can teach you about the universe

Your toaster's elements glow orange, no-one has a toaster that glows blue. Here's what this can teach us about the universe.

Published on 12 November 2019

Made by BBC Reel

HELEN CZERSKI *Physicist*: We live in a beautifully complex world that's full of cats and trees and roads and clarinets and all kinds of things. And by comparison, the entire universe is very simple. And even the cosmologists would admit that. It's difficult to understand, but it isn't anywhere near as messy. However, the same physics applies everywhere. And that means that you can learn things even in your kitchen, that can shed some light on the fundamental nature of the universe. It starts with a toaster. I generally think that people should pay more attention to their toaster before they go worrying about the rest of the universe, because it's got lots of the same physics in it and it makes toast. Toaster elements glow orange. Nobody has a toaster that glows blue and the colours can't be changed. They're set by a very fundamental principle of physics that applies to everything in the universe. Every single object is glowing because it has a temperature and every temperature is associated with a very specific colour. So, for example, something that is white hot might be around 1,300 degrees C and something that's bright orange might be around 950. And then by the time it's still red, perhaps you're looking at 650 degrees Celsius. But after you've switched your toaster off and it's cooling down and the dull red fades, it's still glowing. It's just doing it in colours that we can't see in the Infra-Red. So for the white hot situation, it's emitting lots of energy in these wavelengths here. As we cool down, it cools into the red. So around 700 degrees. There's still a little bit of red left. That's why we see red. But there's starting to be more of these other Infra-Red colours. And as it cools even further, all the emitted radiation, all of that light is in colours that we can't see. But an Infra-Red camera can see it. And if we could see Infra-Red, we wouldn't ever need a thermometer, because we'd be able to tell the temperature of things just by looking at them. This sounds like a great superpower to have until you realise that you would never see complete darkness ever again because the world around you would always be lit by that glow. I'm glowing. Your glowing. Everything in this room is glowing. And so is the universe. The sky between the stars is black. And for centuries, astronomers thought there was nothing coming from that space. But then, as telescopes got better, they discovered that there was a faint glow. So they looked to see whether it matched a temperature and they had to go a long way down the scale. But eventually they did find a match in the microwave region. So that's when light waves are a millimetre in wavelength. And the temperature that colour corresponds to is 2.7 Kelvin. That's just two point seven degrees above absolute zero, the coldest that anything can be. So the universe is phenomenally cold, but that little bit of warmth is there, leftover from the big bang. And you can measure the temperature of the universe using exactly the same physics that you used to tell whether your toaster is working.

466. What's behind denialism?

Why do some people deny things - from Flat Earthers to climate change denialists? Sociologist Keith Kahn-Harris gives us his take.

Made by 7digital, 5 November 2018

KEITH KAHN-HARRIS *Author, 'Denial: the Unspeakable Trust'*: We hear a lot these days about denialists, climate change deniers, Holocaust deniers, Flat Earthers. But do we ever stop to wonder what makes them tick? Denialism is tough. It's hard work. It's a tremendous labour to hold back the mounting tide of evidence. So why do it? Why put yourself through all of that? To some extent, it's hardwired into our very nature. Humans have an extraordinary ability to refuse to face things that are difficult, threatening or embarrassing. One of the ways we do this is through denial. It's a psychological tool that most of us have used at some point in our lives. But this sort of behaviour is just one end of a sliding scale. At the other end, some people take their denial much further. They don't just deny inconvenient facts about themselves and their loved ones, but about the world or even reality itself. Denialism emerges when science and scholarship throws up evidence that seems to undermine one's central beliefs, and the only way to preserve one's sense of self is to deny that there is any conflict at all. Let's take the example of climate change denialism. People who deny that climate change is happening, are sometimes accused of protecting powerful economic interests or even being in the pockets of the fossil fuel industry. But for most climate change denialists, something much deeper than money is being protected. Often what they're protecting is a belief that our modern capitalist economy preserves a freedom so precious that if we were to limit our energy use, we would lose something essential about what it is to be human. What about those of us at the other, less extreme end of that sliding scale? We're not all denialists, but we all do deny. Most of us believe the science of climate change. But we also want our children to come home to a nice, warm house, so we turn up the thermostat.

BRUNA SEU *Professor of Psychosocial Studies and Critical Psychology, Birbeck, University of London:* Information about global warming, human rights violations, domestic violence, for example, is, by definition, distressing and disturbing. So I suggest when we communicate to people about disturbing issues, we need to follow the 'three m' principle. The information has to be emotionally manageable, because if it is too traumatic and overwhelming, people will switch off rather than engage with the issue. It has to provide meaningful understandings so that people can make sense and also make sense of their emotions. And finally, it has to provide moral actions that are effective and significant. If we can do this, then we can fight everyday denial and people will be better equipped to act.

KKH: But let's get back to the denialists – the people who refuse to believe the scientific consensus. Many climate change denialists implicitly concede that if climate change were happening, it would be a terrible thing. That's why they're denying it in the first place. Others, though, agree it's happening, but they just play down the consequences. So really, the only way to end climate change denialism would be to create a different world, a world in which it was acceptable for denialists to come out and say . . . "Yes, climate change is happening. Yes it is man-made. And no, we shouldn't do anything about it, even though it will cause tremendous suffering." Do we want to live in that world?

467. What's it like to be a child in care?

What's it like to be a child in care? This film is inspired by the true accounts of children in care and is performed by an actress.

First published on 3 December 2018

Made by BBC Writersroom

CAPTION: Some stories are difficult to tell. The following piece was created by Daf James and performed by actress Tia-Zakura Camilleri. It is inspired by the true accounts of children in care, from projects funded by BBC Children in Need.

TIA-ZAKURA CAMILLERI: Look at my face. Tell me what you see. I'm Ella. I'm twelve. But there's more to me than what you might think. You see here today, because often what you see just isn't who I am. Okay? Do you see Ella or a kid in care? Do you see my mum is struggling and can't keep me where I used to call home, but now I'm with Nan. She finds it all exhausting. But she's doing what she can, but . . . I'm sometimes sad cause I don't get to see my brothers or sisters anymore. But at least now I'm being looked after. At least I'm getting out more, there were before my mum would let me starve behind a locked door. Do you see a troublemaker or do you see a thief? Do you think that I'm in care? Because I gave my mum some grief. Would you even care that I'm good at geography into milkshakes and EastEnders? Do you see these hoodies comfort us, or do you see these young offenders? Reputations. We've all got reputations. But there's this place we come to, it's like home, I suppose. There's no need to explain yourself because everybody knows. And we feel safe here. Nan and me. We both need it because though I'm hard to live with so is she. And even though she's mine, round here everyone calls her Nanna, because though she's not related people claim because they can. Around here we all claim each other, know our dreams and where we've been. I guess there's lots and ways and means by which we all are kin. We don't always get it right, but we don't always get it wrong. Now I know what hiraeth means at last because finally I belong. And of course, we're not all perfect, someone nicked my phone last week, it's not all Tracey Beaker here, but neither is it bleak. Because in here we all get each other and we've got each other's backs. It's not always straight or narrow, but at least there's still a track. But then one day I saw a policeman standing by the door how I despised. All uniforms and smells. He made me freak out, freak out. I couldn't speak out or shout. I just ran away and hid and started crying because the last time I saw one, he was breaking down the door, gone, was everything I knew. But this officer was here to help, he's been coming every week volunteering, teaching how we all stay safe despite our cheek. Despite that party where I gunged him though not as much as Nanna, he didn't look so scary when his face was smeared with jam, huh? And soon I realised that his face had a name. And since I got to know it, he just doesn't have the same reputation. We've all got reputations. We've all got reputations. Look at my face. Tell me what you see. I'm Ella, I'm twelve. But there's more to me than what you might think, you see here today. So let us all imagine the stories we can't say.

468. What's the most common thing we all dream about?

Some things are more likely to occur in our dreams than others. Researchers have analysed the "average" dream. Here are the results.

Published on 25 October 2018

Made by BBC Reel

NARRATOR: Tonight, like every night, you will dream. And like every night, it is still completely open as to what is going to happen when you close your eyes. Probably weird stuff. However, there are some things that are more likely to occur in your dreams than others. The Sleep and Dream Database is a digital collection of tens of thousands of dream reports from all over the world. We have analysed the frequencies of different word categories in those reports in order to find out what the average human dream could look like. The one dream we all share. The good news first. The most likely food to appear in your dreams is chocolate. The most likely colour is white. The most likely location is a street. And the most likely form of transportation is a car. The person most likely to appear in your dreams is, yes, your mother. While the most probable animal is a dog. And social interactions will more likely be friendly than aggressive. However, the most likely emotion is fear. And if a supernatural being appears, it's likely to be a monster. Followed by spirits, ghosts, zombies and aliens. Falling is more probable in flying. And the most frequent natural element is water. Sex is less likely to play a role than money. And the drink that you think about most in your sleep is coffee. Well, maybe that means it's time for breakfast.

469. What's the point of humiliation?

Why does humiliation exist? And can we turn it to our advantage? Psychotherapist Philippa Perry explores this little-understood emotion.

Made by BBC Scotland, 27 June 2018

Made in partnership with The Open University

PHILIPPA PERRY: Humiliation. We've all experienced it at some point in our lives, or we've done it to others. But why? The point of humiliating someone is to dehumanise them, to redefine them. In other words, to rob them of the self-perceived identity and thus attack their power. We see these exchanges in parliament, in the news, on television, in sport. And this feeds the cycle of humiliation, being part of our culture. We've normalised humiliation. If we feel humiliated by our situation, we seek a group of others to blame and unfortunately, humiliate. Where did it begin? We're pack animals, and so to be socially attractive is important to us. Embarrassment, shame and humiliation have a role in our evolution. If we have committed what could be considered a faux pas, we show embarrassment and then we're less likely to be attacked by other members of the tribe. This is why we blush when we get employee of the month or are otherwise

singled out. We're saying with that embarrassment, 'Don't attack me.' Shame is something we feel for something we've done and its purpose is similar. Humiliation is done *to* us by others. It is embarrassment plus shame – plus, plus, plus. And what the plus, plus, plus is could be defined as loss of face. We have an idea of who we are, and what we're like. And when this is challenged, we can experience a feeling of being obliterated, a sense of loss of self. We can even feel humiliated if a photograph of ourselves is published and we have a different image of ourselves than that photo. The photo is a threat to how we want to identify ourselves. The usual scenario is the humiliator fears being humiliated, or already feels humiliated and powerless. And the way they see to regain their power is to take away power, to harm the identity of the person they see as their persecutor. Men, I believe, have a particularly tough time of it, because all over the world they have been socialised to be strong, brave, competent, which usually means suppressing or denying themselves vulnerable states as part of how they identify themselves. For example, a lot of men feel that in order to identify as strong, they can't be seen to show fear, grief or incompetence. This is a really difficult self-image to live up to. When a vulnerability is exposed by someone, it may be that the only way they can regain their supposed power is to resort to violence. And maybe this inculturation of the macho, tough guy being the only desirable image for a man. That's one of the reasons that men are many times more violent and aggressive than women. But the violence rarely ends anything. It usually leads to more humiliation and more violence. We may have a hunger for revenge, and humiliation is often a part of revenge. But the only way to redemption is to build up our enemies, not knock them down. This means, for example, giving prisoners education, training and therapy, not more punishment and therefore more humiliation, leading to more anger, more violence. Maybe we all need to be humiliated about our habits of humiliation. We need to readjust until we realise we have been all too stupid, lazy, unthinking and basically daft to carry on with this winning and losing game. Will we dare to be vulnerable and say we don't know the solutions yet? But humiliation, and otherwise annihilating the enemy isn't working. We just might become less susceptible to humiliation if we were not so worried about how others see and experience us. Let's let go of self-image.

470. What's the point of sport?

It can be agonising at times, so what is it about sport that captures our hearts and minds?

Made by Damn Fine Media, 19 June 2018

NARRATOR (*cartoon rat*) Ah! Humans, with their crippling doubt, alleged freewill, and endless fixation with sport? Probe any inch of this glorious globe and you'll see that's all they ever do. And it's no new fad. There are cave paintings from 15,000 years ago showing what at least looks like wrestling. So – and don't take this wrong - what's the point of sport? Well, rats can't pass on the move. But animals do hold ritualised contests. Male red deer hold long distance roaring contests to see who's hot and . . . sorry, mate who's not. Gazelles, on the other hand, use high jumping

contests to put off their lazy attackers. And herring gulls play a very curious sport where they drop and catch clamshells in mid-air. Why do they do it? Well, it seems to be for the sheer unadulterated pleasure. Which brings us neatly to neuroscientist and rat-botherer, Jaak Panksepp. Panksepp wanted to know which bit of the human brain play comes from. Is it a learnt behaviour in the more recently evolved cortex or a basic primitive function like eating and sex? So, being human, he tested his ideas on rats. Rats love wrestling, like emotionally stunted frat boys, they love to grapple, tussle and even pin each other for the win. So Panksepp chopped out their cortex to see what would happen. The result? They still wrestled. This suggests that play isn't something that humans, rats or even cats learn to do. It comes from a very primitive part of the brain and it's common to all mammals. So play may be vital to survival. If it wasn't, then wrestler rats would have died out long ago. Play may teach us how to live in social groups and do well in hierarchies. Taken one step up from rats, psychologist Jean Piaget studied children. He found that games helped them develop a sense of right within the rules and wrong outside the rules. So playing games may help human beings develop an understanding of morality. And it's no joke in the rodent community. Panksepp found that rats deprived of nurture and play grew up to be particularly unsuccessful adults. They couldn't tell the difference between threat and play signalling, and they were pretty much incapable of mating. So what's the point of sport? It may just be a matter of life and death.

471. What's the point of women's rights?

Human rights lawyer Cherie Blair argues the economic case for ending gender inequality is strong, but the moral case is even stronger.

Published on 2 January 2018

This video was made by BBC Newsnight

CHERIE BLAIR: Women's rights. What's the point?

TITLES: Viewsnight.

CB: What if I were to tell you there was one sure fire way of growing the global economy? That there is a vast opportunity that is being underused in every single country across the globe? That opportunity is women. McKinsey estimates that closing the gender gap in economic activity could boost global GDP by an additional $28 trillion by 2025. The smart economics argument has gained huge traction in recent years, with everyone from the UN to the private sector linking gender equality with financial reward, myself included. But should we be really just focussing on translating arguments for women's empowerment into financial forecasts? Isn't the fight for gender equality supposed to be about aspiring to a higher ground, rather than becoming fixated on the bottom line. Across the world, women are shut out of the labour market, confined to insecure, poorly paid work and forced to shoulder a massively disproportionate burden of care work. All because of their gender. Underlying all of this is a fundamental belief that women

aren't as capable or qualified as men. This sexist belief is outdated and dangerous. As well as stunting economic growth. It limits the dreams, aspirations and potential of millions of women and girls across the world. In 2018, we need to wake up to the fact that women make up half the global population. They deserve equal access to economic opportunity, not because they are instruments of growth, but because they are human beings. So let's not fight for women's economic equality just because it makes financial sense. Let's fight because it's the right thing to do.

472. What's the story behind our favourite emojis?

Emojis have come a long way since they were designed by Shigetaka Kurita in 1999. This is their story.

Published on 18 January 2018

This video was made by BBC Click

CAPTION: They've come a long way from the original 1999 designs, which are on display in the Museum of Modern Art in New York. Ahead of the iPhone X launch, Apple announced their new Animoji. Facial recognition software tracks 50 muscle movements. The phone uses facial data to create the appropriate expressions. Snapchat's Actionmojis show what a user is likely doing at that time. Sensors and GPs data guess the user's activity. There's now even an emoji-based social network. Polygram uses AI to map a user's facial expression. However, emojis might not be the answer to a universal language. What do you think this emjoi means?

VOX POP FEMALE: It's a friendly kiss, like 'mwah'.

VOX POP FEMALE 2: That's whistling,

INTERVIEWER: That's whistling?

VOX POP MALE: It looks as if that emjoi is pouting.

VOX POP FEMALE 3: I wanted to kiss the man or the lady on the right?

473. Whataboutism: Finger-wagging as a political tactic

What about this? What about that? Sound familiar? A quick spin through whataboutery with writer, David Quantick.

Made by Somethin' Else, 23 August 2018

DAVID QUANTICK: The A to Z of isms… whataboutism? Whataboutism, also known as whataboutery, is a way of criticising and, in some people's minds, defeating an opponent by accusing them of hypocrisy. What about X? What about Y? As a political tactic, it was employed by the Nazis in the 1930s. When Nazi Germany

was censured for annexing territories in Europe, its officials countered by saying that Germany was only doing what countries like Britain and France had been doing for centuries in Africa and Asia. The practice was continued by the Soviet Union in the 1950s in the area of human rights. Challenged on the murder of Soviet citizens by the state, Soviet officials countered by saying that black people were being lynched every day in the USA. The term whataboutery was also used in the 1970s in Northern Ireland, when Republicans and Loyalists pointed to their own sufferings as a justification for supporting violent action. All these instances are dramatic but ignore the fact they're based on an invalid argument: the notion that two wrongs make a right. Whataboutism is not a useful or logical form of debate, because it relies on the idea that two wrongs make a right. And while there is a lot of support for this notion, see also 'an eye for an eye', it's a false analogy. Doing a bad thing cannot be excused by the existence of another bad thing. If I steal your car, you should tell the police – stealing my car is not an appropriate response. Also, it's generally just an excuse. The Nazis didn't invade Poland as a protest against British imperialism. The Soviets didn't murder their own people as a reaction to American racism. You didn't steal my car because I stole his car and so on. In the last few years, whataboutism has resurfaced, partly because it's easier to point fingers away from yourself than at yourself, partly because the Internet is not always a place for high quality debate and partly because there's always room for one more idiot on the stupid bus.

474. What's the point of noses?

We all have noses. But what's the point of them? And why do they stick out? A quick look at the evolution and science of the human nose.

Published on 13 May 2020

This video was made by BBC Scotland

NARRATOR: Conk, neb, schnoz, hooter - whatever you call them, not many people actually like their own. But why do they stick out like that? Why are they made of that bendy cartilage tissue and not bone? And why did I get a spot on the end of it right before a job interview? Our lives would be very different if, instead of noses, we just had two holes in the front of our face - why do you think Voldemort was always so raging? Like loads of our external organs, noses evolved to help us eat and therefore live. Our nose is close to our mouth, with downward pointing nostrils, so even at the very last minute we can smell if something has gone rotten. Noses even help us eat when we're too young to nip to the shops ourselves, by making sure we don't suffocate while being breastfed. That little air gap created by your nose pushing up against the breast, coupled with the fact that the larynx sits much higher when you're a baby, means that you can eat and breathe at the same time. The external nose is mainly made up of springy cartilage and it's a good job too. They take quite a bit of a bashing throughout our lives, so it makes a lot of sense that they're softer and less likely to splinter and shatter. While our jutting noses are in prime position to take a battering, their position is also helpful for keeping rainwater

or sweat from flowing straight into our nostrils. Not all creatures are so design savvy - the Myanmar snub-nosed monkey has an upward pointing nose, and is nicknamed the sneezing monkey, because every time it rains, monkey goes atishoo. Sounds cute, but when you're trying to live your best camouflage life, a sneeze isn't the best way to stay concealed from predators. So your nose probably isn't as unfortunately shaped as the snub-nosed monkey, but what if you're not happy with it? Rhinoplasty, or a nose job to the rest of us, is the most common plastic surgery carried out on men, and it's nothing new. Rhinoplasty first became popular during the mass syphilis outbreak in 16th Century Europe, as one of the unfortunate symptoms of advanced syphilis is the loss of soft tissue and therefore, your nose. A nose job then was as much fun as the disease - surgeons would cut a flap in the arm, attach it to where your nose once was, and once it fuses with your face, sever your arm free and mould what's left into something resembling a nose. Push the thought of arm flaps from your mind and think about lovely, warm weather - our environment has influenced the way our noses evolved too. In warmer climates, there is less need to warm the air up on the way into the lungs, so the immediate flow of air straight into the lungs is preferable, resulting in shorter, flatter noses. In colder climates you're more likely to find long thin noses that are better at heating and humidifying cold air before it gets to the lungs. As well as being damn cute, dogs are said to have one of the best senses of smell going. According to a recent study carried out in Florida, specially trained dogs had an almost 97% accuracy in sniffing out cancer in blood samples. But our own sense of smell certainly isn't to be sniffed at - humans are better than dogs at identifying the smell of some ripe fruits, simply because it's a more valuable trait to us. And if you wonder why the smell of ripe fruit takes you right back to your 2008 Benidorm weekender featuring too many mango daiquiris, it's because of odour memory, a rather unique ability that we possess because the part of our brain that deals with our sense of smell is right next to the hippocampus - the area where memories are formed. Deja ooooh! Saving us from suffocation and salmonella, sneezing and freezing, it's safe to say we owe a whole lot to our pointy, flat, wide, button, bumpy noses. Even if it is where all the bogeys live.

475. Wheelchairs in the sky

Meet the woman fighting to get planes that can easily accommodate wheelchairs.

Published on 4 December 2017

This video was made by BBC World Hacks

NARRATOR: For wheelchair users, flying can be a nightmare. You can't stay in your own chair and the seats often don't provide the right support.

FEMALE WHEELCHAIR USER: I can honestly say I've never had an all around good experience.

MALE WHEELCHAIR USER: You are a dead carcass being lifted and hoiked into another seat.

MALE WHEELCHAIR USER 2: I've had two wheelchairs broken wheels broken.

FEMALE WHEELCHAIR USER 2: Quite often I've got left on planes for up to two hours because they can't find my wheelchair.

N: But this campaigner is taking on the global airline industry.

MICHELLE IRWIN: I maybe didn't realise how difficult it was going to be. But every door that closes two more open.

N: Could the solution be as easy as this? [*Graphic showing wheelchair wheeled into plane seat rows*] Michelle Irwin used to work in the US fashion business, but she gave it up because of her son.

MI: My son Grayson is 10 years old. He has a neuromuscular illness called spinal muscular atrophy. He's charming, he's got a lot of wit, and he definitely smiles and makes you smile.

N: But it's too risky for Grayson to fly without his wheelchair.

MI: We currently do not travel with Grayson any longer because of the risk to his physical self. However, I know if we had a wheelchair spot on aeroplanes, we would take advantage of that opportunity to travel again with our son.

N: In 2011, she began a campaign to make planes wheelchair accessible. It's already happened on many buses, trains and taxis, but not on aircraft. It's feared wheelchairs could be a safety risk in the event of an accident. Many people are working on a solution. This design turns an airline seats into a wheelchair. But Michelle, solution means you can stay in your own chair.

MI: A wheelchair spot on aeroplanes would closely resemble a wheelchair spot on a bus. You would be able to drive on board and lock down the wheelchair and you would be transported to your destination while remaining in your wheelchair.

N: She's had it crash tested. It met the basic criteria set by US regulators. Today, Michelle has flown into the UK to show the results to the airline industry.

MI: Interesting about that is in 2011, the leading manufacturer of wheelchairs . . .

N: It's a conference hosted by Virgin Atlantic. Why is this such a tough issue to solve?

GERALDINE LUNDY *Virgin Atlantic:* You've got not just the airlines, you've got the aircraft manufacturers, the seat manufacturers, people who build the wheelchairs. We've all got to work together to make sure it's safe for everybody.

N: IATA, the airlines' trade body told us that unlike other forms of transport, aircraft seats have to meet rigorous safety regulations that include survivability at several times the force of gravity. But Michelle believes a solution is imminent.

MI: It would be a pretty emotional day, I think, for me, if I could actually have my own child fly again and the hard work that we've been doing for the last seven years would be well worth it.

476. When Brexit divides your family

Jazza John's family was divided by Brexit. But, he says, it doesn't have to be that way.

Published on 16 November 2018

Made in partnership with BBC Radio 4

JAZZA JOHN: Hello, my name is Jazza and I'm a YouTuber and a podcaster. I grew up rural Essex. We are super white here, super British. I think there is like one French lady in the village, and that's pretty much about it when it comes to diversity here. When I grew up having Sunday dinners across this dinner table, we always talked about politics. And that was one of the things that was really brilliant about growing up here and having these conversations with my granddad. It was this thing that we had in common. Very rarely agreed, in fact, we almost never agreed. And then Brexit happened. My family, like loads of other families, was split clean down the middle when it came to Brexit. My brother and my parents and I voted to Remain and my grandparents, my uncle, they voted to Leave. We decided, as a family, that because passion was very, very high, that we would no longer be talking about politics at the dinner table. That was really the only kind of common point of conversation that we had. So it's a different story with my mate Jimmy. Jimmy and I are millennials. So obviously we have a podcast and we happen to also have landed on both sides of the Brexit debate. But actually we've gotten a lot closer since the vote. We are able to kind of take the mickey out of one another, point out each other's inconsistencies, because we are but human. We've actually become more extreme in our views.

> JIMMY: So I feel that often we do stereotype London as, you know, this cosmopolitan paradise. Whereas actually, you know, 40 per cent of the capital voted Leave. I'm not saying all Leavers are totally aggressive but erm . . . we do tend . . .
>
> JJ: But you are (*laughs*)
>
> J: . . . we do tend that way.
>
> JJ: Your words not mine.

JJ: They think that we are a really good example of being able to disagree passionately with one another and still have like a thriving friendship. We actually still agree on an awful lot of things. It's just this one particular issue where we came to different conclusions. It is important that we do continue to be able to talk about things and talk about politics, despite the fact that there is this massive division in the country at the moment. And I think that that's something that actually we've forgotten how to do in this country a little bit, especially since Brexit. We've kind of

become more entrenched on either side of whatever question it is, and we're shouting at the other side saying and saying that one side is evil and the other side is ignorant. It's . . . just the fact that we on different sides of this massive decision that we got asked to make as citizens.

477. When credit cards were squarely aimed at men

When American Express credit cards were launched, they were targeted at 'professional' men. Though you could apply for one for your wife...

Published on 27 February 2018

Made by BBC Ideas and World Service

CAPTION: Credit is all about TRUST – simple back when shopkeepers knew everyone. But as cities boomed it got harder to keep track. So shops began giving tokens to trusted customers. The idea grew and in 1950 came a universal credit card, trusted at multiple outlets. Frank McNamara reportedly came up with the concept after forgetting his wallet at lunch. It took off, 35,000 people subscribed within a year. Other charge and credit cards followed in the 50s and 60s. They soon spread around the globe.

BBC REPORTER: What people are you looking for?

VICE PRESIDENT, AMERICAN EXPRESS: Mainly, of course, the executive type, the executive person, the management team, the sales person, a person interested in sales, the . . . the professional man.

BR: Do you have to use this exclusively yourself, or could you, if you were unwise enough, give it to your wife?

VPAE: Oh, you have to use the . . . the original card you use yourself. But you can certainly get a card for your wife, we'd be very happy to supply her with one.

CAPTION: Today, of course, credit cards are used every day by many around the world. In Sweden, only 1% of the total value spent is now done with cash. Used wisely, credit cards can help us manage our finances. But are some of too quick to spend money that we might not necessarily have?

478. When football unites nations

A look back at the World Cup moments that seemed to change the world, at least for a bit.

Published on 11 July 2018

This video was made by BBC Archive

CAPTION: In the 1980s, Northern Ireland was usually in the news for one reason: sectarian violence. But on 25 June 1982 these deep divisions were kicked into touch for a crunch World Cup match. Tournament hosts, Spain, were their hotly tipped opponents. Across Northern Ireland, everyone gathered round their televisions, more in hope than expectation. But dreams came true when they saw striker Gerry Armstrong score the winning goal. The victory was greeted with unbridled joy. It was a moment that changed Armstrong's life.

WORLD CUP REPORT *1982*: Armstrong is the Irishman the children wait to see, the signature they want above all in the Northern Ireland squad. From super sub to superstar. And that one goal has made the difference.

CAPTION: And for a brief moment, thoughts of the Troubles were put to one side.

BBC NEWS NI *Scene Around Six:* As you know yourself, Northern Ireland gets a lot of bad publicity. So any good publicity it's very, very good for Northern Ireland.

VOX POP MALE: It's given us something to be proud of. You know with the Troubles and all here, like, you know, and then Northern Ireland qualifying for Spain, going to a quarter final, do you know like, it's done a lot for here.

CHRIS MOORE *BBC News NI*: Apart from bringing a smile to everyone's face back here at home, Northern Ireland's performance in the World Cup in Spain has had one other very noticeable side effect. In a country normally divided by religious and political views, the team's success has been cheered with equal fervour by people in both the Protestant and Catholic communities.

CAPTION: Armstrong's goal brought a nation together, but sometimes football can even be said to unite whole continents. For decades, Africa was largely side-lined by the football fraternity. When FIFA failed to guarantee a place for an African team in the 1966 World Cup, all African nations boycotted qualification. African participation increased over the years, but the players were often patronised, until Italia 90 when Cameroon beat the world champions en route to the quarter-finals.

BBC SPORT ON SUNDAY: Roger Miller is the star of this World Cup, in demand from foreign journalists as comfortable in conversation as on the ball. African football is forcing its way alongside the European and South American game. The Cameroon bandwagon as a whole will no longer be patronised as underdogs.

CAPTION: Of course, some rivalries are more heated away from the pitch. The relationship between Iran and the US has long been antagonistic. So when the two sides were drawn in the same World Cup group in 1988, there were security fears. But any hint of animosity was dispelled before the match even started.

BBC NEWS *1998*: America and Iran's prematch courtesy testified to the unifying power of the World Cup.

CAPTION: Before kick-off, the Iranians presented each US player with flowers and the players posed, arm in arm, for the media. In the end, the Iranians won 2-1

but some of their supporters back home were not quite as magnanimous as the players.

BBC NEWS *1998*: This march had been eagerly awaited. It must have been watched by almost every Iranian, one local paper here said that to beat America would be better than winning the World Cup final.

CAPTION: The friendly pre-kick off gesture certainly did not translate into any political goodwill.

BBC BREAKFAST *1998*: Iran's supreme leader congratulated the players and said an arrogant opponent had been defeated.

CAPTION: This year's World Cup may yet produce similar magic moments that transcend sport. Usually there is only one word that can express the joy of such a moment . . . Goal!

479. When globalisation makes you feel like you don't belong

Author Aatish Taseer reflects on the changes that migration and urbanisation have brought to people's lives.

Published on 13 January 2020

Made in collaboration with BBC Briefing

AATISH TASEER *Author*: My father was of Pakistani origin. He was a politician in Pakistan. My mother was a journalist in India. And their relationship didn't last long. I'd been born in London and I grew up in Delhi with my mother. For my education, I was in America. It took me a while to realise that . . . that all these confusions were also part of feeling at home in multiple societies and at the same time not really feeling at home anywhere. People all over the world are feeling a version of that more and more. The actual experience of globalisation and the way that people are reached by a foreign culture in their own home, through social media, through television, changes their . . . their values, changes their norms. It changes their ideas of who they are. And we are more and more, I think, dealing with a confrontation between this need to go back to an idealised version of the past, versus a world in flux and a world that is projecting itself into the future. A few years ago, in Varanasi, I covered the election of Narendra Modi, who's now the prime minister of India. And Narendra Modi was kind of a precursor to a phenomena that we're now seeing everywhere with Brexit, with Trump, with the rise of various Eastern European leaders, Bolsinaro in Brazil, Duterte in the Philippines and in every situation, one sees that the fault lines are the same, that it's town against country. It's sort of tradition against the sort of modernised urban landscape. And people, sort of, heartlands in kind of revolt against what they see as sort of urban centres that talk down to them, that represent a sort of aristocracy almost. And what we have to recognise more and more is that in various urban centres, a way of life has come that is shared, from New York to New Delhi. And in each of these societies, there are people who are not

part of this change, who don't feel at home in it. And even when they're exposed to it, feel a sense of longing for a sense of a real India or a real America or real Britain for people to feel whole again, for people to feel rooted again. They have to, in a sense, be quite hard with themselves. They have to recognise that their nostalgia is a kind of sentimentalised longing for home. There's a wonderful writer called Coomaraswamy and he says that, you know, the world is always new and that we sort of . . . we must look towards the future, but to love passionately what we have left behind is . . . is the is the only way forward. And so it is possible to feel a great love and an affection for one's culture, for one's tradition, for one's authenticity. And at the same time, renounce the vestiges of the past and realise that the world is being remade and that one should find a way to be part of it and . . . and to embrace the change, for all the vitality and the newness and the sense of flux that it brings and to not let one's uncertainty engulf one.

480. When motorway services were the height of cool

Much maligned and under-appreciated - but when the first motorway service station opened 60 years ago, it represented modernist progress.

Published on 25 October 2019

This video was made by BBC Archive

CAPTION: Much maligned and often under-appreciated, yet essential for resting, refuelling and musing on other people's lives. For many, motorway service stations represent the drudgery of everyday life. But could they also be liminal hinterlands of intrigue waiting to be discovered? The UK's first full-length motorway, the M1, opened in 1959 and the first service station followed soon after, at the Watford Gap. Those travelling Britain's new arterial road network needed places to stop and refuel, eat and use the toilet. The new facilities represented a modernist vision of progress. But there were perils to the motorway pit stop that required some explanation.

PUBLIC INFORMATION FILM: If you overshoot the turning point, don't try to do this, reversing and turning on the motorways is an offence which could cost you £20 in a magistrate's court. This is also an offence. Motorways are for motoring, not for parking and picnic parties.

CAPTION: Some of the early service stations were glamorous destinations in their own right for the upwardly mobile and full of fresh new ideas imported from the continent. Service stations like the Blue Boar (aka The Watford Gap) became an unlikely musical meeting place for 60s bands. Apparently, Jimi Hendrix thought it was a gig venue and wanted to perform there. They were so revered that you could even send your friends a postcard from your favourite station. Forton Tower was a symbol of a time when Britain seemed to be travelling down the newly-built motorways to a bright new future. But as the empty wide expanse of the new motorways began to fill up with traffic, the novelty of the service station began to

wear off. They began to acquire a reputation as being dirty, crowded and expensive. And as places for crime to fester. The quality of food on offer was also subject to criticism.

EGON RONAY *1971*: Quite obviously a frozen battery bird. It tastes of sawdust, really.

CAPTION: By the time John Major relaxed government controls on what service stations were allowed to sell to customers, they'd fallen behind the times. And Anti-road protests marked a change in the public's attitude towards motorway. So what do service stations represent culturally? They're places where you can see a cross-section of society. But they're also 'non-places' – a term coined by anthropologist Marc Auge – to describe spaces where people remain anonymous and where reality seems distant. In these 'non-places' we're disconnected from our environment surrounded by others yet isolated. They also reflect a sense of a lost progressive future, a decline of the modern as the stress of driving grew and became another act of drudgery. There are challenges to this stereotype of the service station though. Some have tried to bring the high street to the motorway. Others have rebranded as eco-conscious. Whilst once derided buildings have been granted listed status. But as electric and driverless cars become the norm, maybe the need to stop by the side of the road will seem like a quaint relic of the past.

CAPTION: Thanks to Stephen Prince.

481. When perfectionism goes too far

Many of us believe perfectionism is a good thing, but researchers say it can actually contribute to many health problems. By Amanda Ruggeri.

Published on 24 July 2019

Made by BBC Reel

AMANDA RUGGERI: Perfectionism. If you're anything like me, it's a word you might associate with positive qualities. It's even the answer that many of us give to that classic job interview question, hoping it'll somehow make us look good. 'What's your worst trait?' 'Oh, it's perfectionism.' But more and more researchers are finding that perfectionism isn't a positive. Instead, it's a toxic way to move through the world. It doesn't make you successful. And it definitely doesn't make you happy. One of the main problems with perfectionism is that it's built on a terrible irony. To be a healthy and successful human being, you have to learn from your mistakes. And to learn from mistakes, you have to be okay making them first. If you're a perfectionist, you might avoid that at all costs. That can mean that you don't shoot high enough to risk failure. It can also mean that you don't learn in the long term. Then there's the mental health aspect. If you rank high on a list of perfectionistic tendencies, here are the things that you're at a higher risk for too: depression, anxiety, self-harm, early mortality, suicide, and the list goes on. It's important here to differentiate between perfectionism and conscientiousness. The latter is being a hard worker or being disciplined, which can look like perfectionism from the outside. But when it actually

becomes perfectionism and gets toxic is when it comes with that critical inner voice. Think of a student who works hard, preparing for an exam, striving to get a good mark and fails. What does she tell herself? If her inner voice says, 'I'm disappointed, but it's okay, I'm still a good person overall,' that's healthy. If it says, 'I'm a failure, I'm not good enough.' That's perfectionism. That inner voice isn't just unhealthy, it even undermines your chance of success. Because perfectionists are so stressed out by failure, they tend to overreact to obstacles and they experience more guilt, shame and anger when they do make a mistake. They also give up more easily than non-perfectionists, none of which obviously is the key to success or to a fulfilled, happy life. So how can you fight perfectionistic tendencies? Experts say it starts in childhood. Avoid making children feel guilty for mistakes. Watch how you praise them, too. If children are praised only when they do something well, they learn they're only really worth something when they've won the approval of others. It's important to show children that you love them unconditionally, no matter how they perform for the rest of us. The most important thing is to let go of the idea that beating ourselves up for mistakes somehow makes us better and to replace that self-criticism with self-compassion. When you make a mistake, acknowledge your disappointment, but then try to speak to yourself in the way that you'd speak to a friend that you care about. We all know the adage, treat others as you would like to be treated. Perhaps we have to also start saying, 'treat yourself as you try to treat others'.

482. When the UK didn't have a drink-driving law

It was controversial at the time, but the introduction of drink-driving laws brought a seismic shift in attitudes and saved many lives.

Published on 22 May 2018

This video was made by BBC Archive

CAPTION: The UK had no drink-driving law until 1967. Attitudes back then were very different indeed. But with about five million cars on the road, and an estimated 2,000 deaths a year related to drink-driving, transport minister Barbara Castle said enough was enough.

BARBARA CASTLE: Unless the rise is checked, we could have something like a million casualties a year by 1980.

CAPTION: Some of the original ideas for a limit were . . . shall we say, of their time. Here's how BBC programme Panorama covered the story (with the help of a few whiskies)

ROBIN DAY: Now it's been suggested and there's a bill coming before parliament to try and make a limit. Now, what does 0.15% alcohol in the blood mean, in terms of drink consumed?

UNNAMED INTERVIEWEE: For an 11 stone man, it'll be about eight pints of beer or somewhere around 12 single whiskies, six doubles.

RD: That's a pretty high limit, isn't it?

UI: Yes.

CAPTION: With the Road Safety Act of 1967, the breathalyser was introduced. Along with a much more stringent limit, closer to two pints of beer. Traffic police around the UK were trained in how to use the new apparatus. As the British public grappled with the impact of the new laws.

JOURNALIST: Have you had anything to drink this lunchtime?

INTERVIEWEE: Soft drinks.

J: What would you normally have had?

I: A pint of bitter.

J: But you decided to give it up?

I: Yes, in view of the recent developments with the breathalyser test, no hard liquor.

VOX POP MALE: Well, either one's got to have a wife that's going to agree with you that she's going to do the driving, or else you just don't go.

VOX POP MALE 2: Well, I think it's a damned infringement on the liberty of the citizen. Normally I have a beer, perhaps a couple of scotches, now I'm just reduced to this bloody awful drink, lemon and shandy.

CAPTION: With their takings down, publicans banded together and marched on Westminster in an ultimately unsuccessful effort to get the law repealed. If a drink-driving law seemed like a no-brainer, then consider that it would be a further 16 years before wearing seatbelts in cars became mandatory. The drink-driving limit has nearly halved since its introduction and deaths are down by 85% since official records began in 1979. Proving that sober driving is always safer. And the 8 pints before home days are thankfully long gone.

483. When the heart was deemed too sacred to operate on

Charismatic and controversial, surgeon Christiaan Barnard pioneered human heart transplants - and faced a barrage of criticism.

Published on 2 May 2018

This video was made by BBC Archive

CAPTION: South African surgeon Christiaan Barnard became word famous in 1967 when he performed the first human-to-human heart transplant.

CHRISTIAAN BARNARD: We have nothing to hide. We've done what we thought is correct. And therefore, if the people would like to criticise us, then we will . . . we are willing to answer them on the criticism.

CAPTION: Although the patient only lived for 18 days, it was undoubtedly a major medical breakthrough. But at that time, Barnard had his critics.

MALCOLM MUGGERIDGE *Commentator*: I wonder what the fury of him would be a at the notion that our bodies are collections of spare parts.

MR ANTHONY DE BONO *Cardiovascular Surgeon*: We're going to get so many failures that the public reaction against it will effectively postpone the day when we can all say that this can be safely done.

CAPTION: In 1968, a Tomorrow's World special was dedicated to the subject. It was called *Barnard Faces his Critics.* The criticism was in part due to the historic symbolism of the heart. For centuries, the heart was seen as having special metaphorical importance as the seat and soul of moral judgement, and a symbol of love, life and humanity.

SIR THOMAS HOLMES SELLORS *Surgeon*: It is a very emotional orb and with a lot of mystique round it. And matters of philosophy that are bound up with this.

CAPTION: Barnard argued the first transplant would provide the platform for further success.

CB: This type of work stimulates more research. We have some hope of success with any type of organ transplant.

CAPTION: And despite criticism, there was acclaim from those who had transplant operations or were waiting for one.

KIDNEY TRANSPLANTEE: Well, all I can say is I'm very grateful for my spare part.

UNNAMED MALE: I've followed Professor Barnard through the whole business, and I've been through it because I've been waiting since 1962 to live a life which I hope a new heart is going to give me.

CAPTION: The first heart transplant in the UK was performed in May 1968, three months after Barnard faced his critics.

JOHN GIBBONS *National Heart Hospital*: Well, he's doing extremely well at the present moment. He seems quite fit. He's just been talking to me about five minutes ago.

CAPTION: To the disappointment of the medical team, (pictured here) the patient died 45 days later. Repeated complications around rejection meant that by 1970 heart transplants in the UK were put on hold. So in 1973, Barnard returned to the UK to extol their virtues. But once again, he faced a barrage of criticism.

SHIRLEY WILLIAMS *Labour MP*: You could save lives, as we could save lives, in their thousands for very much smaller resources than we are talking about in respect of heart transplantation.

JOHN WILDEN *Medical Student*: The problem is not ripe for solution at the moment and what we would like to say is really, 'Back to the lab, my boy, until you've got this sorted out.'

CAPTION: But Barnard stood firm.

CB: Where it says that 213 heart transplants have been done so far and 34 patients are still alive. That's the important figure. In other words, there are 34 patients alive today that would have been dead. Now, you may say, you may turn round to me and say, 'Well, that is not very important. That's not a very good result.' That depends on how much value you put on a human life.

CAPTION: And with the discovery of the immunosuppressant ciclosporin, rejection of new hearts declined and the numbers living for longer after transplants began to rise. When heart transplants began again in the UK in 1979, they were more successful. In 1980, Gordon McDonald was the grateful recipient of a heart transplant.

GORDON MCDONALD *1997 (17 years after his transplant)* To me, it's quite unbelievable. I must say, I've almost realised all my dreams. I've seen my children grow up. I've had 17 extended years with them.

CAPTION: The risk involved with heart transplants was significantly reduced. The success allowed Barnard to revel in finally silencing his critics.

CB *Breakfast Time, July 1986*: My visit here reminds me very much of my visit here 19 years ago when the BBC had a programme called *Barnard Faces his Critics.* And some of the critics were hysterical about my involvement in cardiac transplantation and how wrong it was and that it would be a failure. I wonder what happened to those critics. I think they're all quiet now because time has shown that the approach to this problem was correct.

484. Where did all the women in tech go?

Women used to dominate the computing industry in the UK, says historian Marie Hicks. What happened?

Published on 5 February 2019

Made in association with Nesta

MARIE HICKS: I'm Marie Hicks. I'm a historian of technology. There used to be more women in computing than men. Where did they all go? In the 1950s and the 1960s, computer programming was decidedly women's work. But as the 1960s stretched on, women started to be replaced by men and not just by men, but management

level technocrats. The gender of the field flipped, because women were pushed out, not because they didn't have the tech skills. And many women found themselves in the position of training their male replacements. Not all of the women who were pushed out of the workforce stopped working in computing, however. Dame Stephanie Shirley, who back then went by the moniker Steve, actually started her own freelance software company, and Shirley had an explicitly feminist business model. At this point in time, most programming was done with pencil and paper before being run through a machine. So, Stephanie Shirley's workers could work from home and they could have flexible hours that allow them to take care of children and families. One of these workers, Ann Moffatt programmed the black box flight recorder for the Concorde. And you can see her programming at her kitchen table while her young daughter looks on. But many other women just left the field entirely. This produced an enormous skills shortage and a huge labour shortage, meaning that the people available to do the important work of computerisation were suddenly too few in number. As a result of this, the British government decided that they needed to change the design of the computers that they were using since there weren't enough people to run them. They would concentrate and centralise computers in conjunction with the Ministry of Technology. The British government forced a merger of all of the remaining successful computing companies, and this created one big company that was supposed to provide the government and the entire nation with the kind of huge centralised mainframes that could be run by the small number of technocrats who were now remaining. The problem with this, however, is that by the time the machine was delivered, the mainframe was on the way out. And even though ICL's line of computers was highly technically advanced, it wasn't something anyone wanted to buy anymore. This effectively destroyed the British computing industry. And today we see similar things going on. Discrimination continues to wreck high tech economies and high tech labour markets, and the results reverberate out into the rest of society. Right now, we see in the United States, Silicon Valley having a day of reckoning in terms of how they hire, promote and decide to design their technologies. All of the talent that is lost hurts the industry and hurts the economy. But what's more important is that these people lack a voice in designing critical infrastructure that we're all going to have to live with. It can undermine the principles of democracy. By looking at examples from the past. we can find out not just how to build better technologies, but how to construct fairer societies.

485. Where do phobias come from?

Scared of spiders, holes, heights...? Phobias are very common. But why do we have them? (P.S. all characters in this film are actors.)

Made by Shakehaus, 19 December 2019

NARRATOR: What's going on inside you when you're having a phobic reaction? In your brain the amygdala recognises this is a danger situation. The hypothalamus triggers your fight or flight response. And the hippocampus takes note of your fear. It

will remind you next time. Your breathing gets quicker, your pulse speeds up, you sweat, your muscles tense, there's more glucose in your blood, increasing your energy. For most people, the pre-frontal cortex, the rational, uniquely human part of the brain, can calm the amygdala down. But if you have a phobia, that process doesn't quite work. Your brain's constantly stuck in tiger attack mode.

CAPTION: Where do phobias come from?

N: The first phobia in history belonged to a man who was absolutely terrified of flute music, but only at night. This was described 2,500 years ago by the Greek father of medicine, but Hippocrates didn't use the word phobia, this came 500 years later when the Roman author Celsus used it to describe a disease... which we now know as Rabies. Celsus took the word phobia from the Greek god Phobos, who was so terrifying that warriors would paint his face on their shields to scare their enemies. One of Freud's most famous case studies was a boy called Little Hans who developed a terror of horses after seeing one collapse in the street. Freud thought that this was really an unconscious fear of his father and related to sexual feelings for his mother. Modern psychoanalysts still believe that phobias can be caused by secret internal conflicts like this. Another theory is that at least some fears are innate. One study showed young infants images of spiders and snakes and found that their pupils dilated, a sign of fear. Or intense focus. The theory is that fear of spiders and snakes gave us an evolutionary edge. Around 5% of people have these phobias. And perhaps the same mechanism left us with other common phobias, a fear of heights, darkness, confined spaces, all dangerous when we were evolving. A huge number of phobias have been spotted and named since Little Hans. There's... iatrophobia ...the fear of doctors. Pogonophobia...the fear of beards. And... deipnophobia ...fear of dinner conversation. We may not know the root cause of phobias, but we do know how they develop. You can catch a phobia by seeing other people's fear. You can be taught a phobia, learning about germs can lead to bacillophobia. Or you can get a phobia by having a traumatic experience, especially in childhood. Despite all that, common phobias are quite similar across cultures. But one of the few that's culturally specific is taijin kyofusho, the Japanese phobia of embarrassing other people. All the phobias we've mentioned are classed as... simple phobias… fear of specific things. But there are two complex phobias. Social phobia is triggered by being around people you don't know, and agoraphobia by being away from home, especially without escape routes. Whilst these are serious conditions, they can be treated with therapy and medication. Simple phobias, despite the suffering they cause, are easier to treat. The NHS recommends Cognitive Behavioural Therapy, with a therapist helping you to gradually get used to whatever it is you fear. So if a phobia's getting you down, why not pop in and see your doctor? Unless of course you're iatrophobic, in which case, it's probably better to have a word with the nurse.

486. Where you're banished for having periods

In remote parts of Nepal, the outlawed practice of 'chhaupadi' forces women out of their homes during menstruation.

Originally published on 30 April 2017

This video was made by BBC Stories

JOURNALIST: Women sleep here?

WOMAN: Yes, we stay here.

J: How do you fit in here?

W: We have to crawl.

CAPTION: What would you do if you were forced out of your home during your period? In some areas of Nepal, it's just part of life.

J: So did you stay here for your first period?

W: Yes my first chau was here. Initially I used to wonder how could people stay here? Don't they get scared? When you're here alone, thugs could come in. But now it just feels normal.

CAPTION: Women have to sleep out for four nights. During that time they can't touch men or eat certain food.

MAN: Things have changed a lot. In the past we kept them outside, not in rooms. Now we let them stay under the house.

MAN 2: In the old days people said the gods get angry and that's why the practice was followed. But I believe it's more about keeping a clean environment and a lack of health and safety in the house.

J: Do you remember anyone getting ill because they didn't stay in chau?

M: Yes. I used to get ill.

J: You would get ill if your wife didn't sleep in the chau hut?

M: Of course I would if she touched me!

W: I don't like to stay out, but it is said that the gods will get upset.

J: Do you sleep out just because of the gods?

W: Well, if chau is not practised properly, then snakes and tigers might attack. I personally don't believe it, but it's an old saying. That's just how things are here.

WOMAN 2: It's said that if we touch a cow when we're menstruating then it will stop giving milk.

J: But have you guys ever tested it?

W2: Even we are sometimes naughty and we touch them sometimes. We haven't seen anything bad happen. But the elders say we shouldn't do it.

J: In the future will you make your daughters practice chau?

W2: We wouldn't make them do this.

CAPTION: 22-year-old Laxmi is pushing the boundaries even further.

LAXMI: I do practice chau, but I don't sleep outside. I sleep separately on the ground floor of my house. My parents say, 'You shouldn't stay in, go out.' I say, 'I won't go outside! Why should I go?'

J: Are you the only one in the village refusing and staying home?

L: It's not just me, there are a few others. My parents don't follow it as strictly as my grandparents. And my brothers and sisters don't follow it as strictly as my parents. So change is bound to occur.

487. Which countries will hold the power in 20 years' time?

Water wars, Europe in decline and a dominant Africa - the BBC's James Robbins on how global power might shift over the next 20 years.

Animated by Paper Panther, 26 March 2019

Made in association with Nesta

NARRATOR: By 2039, the world will look and feel very different. The rate of change is itself speeding up and twenty years from now power will have shifted dramatically. So who might be up and who might be down 20 years from now? Let me take you on a journey of possibles. Up: Africa. A rapidly increasing population could fuel Africa's surging economic growth with a pool of young, better-educated and globally connected workers. But the biggest revolution in Africa might be the spread of vast super arrays of far cheaper solar panels, to quote one energy guru. The world will have learnt to put solar panels where the sun actually shines. Also up: China, the superpower, after cornering many of the world's vital raw materials. Could it now control both its own people and many other countries struggling to repay its loans? Could we see a world where China exerts its influence through movies and music, too? But if there are winners? Which countries could be losers? By 2039? Down: perhaps most of Europe, financial services and banking will be overwhelmingly driven by AI so Europe loses much of its global edge. Parents who once urged children to become lawyers and doctors beg them to become designers, artists, even actors. Anything creative not easily done by robots. Down, but not out: the United States of America eclipsed by China and paying a price for getting late to wind and solar. Also down: the Middle East, largely ignored internationally because no one needs its oil and gas anymore. So what commodities could be driving the future in 2039? Fossil fuels have become the new forbidden fruit. Oil has lost most of its value. Alternative fuels, plus a collapse in the use of plastics has seen to that. Water, clean water will be more precious than ever. Water wars have replaced oil wars along the Nile or any mighty river, conflicts could break out as states closest to

the sea fight those further upstream accused of taking too much of the water. Data, however, will be king. By 2039, more and more is being bought and sold, mostly illegally and in secret. All governments will rely on data as the method of control. Some countries will have followed the Scandinavian lead by choosing near total transparency of tax returns, earnings, lifestyles to reduce the secret data threat, and more and more citizens everywhere could be fighting back, becoming data refuseniks, fed up with the negative effects of social media will they simply abandon cyberspace wherever they can, minimising their electronic footprint? Even reverting to writing and delivering private messages by hand?

488. Which language has 400 words for snow?

The Scots language has an incredible 421 different snow-related words and expressions. Here are just a few of them.

Published on 10 April 2018

This video was made by BBC Scotland

NARRATOR: Scots is a marvellously rich, poetic language of the everyday becoming extraordinary. We make words for what we know. And up here, we know a lot about weather, especially snow. There's a well-known debate about whether or not Inuits have 50 words for snow. However, it's less recognised that the Scots language has incredible 421 snow related words and expressions.

CAPTION: These were logged by the research team at the University of Glasgow while compiling the Historical Thesaurus of Scots in 2015. Here are just a few of them. Snaw-Breaker A poem written for BBC Ideas by Stuart A Paterson, Poet in Residence, BBC Scotland.

N (*reading poem, transcript taken from subtitles rather than what's said*) I am the great snow-breaker, who makes the whole herd shift. Making my way against each dusting of snow, crackling through each drift of snow. My coat is stitched with big snowflakes, the bitter wind is my breath. My eyes burn through the light snow shower, the forehead and the hooves my tools. In drifting snow maybe you'll see me, nose down as I trudge through the snow, freezing and shivering, solid and stubborn as I fight across each hoar frost and snow. The minute it starts to snow, I'm thinking of snow swirling round corners and oddly falling snow instead, of sprinklings of new snow, powder and snow falling lightly. I've a dictionary of snow in my head.

N: Scots is one of Scotland's three remaining indigenous languages, along with Gaelic and English. It's a Germanic language, but it has many other influences and a written tradition going back several hundred years to when it was the official language of the Burgh and Royal Court. It was and still is in some rural parts of Scotland, the language of agriculture, fishing, weather and landscape. Nowadays, it's officially recognised by Brussels and Westminster as a minority or regional language under European charter. In the 2011 census, over one and a half million Scots identified as Scots speakers.

N (*reading poem, transcript taken from subtitles rather than what's said*) I'm the one who pushes onwards, through the chilly and bone-numbing night. No stopping for small snowflakes, big snowflakes or drizzle, until I've made sure the herd is alright. I am the great snow-breaker, who makes the path for all. The lamb, the ewe the great big ram, I'm the woolly plough of the snows. I'm the mighty Ram of Winter who's neither shy nor soft. The Sherpa of the sheep world, the snow-ghost made of flesh.

489. Who is really in control of your mind?

When you make everyday decisions, are you acting out of free will? It's probably not a straightforward as you think.

By Melissa Hogenboom/Pierangelo Pirak, 13 March 2020

Made by BBC Reel

MELISSA HOGENBOOM: I chose to be here. This was my choice. At least . . . I think it was. Most of you will believe that you chose to watch this video.

PROFESSOR HELEN BEEBEE *Philospoher*: We do worry about manipulation by the media and by advertising and by other people and so on.

MELISSA HOGENBOOM: You freely willed it.

DR EMILIE CASPAR *Neuroscientist*: What is the degree of freedom that you give to this definition of free will?

MELISSA HOGENBOOM: Our choices define us.

PROFESSOR NEIL LEVY *Philosopher*: So if that's what we're talking about, then we don't have free will.

MELISSA HOGENBOOM: But reality may not be so simple.

UNNAMED SPEAKER (*appears in others in this series, but isn't named here*) There you go.

MELISSA HOGENBOOM: In the early 80s, Benjamin Libet designed an elegant experiment to help us understand the mechanism of decision making in the brain. This is the Libet Experiment. All I have to do is watch the spinning dots and click a button whenever I feel like it. Then report to the scientist at what time I felt the urge to click. Meanwhile, my brain activity is being monitored. Most of us would assume that our choices register as an increase in brain activity and result in us clicking the button. But what's actually observed is a build-up of brain activity called the readiness potential. A full second earlier than the conscious urge to click. This has been replicated hundreds of times. What are the implications of this kind of experiment?

DR EMILIE CASPAR *Neuroscientist*: So the folk definition of freewill is that your mind controls your body, meaning that your mind is free to decide what to do and send the command to your body. But when you consider the Libet experiment, it means that conscious intentions, instead of being the cause of motor preparation, is the consequence of an antecedent brain activity. So it challenges this dualistic view of mind-body causation.

PROFESSOR PETER ULRIC TSE *Neuroscientist*: And so in my group, you know, we've gone back and redone all the Libet experiments, very carefully, and we find that you get a readiness potential even in the absence of a motor act, like doing this versus that (*raises one hand then the other*) if a person expects something to happen. So own guess is that the readiness potential is tied up with expectation or anticipation that something is about to happen.

DR EMILIE CASPAR: Perhaps so. In fact, at the moment, it's very difficult to know the exact way of . . . I mean, how it works exactly.

MELISSA HOGENBOOM: The experiment is over. My mind is no longer the controller. Rather, it's firmly seated in my conscious brain, guiding and responding to whispers from my subconscious. Right. I'm hungry. I need some food.

PROFESSOR PETER ULRIC TSE: If you assume, you know, there's only natural things in nature and there's nothing supernatural. Well, events in the brain, including those events that lead to your conscious deliberations, have to have preceding events that perhaps were not conscious. But that doesn't mean that those events are causal.

DR EMILIE CASPAR: But probably we can see that a lot of our decisions, if not all or decisions, are the result of a prior brain activity. And as an example, there is an elegant study by a team of John-Dylan Haynes who showed that by using neuroimaging measurements with MRI scanner, you can actually predict what will be the decision of participants before they're actually conscious of having taken that decision.

MELISSA HOGENBOOM: This begs the question, how can we have free will if our unconscious brain is making decisions before we do?

PROFESSOR PETER ULRIC TSE: Oh, okay. So let me get to the issue of the unconscious. I haven't . . . I don't deny that unconscious processes affect the decisions that we make.

PROFESSOR NEIL LEVY *Philosopher*: But the unconscious is not unintelligent. The unconscious guides us in ways which is itself responsive to reasons.

MELISSA HOGENBOOM: Take the following scenario. I'm walking over eight months pregnant, hungry and very tired. When I listen into what my subconscious is saying, she's tired and hungry, too. Strangely, she wants beans for lunch.

PROFESSOR NEIL LEVY: Sometimes we're influenced badly by unconscious reasons. There's no doubt about it because advertisers do psychological experiments to find

what we're sensitive to. And then they set up the environments and we make decisions through unconscious subliminal influences.

PROFESSOR PETER ULRIC TSE: We know there's lots of examples of priming.

PROFESSOR HELEN BEEBEE *Philospoher*: Even if we start from the kind of every day, which baked beans do I choose in the supermarket? It's sort of quite easy to get from there to a genuine worry about whether you really made that choice freely when you picked the Heinz versus the own brand or whatever it is.

MELISSA HOGENBOOM: Fine. No beans then. Or am I just saying that because I feel my subconscious has been duped?

PROFESSOR NEIL LEVY: That might be a problem. But then that happens with conscious decisionmaking too – people lie to us.

PROFESSOR HELEN BEEBEE: Once you start sort of pushing the boundaries of manipulation, it starts to be a really hard question. When are we sufficiently in control and when aren't we?

MELISSA HOGENBOOM: How can we step outside that and get outside those influences? Or can we even?

PROFESSOR HELEN BEEBEE: Yeah. No, (*laughs*) we can't. I mean, the best . . . the best we can do is . . . because we're human beings and we're incredibly clever, we're able to reflect on all of this stuff. Right? So we're not just kind of following impulse.

PROFESSOR PETER ULRIC TSE: May I add something?

MELISSA HOGENBOOM: Okay. Go ahead. Sure.

PROFESSOR PETER ULRIC TSE: So we have to make a distinction between picking and choosing or proximal acts of choosing and distal acts of choosing.

MELISSA HOGENBOOM: That is, decisions that require less effort, like picking oranges in the supermarket, are easily done by our subconscious, while our conscious mind can focus on more complex tasks like whether to accept a job offer or what to cook for a dinner party and who to invite.

PROFESSOR PETER ULRIC TSE: I think a lot of our decision making is playing out in this internal virtual reality of our imagination. And we spend about half of our working day there imagining this versus that. And some of those imaginings or deliberations are not terribly consequential, like whom to invite for dinner. Others are very consequential, like whom should marry or what country should I live in? And I want to argue that our internal virtual reality of our imagination is where free will is really active. It's not picking as in the Libet test. It's really an issue of choosing consequential decisions.

MELISSA HOGENBOOM: Right. I'm still hungry. I'm back at the beans, but I'll take some time to avoid any unconscious bean-based biases I may have and deliberate on which to buy.

PROFESSOR NEIL LEVY: If you want to call free will just our capacity to make intelligent decisions, which is hugely impressive, then I have no problem with that. In that case, you'd want to say, 'We have lots of free will. Other animals have some.'

PROFESSOR PETER ULRIC TSE: Even a tiger can weigh its options. So we have the sort of first order deliberation in common with the tiger. However, in addition, humans have this sort of higher level or second order capacity to deliberate, namely to deliberate about our own future self.

MELISSA HOGENBOOM: And here's the strange thing. I felt much freer, randomly clicking buttons for the Libet test than I did when I started to overthink which kind of beans to buy, or certainly any of the big life stuff, where all sorts of constraints are put upon the possible choices I can make.

PROFESSOR PETER ULRIC TSE: But within your constraints, you have a degree of freedom. What does that mean? We do have some freedom to act within the parameters given to us by nature and by our society. And then those parameters that we set for ourselves, like deciding to learn a new language or to go to the gym or even to become a better person.

MELISSA HOGENBOOM: So do we have free will? Well, it depends on what you choose to call free will. If you want it to be your mind acting independent of your body, neuroscience says probably not. If you want your conscious self to be totally in control, again, probably not. But if you choose to locate free will in our conscious thoughts, then probably yes. Ironically, whether you choose to believe in free will or not is a question of choice. When we spoke on the phone, you said you weren't sure about free will. Now you're saying you don't think we have it.

DR EMILIE CASPAR: Yeah. Because I'm just waiting for additional scientific evidence. It's just that at the moment, with what we know, it's hard to really believe in free will. But perhaps somebody, no matter the field, in neuroscience, neurobiology or physics, will find a new experiment in order to show that we have free will or not.

MELISSA HOGENBOOM: (*speaking over*) Wait, why did she say physics?

490. Who knew coffee had such a dark history?

Sperm, skulls and scandal... Food historian Annie Gray reveals the hidden history of coffee.

Made by Somethin' Else 27 July 2018

ANNIE GRAY: Globally, over two billion cups of coffee are consumed every day. In Britain alone, we need around 95 million cups to keep us going from dawn until dusk. But 450 years ago, Western Europe barely even heard of it. Coffee's routes lie in Ethiopia, where the wild plant great people slowly started to realise the dried fruit when roasted and ground could be used to produce a beverage which was curiously

addictive and gave its drinker a bit of a buzz. Coffee is, let's face it, an acquired taste. Early Western drinkers were fascinated by it, recognising its potential as a drink, which was ideal for business. Wine and beer were great, but they weren't always conducive to delicate negotiations, which required a clear head. When Westerners brought the drink back to Britain, reactions were polarised, including one description of it as Pluto's diet-drink that witches tipple out of dead men's skulls. The first coffee house in the UK opened in Oxford in 1651 followed by London, and they quickly became sort of proto-clubs. There were coffee houses for all sorts, from bankers to merchants, literati to men about town, and they were often heavily politicised. Charles II tried to ban them for encouraging sedition. Many subscribed to journals and newspapers for their clientele and, since the dish of coffee cost only a penny, they became known as the Penny Universities. They were, however, only for men, and coffee quickly became seen as a masculine drink. Even today, men drink more coffee than women. It wasn't uncontroversial, however. Like anything new and foreign, there were those who feared it. And one blistering attack in 1674 claimed it caused impotence. 'Excessive use of that new-fangled abominable heathenish liquor called coffee, which, drying up the radical moisture, has so eunucht our husbands that they are as unfruitful as those deserts where that unhappy berry is said to be brought.' Others claim it had exactly the opposite effect. Answering that, 'It makes the erection more vigorous, the erection more full and adds a spiritual essence to the sperm.' The taste still put many people off. But the British habit of drinking it with milk and sugar like their tea helped. By the 18th century, it was established as a part of British life, emerging out of coffeehouses and into its place as an after dinner drink. In the 19th century, coffee was still pretty bad, until the Italian invention of the espresso machine, which forced pressurised water through a small amount of ground beans, a huge step forward from simply steeping coffee and filtering it and then keeping it warm for hours until it was needed. Italian coffee culture with its futuristic and gleaming coffee machines, and aura of effortless cool spread across the Western world. Their rules, well, ruled, including tenets such as never drink a cappuccino after lunch. The last 20 years have seen the rise of new types of coffee long, flavoured American drinks along with the antipodean flat whites. We've also adopted a new way of drinking it, wandering down the street, coffee cup in hand is such a ubiquitous sight now that it's hard to remember this is a recent fad. It's a fundamental part of Hipster identity, along with beards and vintage cardies, knowing your Cold Brew from your nitro is vital. Society and coffee have moved on a lot in 450 years. But some things haven't changed. So here's to coffee, with a side of sedition, sociability and amazing cool.

491. Why (almost) all world maps are wrong

Most modern maps are based on a 450-year-old design, so you'd think they'd be right? They're not - here's why they're actually inaccurate.

Made by Objekt Films, 21 January 2019

CAPTION: The oldest known map of the world is the Babylonian Imago Mundi. Discovered in modern day Iraq, it dates back to the 6th Century. Maps have come a long way since then. So you'd think they must be perfectly accurate? Our digital maps are based on the Mercator Projection – designed by Gerardus Mercator in 1569 – 450 years ago. Originally designed for nautical navigation so that a line between two points on a map produces the exact angle to follow on a compass. But the scale of land areas in high and low altitudes was extreme exaggerated. The UK is actually less than half the size of Madagascar. And Africa is actually 14 times bigger than Greenland. Many believe it endorses European imperialist attitudes by shrinking countries in the southern hemisphere. And when Antartica (*sic*) is cut off (which it often is) it presents Europe as the centre. So why do we use it? Mercator is good at preserving shape, angle and direction. Australia on a globe looks like Australia on the map. But it's impossible to stretch a 3D sphere onto a flat surface like a piece of paper. No matter how it's achieved, there always has to be some compromise on size, shape, scale, distance or direction. In 1974 a Scottish clergyman called John Gall presented the Gall-Peters projection, which tried to improve on the Mercator. But this is by no means a perfect alternative – countries are stretched horizontally near the poles and vertically near the equator. Over the years there have been a number of other alternative projections. However, technology has evolved to the point that we may not need a static flat map anymore. 3D modelling allows us to look at the Earth exactly as if we are looking from outer space. As of 2018 Google Maps has stopped using the web version of Mercator. So when you zoom out now you see the map as a globe. Which is surely the best way to look at the world.

492. Why IQ is not the same as intelligence

Is it possible to accurately assess intelligence through a test? And does who is setting the test, and why, make a difference?

Published on 4 May 2020

NARRATOR: What's your IQ? 120? 91? And what does it all mean? Is it even possible to define a person's intelligence by a test? And does who is setting the test and why make a difference to your score? Welcome to this short guide to IQ made with the help of two highly intelligent experts.

DR GAVIN EVANS, *Birkbeck, University of London*: IQ really started with Alfred Binet, who was a Frenchman, and he was asked by his government to develop a test that could determine whether people needed remedial help with their education. They later became dubbed IQ - intelligence quotient. But he warned against that name because he said they weren't tests of intelligence. What they were, were tests of a certain kind of ability.

DR BONNIE EVANS, *Queen Mary, University of London:* So Binet was the originator of intelligence testing, and that led to the concept of IQ that we have

today, the idea that somebody could have a general intellectual level that could be measured between 1 and 100.

GE: What happened next was that it crossed the Atlantic and was adopted by American psychologists and they decided that IQ was innate, that you were born with it, there was nothing you could do to change it, and that different population groups, different ethnic groups, had different innate IQ.

CAPTION: By 1915, new immigrants trying to come into the USA were given IQ tests. Ashkenazi Jews tended to score low in these tests and were discouraged from entering the USA. People from Nordic countries tended to score higher and were encouraged to enter the country.

GE: This view of the early IQ testers in the United States has been subsequently decisively disproved. With Ashkenazi Jews, at the time of the First World War, they had lower than average IQs. By the time of the Second World War, higher than average. And the reason for that was they had better education, better nutrition, and that, on average, the parents had become better educated as well. So those factors shifted the average IQs. The reason different groups score differently on IQ relates to the fact that IQ tests measure abstract intelligence. In other words, your ability to deal with abstract logic. And that is determined very significantly by what happens in your early years of your life. So if you come from a community where there's a lot of argument, where you're encouraged to read, where you're encouraged to discuss things, on average it's likely that that community with have higher IQs.

BE: IQ tests have often, throughout history, been used to further political aims. Whether those be sexist, racist... whatever agenda politicians may want to put forward, IQ tests have been used to support that. And the idea that they are scientific because they're based on quantitative measures, has been something that's been exploited by many governments. IQ tests in the early 20th Century, sometimes women did fare worse. That wasn't always the case. Intelligence tests were based on completing activities such as completing a puzzle, completing a task. Looking at reaction times, and if someone had not engaged in those activities before, if they were for example, a girl that had never been allowed to access these kinds of activities, they wouldn't perform in the same way as somebody who had done.

GE: One of the dangers of IQ tests is that people see them as a measure of intelligence, whereas really what they are measuring is abstract logic, and there are other forms of intelligence. Like emotional intelligence. Like practical intelligence. Like long term memory. Like wisdom, that they don't measure. I'm not opposed to IQ tests per se, I think that they are useful in measuring abilities in things like maths, science, computer science, because they are measuring the same kinds of things that IQ tests measure. I think the biggest misconception about IQ is that it's the same thing as intelligence, and it's not. We've seen that IQ can change. So, if you practise IQ tests, your IQ will go up. So, environmental conditions and education can change IQ, it is not fixed.

BE: I would hope that intelligence would never be used as a concept to make political decisions over whether or not someone has access to education, access to healthcare, access to freedom of movement, access to any of these universal human rights.

GE: Intelligence is a multi-faceted thing and multi-faceted things can't really be measured in terms of a single number. Which is what IQ tests give you. And when they've looked at the genetics of intelligence, there are thousands of genes that are implicated. So, it is a much more complex thing than what is measured by a single IQ test.

493. Why I'm friends with the man who shot me

Retired police officer James Seymour and former gangster Leroy Smith on how they became friends in the most extraordinary of circumstances.

Film by Katharine Carpenter/Leana Hosea, 15 September 2020

Original film by BBC London

LEROY SMITH: It just went crazy. And the whole thing was like a split second thing.

JAMES SEYMOUR: And I remember sitting there, lying there thinking I'm not going to die here. I'm not dying here.

CAPTION: Why I forgave the man who shot me

LS: My name's Leroy Smith and I'm here today to do an interview with the BBC about an incident what happened over 20 years ago.

JS: I'm James Seymour. I'm a retired police officer, now a member of police staff training police drivers.

CAPTION: James and Leroy had very different childhoods.

LS: I grew up with my grandma. My mum got murdered when I was two. And I left school from about 13, started doing burglaries, robberies, and went to prison, got four months. Came back out, same thing again. And this cycle just continued.

JS: I grew up in Kent. Came from a very religious background where it literally the Ten Commandments were taken as they were, had no telly, no radio. By the time I got to late teens, I decided I wanted to move out and do something. So it was either the armed forces or the police.

CAPTION: James joined the Metropolitan Police whilst Leroy embraced the life of a south London gangster.

LS: In the 90s Brixton was - and still is - a dangerous place. The whole community is violent and society is violent in general. But I was just at the time more violent than everybody else. Because I realised that that's the way that you get things done.

JS: There's a lot of deep feelings, especially at Brixton from the 1981 riots, that were still running very deep. You could literally feel the tension that any slightest thing and this could go quite nasty.

CAPTION: James' and Leroy's worlds collided on a day in 1994, when James and his colleague Simon Carroll went to check on a pub in Brixton.

JS: I know that I wanted, myself and my colleague, wanted to look for some overtime and the easiest way to do that would be a simple drugs arrest.

CAPTION: Leaving the pub and just about to get on a motorbike, were Leroy and his friend.

JS: We did a textbook stop, back-to-back, separated them.

LS: And I said, 'I ain't got nothing to hide or something along them lines' And I had things to hide.

JS: He dropped something on the floor that I thought was crack cocaine. So I went to push him against the wall so I could take hold of the evidence.

LS: It just went crazy. And the whole thing was like a split second thing. So it wasn't like, I planned it. It just happened.

CAPTION: Leroy shot Simon, then James.

JS: He pulled a handgun from his waistband, hit my colleague in the leg. And it's one of those things where everything's in slow motion. This isn't really happening. This is just a nightmare. I'm going to wake up in a minute. You know, the alarm's going to go off. But it is reality. And it was just a surge of adrenaline.

LS: When you live like that, you're not thinking about other people. You think about yourself. It's a self-centred world that you're living in.

JS: The gunman then fired a third shot, which hit me about a centimetre from the spine, went across the top of a kidney, then ripped out the side of my flesh outside of my body. I remember sitting there, lying there thinking I'm not going to die here. I'm not dying here.

CAPTION: BBC News 1994

NEWS REPORT: The two officers, PC Simon Carroll and PC Jim Seymour, are in hospital. They stopped to question two men who were on a motorbike and both officers were fired at by the pillion passenger.

CAPTION: Miraculously, James and Simon survived, although both were badly injured.

JS: I knew Simon was quite bad by the way he screamed. So I tried to get to him. But the pain was too bad. I just couldn't move.

CAPTION: Leroy fled the country using a false passport. He was arrested a month later after a tip-off to the FBI.

CAPTION: In February 1995 he stood trial at the Old Bailey, and was given a 25-year sentence.

LS: That is a long time and I just thought to myself I'm never getting out. That's what I thought - I thought I'm never getting out.

CAPTION: Leroy spent nearly 20 years in prison. On his release he wanted to turn his life around.

CAPTION: He started mentoring young people and wrote a book about his experiences.

JS: I read it. Some of it I didn't agree with. Some of it I found really interesting. And I thought, if he is actually wants to make a difference to people's lives, I will support him and let him know that I agree with what you're doing. And I hope you have changed because I always wanted that.

CAPTION: James got in contact with Leroy and amazingly, they became friends. Caption: 26 years after the shooting, they returned to Brixton together for the first time.

LS: This just feels weird.

JS: You haven't come back at all then?

LS: Nah, I always try to avoid Brixton if I can, to be honest.

JS: I've been back a couple of times, but it seems a bit strange being here with you.

LS: Yeah, man. I didn't realise how it would feel so, so heavy on my heart. That's the truth. Now that I'm here, I'm kind of lost for words that's not normally like me.

JS: I'm pleased Leroy's doing it with me. You know, it's his moment. Another moment in my life I won't ever forget.

LS: If it was me, I wouldn't forgive someone, so if it was a situation now where something was happening, I would put my life in harm's way for him if I had to without hesitation, because of everything what's happened. That's the truth.

JS: I accept some of my colleagues are not going to support what I'm doing because, I don't know, that they might be "old school" and think well, he shot two police officers - they should throw the key away. But for me, that's just very narrow-minded. Just forgiving Leroy, it's been amazing. It's made him feel good. It's made me feel good. You know, when I was suffering PTSD, it wasn't just because of the

shooting it was due to a number of horrific incidents that I dealt with. But now, without doubt, it's one of the best things I've done in my life.

LS: I shot the man point blank, a policeman. I don't know him from nowhere. Our paths have collided. I'm a gun man. I'm a bad man. He's a law man. And now I can class him as a friend.

494. Why algorithms are called algorithms

Why are algorithms called algorithms? It's thanks to Persian mathematician Muhammad al-Khwarizmi who was born way back in around AD780.

Made by Dayglow Media & Pencil & Pepper, 9 July 2019

NARRATOR: We think of an algorithm as something new. But the term actually dates back about 900 years. The word algorithm comes from the name of a Persian mathematical genius, Muhammad al-Khwarizmi. He was born around 788 AD in the region now known as Uzbekistan. His name suggests he came from Khwarizm. Known as al-Khwarizmi, he was director in the House of Wisdom, and intellectual centre for scholars in 9th century Baghdad. He made innovative contributions to mathematics, astronomy, geography and cartography and wrote an influential book called *Concerning the Hindu Art of Reckoning*. 300 years later, the book was rediscovered and translated into Latin. It introduced Hindu Arabic numerals to the West, which eventually replaced the unwieldy Roman ones. The Hindu Arabic number system, along with a decimal point, both described by al-Khwarizmi in his book, are the basis of the numbers we use throughout the world today. al-Khwarizmi's, when Latinised in the title of the book, became 'algoritmi', and this is the origin of the word algorithm. We also have al-Khwarizmi to thank for the word 'algebra' – which comes from another of his works. His books revolutionised mathematics in the West, showing how complex problems could be broken down into simpler parts and solved. In mediaeval Latin 'algorismus' simply meant the decimal number system. By the 13th century, it had become an English word and was used, for example, by Chaucer. But it wasn't until the late 19th century that algorithm came to mean a set of step-by-step rules for solving a problem. In the early part of the 20th century, Alan Turing, the British mathematician and computer scientist, worked out how, in theory, a machine could follow algorithmic instructions and solve complex mathematics. This was the birth of the computer age during World War Two. He built a machine called the Bomb, which used algorithms to crack the Enigma code. Today, algorithm is a fairly common term, even if sometimes we are not exactly sure what an algorithm does. Algorithms are everywhere now helping us to get from A to B, driving Internet searches, making recommendations of things for us to buy, watch or share, and predicting how we vote or who we fall in love with. This little word that originated in mediaeval Persia is gradually transforming our lives.

495. Why are people anti-Semitic?

As part of our series on the root causes of various forms of prejudice, US comedian Alex Edelman explores what's behind anti-Semitism.

Made by BBC Northern Ireland, 20 December 2019

ALEX ADELMAN: I think in the UK, people are just sort of reckoning now with the existence of anti-Semitism. And I think that . . . that sort of self-interrogation is very difficult for people. I think it's an identity crisis in the UK, people understanding that anti-Semitism does, in fact, exist.

CAPTION: Alex Edelman is a US comedian and a modern orthodox Jew. He believes it's important to *understand* anti-Semitism, in order to eradicate it.

AA: I have experienced anti-Semitism from people who are on the far left and the far right and people who are black and white, men and women. Anti-Semitism is not restricted to one party or gender or race. Anti-Semitism is for everybody. This is the news clip from the late 1950s. A swastika got painted on a synagogue in Leeds.

NEWS JOURNALIST (*Archive*) Finally, are you worried?

UNNAMED MALE (*Archive*) No, not in the least, it's nothing to be worried about. One ignores these things.

AA: I think that's so British. To just be like, 'Yes, there's nothing to worry about, one ignores these things. But I also think, you know, that's sort of the reason that people are surprised that anti-Semitism is a part of the culture. The vast majority of people are not actively anti-Semitic. And when anti-Semitic stuff like that did happen and for many years when it has happened it's sort of like, 'Oh, we'll wash it off the wall and get on with business as usual.' And now that it's back in the forefront, I think it's shocking for people, precisely because it is the kind of thing that you would move past.

VIKTOR ORBAN *Prime Minister of Hungary*(translated): We are fighting an enemy that is different from us. Not open but hiding. Not straightforward but crafty. Not honest but unprincipled. Not national but international. Does not believe in working but speculates with money. Does not have its own homeland but feels it owns the whole world.

AA: It's so interesting to watch this because this feels like 1930s rhetoric. This Orban speech sums up so much of anti-Semitic rhetoric, because he says, 'Not open, but hiding, not straightforward, but crafty.' And then he goes, 'Not national but international.' It's that tie between nationalism and anti-Semitism that Jews are somehow not from here. They don't belong here. They're part of this global cabal that's here to . . . it's here to take stuff away from us. And always the crafty thing. There's no way to describe Jews that doesn't sound ludicrous when they go into sort that stereotype, they're like, 'They're crafty or they're sneaky. They're wily.' I think Jews get bludgeoned with Israel sometimes. I think Israel is like a very weird lead pipe for . . . for a lot of people their dislike, well you're Jewish, so explain this Israeli

policy. And you're like, 'Well, I don't know if I 100 percent agree with that policy because, you know, I'm a person with complicated political views and . . .' and they're like, 'Well, then you . . . do you think Israel shouldn't exist?' And you're like, 'Well, no, that's not what I said either.' Like, Israel is a very complicated issue and it is the only sort of Jewish homeland on earth. So, for that reason, Jews do have a special affiliation with it. And it is a place, by the way, where I . . . I love my time in Israel because it is one of the only places where I do not feel othered for being Jewish. I've taken issue with, you know, many of its policies in the same way that I take issue with many of the UK's policies and many American policies. But I do think Israel is used as a complete mask for . . . for anti-Semitism sometimes, or it's used to justify anti-Semitism. My favourite quote about anti-Semitism is this Jean Paul Sartre quote, which is that, 'If the Jew did not exist then the anti-Semite would have to invent him. And I think about that all the time. I do think that a good way to reduce anti-Semitism is for people to understand that, you know, that Jew is a label or Jew as a type, is a label that is entirely constructed. It doesn't mean that you are, you know, a type of person or a certain way. There is a strong heritage which you may opt into if you so choose. You know, I think it's crucial for people to understand that Jews are complicated in the same way that everybody else is. There are rich Jews and poor Jews and Jews who are educated and Jews who are not. And, you know, if you think all Jews are sort of powerful and educated and rich, I have a bunch of cousins that you should meet because that's not the case.

496. Why are people homophobic?

In the first of a new series on prejudice - and the underlying reasons behind it - LGBT activist Richard Beaven explores homophobia.

Made by BBC Northern Ireland, 6 December 2019

RICHARD BEAVEN: I guess I was the cookie cutter, straight, white, successful male. And probably people would look at me and think, well, I'm probably like them and therefore a little bit homophobic as well. And then I made the really difficult decision to come out. You know, I met a man that I fell in love with when I was nearly 40, and then I realised I was gay.

CAPTIONS: Richard Beaven is a Financial Services Director and LGBT activist. He believes it's important to understand homophobia, in order to eradicate it.

CLIP FROM *LATE NIGHT LINE-UP, BBC 1967*: Mr Mawby, do you think homosexuals should be sent to prison?

MR MAWBY: Yes.

RB: Unbelievable.

CAPTIONS: Homosexuality was illegal in England and Wales until 1967. But homophobia still remains today.

RB: When I think about why people are homophobic. I think about a workshop that I ran in the City a couple of years ago. It was really good, apart from this one guy who literally said nothing. And he had his arms folded, clearly really uncomfortable about being there. So I stopped the conversation and I looked at him and I said, 'I notice you're not engaging with this. You're not part of the conversation.' And I said, 'I suspect there are kind of three things that I find a lot of people struggle to engage in this conversation with. And the first one is gay sex. Lots of straight men find it very, very uncomfortable to think about how men have sex with men. But we have to park that. We're not having a conversation around sex. We're having a conversation about inclusivity and making people feel welcome.' And then I said, 'The second thing, I think lots of people like you think is that, you know, that all men who are gay, fancy all men.' And I said, 'You're just not my type.' And he started to smile. And I said, 'But there's the third thing.' And I said, 'This is often a problem, is that, "if I engage in this conversation, then people might think I'm gay."'

CAPTION: On top of this, Richard believes the HIV crisis still casts a shadow.

AIDS INFORMATON FILM: There is now a deadly virus, which anyone can catch from sex with an infected person. So protect yourself. It's safer if you use a condom.

RB: So I think that crisis had a huge impact on, you know . . . or reinforced the fact that, you know, gay people are different. And there was a lot of terrible language around 'gay people spread diseases.' And, you know, it was just ghastly at the time. And I think that's influenced a whole generation in terms of the way they think about homosexuality.

KIRSTY WARK: You know, Russia has got anti-gay legislation, Chechnya, you find pogroms against . . .

ELTON JOHN: Oh my god, yeah.

KW: . . . gay people. If you could speak to Vladimir Putin right now. What would you say to him?

EJ: I would love to sit down and talk to him face to face, because only face to face with people do you get any progress?

RB: So, the thing I particularly like about what Elton says, though, is about sitting down with people and talking. I do think we have repressed a lot. So people have just put it in a box saying, 'Ooh, God, I'm not allowed to say . . .' whatever it may be. But if you allow people time to say it and to . . . to say words that they might be a bit clumsy about, it's fine because you can help people learn. It's fantastic when I talk to young people who are declaring whatever spectrum of sexuality they are on without thinking about it. I think of my own children it's . . . you know, they don't think about this in the way that, you know, those of us born in the 60s and 70s and the influences that we had do. So, is this fixable? It's changeable. It really is. And a few simple things can help. If . . . if you've never met a gay person, go and talk to one. You know what, they're quite nice to talk to. And listen. And we use something called reverse mentoring. You know, if you're senior, go and find someone that's not like you, that is in the organisation. And listen, not for you to tell them, for you to

listen to their story and who they are, because it might feel a bit uncomfortable. But trust me, that works brilliantly well. And I have seen people completely transform. Their mind is opened. They realise they're just like everyone else. Being a straight ally – I know that word gets used a lot now – really matters. Stand up and be counted and say that you are a supporter of the LGBT+ community. Just do it. And you know what, people won't think worse of you, they will think a lot more of you. Because it's even more powerful if a straight ally talks about being inclusive and being welcoming of all forms of diversity, that works really well.

497. Why are people racist?

Historian Onyeka Nubia explores why some people are racist - and talks about his own experiences of racism.

Made by BBC Northern Ireland, 6 December 2019

ONYEKA NUBIA: Racism makes us confused. Sometimes I actually don't use the word, I don't use the word racism because it's so often misunderstood.

CAPTION: Onyeka Nubia is a historian and writer. He has experienced racism many times, but believes to eradicate it, you need to understand it first.

ON: Being young and growing up in Britain, overt racism was casual, but you kind of got used to the fact that in any kind of public arena, you could be racially abused.

ALF GARNETT: You said he was born in Manchester. So he ain't a proper blackie then, is he?

ON: I haven't heard that terminology for a long time, 'Blackie'. Yeah, it reminds me of school.

AG: I mean, the ones I'm talking about, they're your proper blacks, ain't they? The ones who were born in a jungle. Your natives. I mean, don't tell me they're educated half of them are still eating each other.

ON: So, sometimes to understand racism, we need personal experiences. About three years ago I was walking through White Hart Lane station. I heard someone shout very loudly, the N-word. It's a word that I don't use. I thought at first it was someone listening to an Eminem song or something, or you know, thinking that they were Jay-Z. So I just kept walking. The word was shouted again. And 'Who do you think you are?' I know who I am. But . . . so I looked round to see what was going on, in case it wasn't directed towards me. I didn't think instinctively that it was. And it *was* directed towards me. There was a woman in a flat looking out of the flat and she was screaming and yelling at me. I said, 'Why are you shouting at me and why are you shouting the N-word?' – 'Because that's what you people call yourself.' I said, 'You people?' This is a woman who doesn't know me and has never seen me before. And yet she felt empowered – not 20 years ago, not 30 years ago – to use such

terminology to refer to me. And that's to show you that those overt forms of racism still exist.

CAPTION: But Onyeka says racism can often be *much less* overt.

ON: I work with a lot of white middle class people who like to feel that they're not racist, sexist, homophobic and all these other things, but they are. (*laughs*) They are. But they are instinctively and they . . . they do it not knowing that they're doing it. And when I'm there, they self-censor themselves on issues of ethnicity or issues that they feel that I would be sensitive about. Does that mean that they've changed? It means at least that they're thinking about them in a certain kind of way, because I'm in their social space. If I wasn't in their social space, perhaps they wouldn't be thinking about it. That's the problem with racism, even in human interactions, one is second guessing oneself as to did that happen because of colour? Did that happen because of ethnicity?

CAPTION: Onyeka argues prejudice can often be hidden because it's so *embedded* in society.

ON: I like to go to the cinema and watch films. I don't think, 'Well, I'm enjoying that film all those millions of people throughout the world that can't see' I have privilege. I have the privilege of sight. That privilege of sight means that I don't think about those people that don't have the same privilege. Does that make me prejudiced? I think in a way it does, it makes me prejudiced against those that cannot see. But it's a kind of privilege and prejudice that seems natural to me because the world is effectively made for those that can see. That's the thing about prejudice. It feels normal. The only way that you eradicate racism is by changing people's beliefs and ideas. And the only way you get to do that is through education and information. You can punish people for their ideas or their beliefs, but you might not change their views and ideas. I think you need to change people's views and ideas, not punish them.

498. Why are people sexist?

What's really behind sexism? The founder of the Everyday Sexism Project Laura Bates explores some of the root causes.

Made by BBC Northern Ireland, 11 December 2019

LAURA BATES: I was on my way home one evening, quite late at night on the bus, so I wasn't paying much attention to what was going on around me, until I suddenly looked down and realised that the man sitting next to me had his hand on my leg. He moved his hand upwards and grabbed me in the crotch. Because I was on the phone to my mum, I said, 'I'm on the bus. This man just groped me.' And everybody on the bus heard me and everybody looked away.

CAPTION: Writer and activist Laura Bates is the found of the Everyday Sexism Project. She believes it's important to understand sexism in order to *eradicate* it.

LB: Nobody stepped in. No one challenged him. No one even made eye contact with me. And it's simply such a powerful message. It felt like they were saying, 'We don't want anything to do with this. This is your thing.' It made me feel that I was at fault. That I'd done something wrong. I felt incredibly embarrassed and ashamed and confused. And I got off the bus at the next stop and walked the rest of the way home. Looking back, I wasn't the only person who got such a powerful message that night. So did the man who groped me. He got the message, 'You can get away with this.' It sent the message that this was just acceptable.

CAPTION: Laura says these kinds of attitudes have deep roots in our *history.*

LB: We're so used to receiving the message from all around us all the time that women and girls are sexual objects, that our bodies are public property, and that we really are the sum of our individual parts. There are witchcraft cases from Europe 400 years ago where, for example, a woman was accused of witchcraft for giving a man a permanent erection. The idea that men couldn't possibly be expected to control themselves is nothing new. But it's also something that's still really impacting people's lives even today.

JERRY PENACOLI: Now, were you able to wear undergarments . . .

SCARLETT JOHANSSON: You're like the fifth person that's asked me that today.

JP: Well no, because . . . is it inappropriate?

SJ: To ask somebody what kind of underpants they wear?

JP: I didn't ask you what kind.

SJ: You just asked me if I was wearing any.

JP: Could you . . . could you?

JEREMY RENNER. No, what do you wear under underneath? (*words unclear*)

JP: What do you wear underneath something.

SJ: Overalls.

JP: Do you wear clothes?

SJ: You wear dungarees. You can't wear clothes under, it, it's like a . . . it's like a wetsuit.

JP: Okay.

SJ: Practically.

JP: Okay. So you answered my question.

SJ. Well, I don't know. Maybe it's a little bit more than a wetsuit. Was I wearing underwear? I mean, ask Joss.

LB: I think the defensiveness here is really key, this idea that he is immediately reaching say, 'Well, I haven't done anything wrong, you're overreacting.' And that he kind of gets a little bit of support on that from her male co-star. And this is something that we see a lot of, that if women tried to challenge this kind of thing, try to speak out, often there can be a closing of ranks and a sense of, 'No, no, no, no, you don't get to be upset about this.'

MAN ALIVE REPORT: ME TARZAN – YOU JANE, BBC, 1978: In most British homes, parents clearly differentiate between their sons and daughters, but not in this north London household. Here, they aim to bring up their children in what they call a non-sexist way.

LB: I think what's really sad watching this now is that it still feels a little bit revolutionary.

CHILD: Wouldn't be fair for all the girls to buy princesses and all the boys to buy superheroes.

INTERVIEWER: Why?

CHILD: Because girls want superheroes and the boys want superheroes. And the girls want pink and the girls . . . and the boys don't want pink stuff. Yeah.

LB: Yeah. She makes it sound so simple, doesn't she? How is it possible that this child gets it? And yet every time a large retailer agrees to stop gendering its toys or its . . . or its children's clothes, as for boys or for girls, you'll see a backlash in the press. These kinds of stereotypes that are so insidious and so low level, they're so often dismissed as not a big deal. In reality, all we're saying is that kids should have the choice, that, just as she says, you know, some girls might like princesses and some might like superheroes, but shouldn't they have the option? The reality is that fewer than one in 10 of our engineers is female. And our Royal Society, one of our biggest scientific institutions, has never had a female president. So, no, of course, these things aren't the end of the world on their own. But do they contribute to a world in which girls are very, very gently and slowly told, 'This isn't for you, this isn't for you?' Of course they do. And actually, the end effect is quite extreme.

INTERVIEWER, WIMBLEDON: Andy, Sam was the first US player to reach a major semi-final since 2009. How would you describe . . .

ANDY MURRAY (*speaking over*) Male player.

I: I beg your pardon?

AM: Male player, right?

LB: We are seeing an increasing number of male role models who are choosing to step in and just to mention this stuff when it happens, not necessarily in a particularly aggressive or angry way, but simply just mentioning it. So that that isn't allowed to stand. If you haven't experienced sexism yourself, like with other forms of prejudice, it becomes much easier to ignore and to deny the reality of its existence. It's easy to suggest that people are overreacting, that they must be making

something up because you haven't seen it. Essentially, the truth is that we can't change this, as long as everybody just thinks it's normal.

499. Why baldness is so hard to cure

Every year people spend billions trying to get their lost hair back. So why haven't we found a cure? With science writer Stephen Buranyi.

Published on 16 August 2019

STEPHEN BURANYI, SCIENCE WRITER: Every year, people spend about $8.5 billion on treatments for hair loss. It's an incredible figure, and it speaks to how deeply people are affected by it, and how badly they would like for there to be a cure. But the thing is, there's no treatment that actually regrows large amounts of hair.

CAPTION: Why haven't we found a cure for baldness?

TV PRESENTER: A new treatment for baldness may be on the way.

TV INTERVIEWEE: I'm interested in the subject, obviously.

TV VOICEOVER: The drug was applied regularly and new hair began to sprout.

STEPHEN BURANYI: A cure for baldness might be the most perpetually delayed of all the medical advances we're told are just around the corner. Now there are a few prospective treatments that are very promising, and we can get to those in a minute. But first, it's good to examine why exactly hair is such a tricky problem and how, over time, hype has often played a bigger role than science in getting people's hopes up for a cure. So the first thing is hair itself is pretty simple, it's just dead cells stuffed with a protein. But the follicles that make hair are incredibly complex. They're technically an organ like your heart or your kidneys. They're very specialised structures that form early in your development and they can never be regrown. By the 22nd week, a foetus already has all five million of the hair follicles it will ever produce, and the hair that these follicles make can change, like how it gets thicker and darker during puberty. But you can never grow new follicles. Now in terms of treatments, even back in the 1950s, 60s and 70s when we didn't know very much about how hair worked, cures for baldness were still promised and they were mostly totally ridiculous.

TV VOICEOVER: 50 guineas for 15 grafts.

TV HAIR GRAFT RECIPIENT: Hides some of the baldness.

TV INTERVIEWER: And does it?

TV HAIR GRAFT RECIPIENT: It does, yes.

TV VOICEOVER: Experiments carried out on monkeys are said to be encouraging.

STEPHEN BURANYI: Testosterone injections, or have steroids rubbed on your scalp, you could have electric shocks, or vacuuming on the skin where the hair was supposed to grow. There was even a Japanese pharmaceutical company that marketed a CD of music that was supposed to promote hair growth. There were so many fraudulent cures that, in the mid-1980s, the American Food and Drug Administration actually banned any medication that claimed to treat hair loss. Now some real treatments were actually found towards the end of the 1980s, but the thing was, they came about almost entirely by accident.

TV VOICEOVER: Experiments which may produce the world's first real baldness cure. It happened by accident. Doctors administering a new drug for treating patients with high blood pressure found interesting side effects.

TV DOCTOR: A side effect of that medication was it grew hair on people. It was a nuisance. It grew bushy eyebrows and heavy body hair.

STEPHEN BURANYI: And then a drug for enlarged prostate called Finasteride was shown to slow down or halt hair loss in some people. The drugs didn't actually regrow full heads of hair, and they didn't work for everybody, but they were incredibly big news at the time. The media referred to them as cures and I think people thought that they were a the first step in a new era of successful treatments. The problem was that they didn't follow from any big revelation in medical science. Basically, we have a treatment for a process that we don't fully understand. And incredibly, in the last 30 years, those are the only two drugs that have ever been approved for hair loss. Since the 1990s, even though we haven't found any new drugs, we've learned a lot about how hair actually works. It turns out that, unlike other organs, hair follicles are constantly remodelling themselves, changing structure depending on whether they're growing hair, shedding hair or resting. And they use stem cells to do this. It's sort of like they're constantly in development. And they do use a lot of the same pathways and signals that are used in early human development. There's a biotech company run by a Turkish-American billionaire that has a very secretive drug that works on one of these pathways, that's currently in human trials. They say that it can regrow hair. And there are several Japanese research groups that say that they can clone your hair follicles, grow them up in a dish, and manipulate their signalling to grow new hair. And then presumably transplant it back on your head. And their work is also in human trials. All of these discoveries have launched massive new projects that make better scientific sense than previous treatments. But they're often in fields that are relatively new and quite complex themselves. Stem cells are historically quite over-hyped. And there's still a lot we don't know about the science behind hair loss itself. So while a cure looks more realistic than at any time in the recent past, expectations are probably still way too high.

500. Why boredom is actually good for you

Many people believe there is no benefit to boredom, but it is a very important emotion, according to psychologist Sandi Mann.

Published on 19 September 2018

Made by BBC Reel

DR SANDI MANN: So boredom is a really important emotion. When you're bored, you tend to daydream and your mind wanders. And this is a very, very important part of the creative process. And this is something that we can apply to our day to day lives. Because if you find that you're stuck on a problem or you're really worried about something, you can't seem to find a way out. take some time out. Just be bored. Let your mind wander. And you might just find that that creative solution will pop into your head. So one way that they can really embrace boredom in our lives is to stop swiping and scrolling our boredom away. So what we tend to do is, when we've got a bit of downtime, is that we get our phones out immediately, or our devices out. We're sort of afraid of boredom. We're afraid to let boredom into our lives. We get a dopamine hit from new and novel experiences. And of course, everything that is stimulating is new and novel. And so the more we have, the more we need. And this kind of lowers a threshold for boredom. So paradoxically, the way to deal with boredom is to allow more of it into your life. Just put your phones away. You let yourself be and let your mind wander, that's really important so that you can get used to it. And you can learn to manage it yourself.

501. Why boys need to learn about periods

Activist Amika George says in order to solve period poverty, both boys and girls need menstruation education.

Published on 14 November 2018

Made in partnership with BBC Radio 4

AMIKA GEORGE: My name is Amika George. I'm 18 years old and we need to talk about periods. Over 137,000 schoolgirls missed school last year because of period poverty. 40% have used toilet paper instead of pads and tampons in order to go to school. What's equally horrifying is that 6% of parents admitted that they've resorted to stealing products for their daughters. Teenage girls have enough to go through anyway with parents pressure, their bodies changing and hormones. So, period poverty really shouldn't be something that's holding them back even further. I think the taboo around periods makes it even worse. The fact that they can't talk to their parents or siblings about them. A lot of girls feel like they can't talk to boys about periods. And I think it's ridiculous that we all go through this normal and natural process every single month. And yet we feel like it's some kind of secret. I think it's really important that the next generation of young girls grow up in a world where periods are thought of as really empowering and something they should celebrate and talk about with their friends and not feel embarrassed of. So I think that can only happen through conversation. I think we really need to get boys involved in the conversation. It would be amazing if menstrual education was provided to boys and girls in a really empowering way, so that we don't feel like girls

have to keep it as an exclusively female issue. If young girls continue to be embarrassed about periods, then the girls who are suffering from period poverty will continue to suffer in silence. And that's what really needs to change. I think it's really important to recognise that periods are. not an exclusively women's issue. At the moment we have twice as male MPs as female MPs, so if they don't feel like they can talk openly about periods, then we'll never achieve gender equality. I think when we've truly achieved gender equality, we'll be living in a world where people can talk about periods in the same way as what they had for dinner last night, because they'll be that normalised in society. Last year I started a campaign called #FreePeriods, which is asking the government to provide free menstrual products to all children on free school meals. Whenever I tell someone about the campaign or about the fact that period poverty is happening in the UK, people immediately want to help. They want to find out how they can start their own campaigns or get in touch with different organisations. So I decided to capitalise on that momentum by organising a protest outside Downing Street in December last year. And it was amazing. We had over two thousand young people turning up on a really cold day. Everyone was wearing red and waving banners with period puns on them. We had amazing speakers and singers and performers and it was just a real empowering feeling where people were really celebrating their periods and everyone was there in solidarity with the girls who are suffering from period poverty. So let's talk about periods rather than period poverty. That's something we should be ashamed of. Let's make period poverty a thing of the past.

502. Why diesel engines could have been so, so different

The tragic tale of Rudolf Diesel - and how things could have turned out very differently.

Made by Dayglow Media & Pencil & Pepper, 18 June 2019

NARRATOR: The story of the man behind the diesel engine and why he'd be turning in his grave. Franco-German engineer Rudolf Diesel started by designing fridges. But in 1892, he patented a revolutionary compression ignition engine known as the diesel engine. Unlike steam engines or early petrol engines, it worked by squashing air inside a cylinder, making it hot enough to ignite the fuel and create a powerful explosion. It was a very simple and economic system. It was invented to run on a variety of fuels, including coal dust and vegetable oils. One of his early devices was demonstrated at the 1900 World's Fair in Paris. It ran on peanut oil and won a Grand Prix. His invention was more eco-friendly and power efficient than alternatives at the time. And farmers could literally grow their own fuel. Diesel became an evangelist for the use of vegetable oils as fuel. In 1912, he said, 'The use of vegetable oils for engine fuels may seem insignificant today, but such oils may become, in course of time, as important as petroleum and the cold, hard products of the present time. Diesel's new engine made him a millionaire by the time he reached his 40s. But his life ended tragically. In 1913, while travelling from Belgium to England on a steamship he drowned at sea. There were strange circumstances

surrounding his disappearance and death which encouraged conspiracy theories. While some people assumed he had killed himself, others thought he'd been murdered by foreign agents. There's little evidence, however, and the case remains unsolved. After Diesel's death, crude oil became more widely available and his engine was adapted to use petrol as its only source of fuel. This type of petrol became known as petro-diesel or simply diesel. The diesel engine went on to revolutionise the transport system after the First World War, powering trains, boats and buses. The first diesel lorries appeared on roads in the 1920s and 30s. The first production diesel car in the world was the Citroen Rosalie, introduced in 1933. Until very recently, half of all new cars sold in Europe were diesel. But diesel's image has taken a big knock. With the scandal over cheating in emissions tests, there's also more evidence and awareness about the potential health problems diesel can cause. Sales in Europe dropped 20 percent in 2018. Some cities in the world have banned or impose heavy tolls on diesel vehicles. Maybe we should have stuck to Diesel's peanut engine?

503. Why do some people have wanderlust - and not others?

What makes some of us want to travel far and wide - while others are happier staying at home? Is there such a thing as a "wanderlust gene"?

Animated by Taunt Studios, 29 November 2019

Made by BBC Northern Ireland

NARRATOR: The poet Lovelle Drachman once said... BLESSED ARE THE CURIOUS FOR THEY SHALL HAVE ADVENTURES Which is certainly true of people with wanderlust. Derived from a German word meaning "a love of hiking" and now used to describe that burning, near physical desire to escape the everyday and explore the unfamiliar. An insatiable appetite for travel. Wanderlust is a common, but not universal experience. What makes some people catch that travel bug while others are apparently immune? One theory is to do with our genes. Scientific research has identified a variant of the DRD4 gene. Sounds like a loveable space robot, but it's actually the gene that affects sensitivity to dopamine. The neuro-transmitter often released in the brain when we do something we enjoy. Now, it's not that the 7R version of the DRD4 specifically creates a craving for travel, but people with the 7R variant are less sensitive to that delicious dopamine hit. So simple things that bring other people pleasure, like a jog in the park or a cheeky chocolate binge, might not cut it for them. Which makes those with the 7R type of the DRD4 gene more likely to be risk takers and thrill seekers - going further than most of us, sometimes literally, to get increased dopamine levels. That's why DRD4-7R has been called the... WANDERLUST GENE The important thing about genes is that they don't determine anyone's personality. All sorts of factors play into that. But given that other research has linked the same 7R variant to far riskier behaviours, such as addiction, a short temper and delinquent behaviour, the irrepressible impulse to go into interrailing seems like the better end of the Darwinistic deal. So genetics may come into play

when it comes to discerning the wild at heart from the homebodies. But another theory looks at the psychology of living in our modern, interconnected human society. A society in which we are constantly aware of what family, friends and social media influencers are doing. The psychologist Leon Festinger called this... SOCIAL COMPARISON THEORY … a theory that was later developed by academics to describe two distinct ways we compare ourselves to other people. Upwards social comparisons, comparing ourselves to those we see as more successful than us. And downward social comparisons, comparing ourselves to those we see as worse off than us. In the age of social media, it's very easy to compare ourselves unfavourably with the idealised version. How can we compete with influencers, with their perfectly tanned legs on immaculate white sand, and their once in a lifetime sunsets over Machu Picchu? #Nofilter #Livingtheirbestlives Whether the motivation to explore the world is genetic, psychological or something else, there are far more harmful hobbies than the desire to explore the world. Venturing outside your comfort zone, to learn about new cultures, meet people you might otherwise never have had the chance to meet, and ultimately, learn who you are in different situations. Sounds like a life well-lived. As the novelist Jack Kerouac said, "Because in the end, you won't remember the time you spent in the office or mowing your lawn. Climb that goddamn mountain."

504. Why do we binge-watch (and is it actually good for us)?

What makes us binge-watch shows like Killing Eve or Game of Thrones? And is it a problem - or could it actually be good for us?

Made by Ripple Pictures, 18 September 2019

SCOTT BRYAN, *TV critic and broadcaster*: I can easily watch an entire series in a single day.

DR HAMIRA RIAZ, *Psychotherapist*: Two days.

BRIAN LOBEL, *Creator of interactive art show BINGE*: Ten hours of television a day, and I didn't even like it.

CAPTION: WHY DO WE BINGE WATCH? HALF OF US HAVE BINGE-WATCHED 8 HOURS OF A TV SHOW IN ONE GO. 80% HAVE SACRIFICED SLEEP. ONE IN FIVE BRITISH WORKERS ADMIT TO... [coughing sound]

SB: Binging started by accident. Netflix had realised that loads of people were gravitating towards watching shows in bulk, be that shows that you've seen before - Friends, Seinfeld, Law & Order, ER. That's the surprise about it - it's led by the consumer. The way that Netflix tries to nudge you to watch more, it's very subtle little tricks. They work out very quickly when a show launches, which thumbnail is working. Why? Also, getting to the very end of an episode and immediately the credits, they minimalize it right to the corner of the screen straight away and automatically load the next episode. That's how you sometimes get sucked into watching a show for three hours without even noticing.

BL: I have found that people are deeply embarrassed by how much they watch TV. Deeply embarrassed to not be productive and take time off and say, “Actually, I watched six hours of television today because I needed to not look at five different tabs on a work computer, I just needed to...” We also binge to be part of the public conversation.

CAPTION: NEARLY 1/4 OF US HAVE LIED ABOUT WATCHING A SERIES BECAUSE OTHER PEOPLE WERE TALKING ABOUT IT.

VOICEOVER: “Yeah, I love Fleabag!”

BL: So I think there is an anxiety about being caught up about this content, which is forcing people to binge more also.

HR: When we can identify with a character it leads to the release of the love hormone oxytocin. It creates a bond.

BIG LITTLE LIES: “We have had such a wonderful morning.” A series like Big Little Lies, which allows you to look at the same event through the eyes of very different characters, you’re bound to be able to find a character that you can relate to and go on the journey with.

BIG LITTLE LIES: “If you ever touch my little girl like that again, you’re gonna be in big trouble.”

CAPTION: SO ARE THERE BENEFITS TO BINGE-WATCHING?

HR: If we’re making time to watch a series end-to-end, we are potentially creating hours of space to work with our emotions, our relationships.

CAPTION: THERE WAS A 41% LEAP IN THE NUMBER OF COUPLES SEEKING COUNSELLING AFTER LOVE ISLAND 2019 BEGAN AIRING.

BL: BRIAN: I have probably watched television with over 700 people, and so I’ve experienced a lot of people having big emotions.

SEX IN THE CITY: “No-one’s fun anymore. Whatever happened to fun!”

BL: The episode Splat! of Sex and the City, which is the one where Kristen Johnston falls out of a window causes people a lot of emotions because it’s an episode about moving on from something.

SEX IN THE CITY: “I wanna go to Paris.”

HR: Our brains don’t discriminate between real activation and activation due to imagined events.

CAPTION: BINGE-WATCHING IS NOT JUST ABOUT RELAXING...WHAT WE WATCH CAN HAVE AN EFFECT ON OUR NERVOUS SYSTEM.

HR: Binge-watching means that you’re activating yourself to a high degree for much longer periods of time. That’s going to take longer for you to come down from

that. Episode four of Game of Thrones where Missandei is beheaded - a much beloved character, it's a very graphic death - will have triggered the sympathetic nervous system. It wouldn't be conducive to a good night's sleep.

CAPTION: VIDEO ON DEMAND IS CHANGING THE WAY STORIES ARE TOLD...
…SERIES ARE DESIGNED WITH BINGEING IN MIND.

SB: What makes Netflix stand out so well is the fact that they're able to really experiment with the number of characters, the number of story arcs. Netflix knows that you're never going to watch a show midway through, you're never going to start in the middle, you're always going to start from the very beginning. So that's why you've got Orange Is the New Black, which has a cast of about 40. So you're able to have that level of depth over an eight hour series, than what you would normally do if it was separated into eight 60-minute chunks shoved on a linear broadcast channel.

BL: Binging is a word that has very negative connotations to it, right? Binging is to shovel yourself. We don't say, "I binged a book." But the reality is that some of the greatest writers of our generation are writing television. I would be the last person to say stop binge-watching.

505. Why do we call sausages bangers?

From saveloys to toad-in-the-hole, food historian Annie Gray chews over the story of the ever-popular sausage.

Made by Somethin' Else, 9 November 2018

NARRATOR: Ah, the great British banger. Or the lovely salami. Or the battered saveloy? Hang on, just what is a sausage. And why do they taste so good? The concept of sausages goes back to antiquity. Stuffing animal guts with a meat, fish or sweet batter mixture was an obvious and practical way to make easily-cooked transportable food. Originally, they were seen as small puddings. A large pudding was a haggis, done in a stomach rather than a lump of guts. And like puddings, they were often boiled rather than fried. The French word for sausage, 'boudin' even gave us British the word 'pudding' since early puddings were sausages and sausages really were a type of pudding. Sometimes they were smoked or air dried to keep through winter. Everywhere though, for those who could afford it, a spiced fresh meat sausage was a pretty staple item, even for those who couldn't afford good meat and fine spice, sausages were about from very early on. There was a play called The Sausage Seller, written in the 5th century B.C. and already then the lower grade sausage had a whiff of uncertain meat disguised with judicious sauce about it. In the medieval era, northern wetter climes such as the UK developed a speciality in fresh meat sausages, to be cooked before eating. Elsewhere in dry climates such as the Mediterranean, which had good stiff breezes and mountains, dried or smoked sausages were more popular. There, they would cure properly and not simply go green as they would in Britain. There was still mixtures wish, fish, fruit and blood –

black pudding, for example – but as the centuries rolled on, most European sausages became based on a mixture of pork, pork fat and flavourings. They were not posh, and by the 18th century they rarely appeared at the dinner tables of the wealthy, though they happily ate them as suppers and snacks. But they were very popular and available for almost every possible budget. Mass production became possible by the mid-Victorian times, and even cheaper sausages came out with a hefty filler of bread or rusk. Saveloys in particular, gained a reputation for being based on offcuts and filler, or indeed horse meat and sawdust in some people's view. Then, as now, the dirt cheap versions rubbed shoulders with the more expensive ones, until the First World War, when meat shortages meant that no one got much meat in their casings. One theory as to why they became known as bangers shortly after the war is at the level of filler meant that they banged and popped when fried. However, it's just as likely to come from their shape, which resembled shell casings, not least as they were still often boiled to cook them. Normally they are cylindrical, but they can, on occasion, be square like a Lorne. Today, 85% of Brits regularly consume sausages. Plain, as bangers and mash or as toad in the hole. Though globally, it's the cocktail sausage, which is the king for a bite sized piece of porky glory. Small or large contents as you wish, we've had sausages for thousands of years and they are clearly here to stay.

506. Why do we chant at football matches?

Turns out there's more to chanting than just hurling abuse at the other team. Written by experimental psychologist Dr Daniel Richardson.

Made by Somethin' Else, 22 June 2018

Made in partnership with The Open University

NARRATOR: #His name is Rio and he watches from the stands# was how football fans greeted Rio Ferdinand when he was banned for missing a drugs test. Some football chants are made up on the spot, some have echoed around the same grounds for generations. But scientists think they are a practice that has deep roots in human culture. Every social group ever studied, from the Maori Hakka to the Sufi Whirling Dervishes to awkward British people at a wedding, engages in some form of group singing, dancing, and chanting. Why is this? Psychologists have found that when a group of people engage in collective behaviour - like chanting - it has a profound effect on how they think and feel. Group singing's been shown to have a powerful effect on the mood of depressed people. As well as the uplifting music, it seems that synchronising your breathing, heartrate and voice with other people has the remarkable effect of making us feel connected to one another. But of course football fans don't usually feel connected to everyone in the stadium. There are plenty of examples of football chants that are rude, offensive, even racist or homophobic. Though they've historically been a means to abuse players and referees, they can also endorse more positive values like celebrating striker Mo Salah's goals with, "If he scores another few then I'll be Muslim, too." Collective

behaviour like chanting is, more than anything a way to express social identity and the values of that group. Like the Liverpool fans chanting, “Justice for the 96” in support of the Hillsborough disaster victims. Chanting at a football match doesn’t just bond a group together in love and harmony, there is a dark side to coordinated behaviour. Most armies around the world march up and down in parades. For the past 100 years, at least since the invention of the machine gun, it’s been a bad idea to walk slowly towards the enemy in a straight line. So why do soldiers march and chant together? In one experiment, people were asked to put a jar of live woodlice into a grinder. The people who had marched in unison around the car park beforehand threw about 50% more of the bugs into the grinder than those who had walked the same distance but not in a coordinated march. Please note there was actually an escape chute in the grinder and every bug escaped unharmed. This suggests coordinated behaviours can lower people’s sense of personal autonomy, and make them more likely to be obedient to aggressive action. And there is a final reason that people might chant at a football match. Writing has only been around for a few thousand years, but we find chants and songs in every pre-literate culture. Even today in India, it’s the chanted version of Vedic texts that’s seen as the definitive version, not the written form. Perhaps chanting is a call back to those older practises of encoding and sharing cultural knowledge. So next time you hear a thousand people yelling...”YOU DON’T KNOW WHAT YOU’RE DOING” to the referee, remember that it’s because they’re bonding with each other, affirming their social identity and using an ancient technology to record knowledge. And, perhaps, because the referee doesn’t know what he’s doing.

507. Why do we clap?

We take clapping for granted, but why exactly do we clap? And when did clapping start?

Made by Dayglow Media & Pencil & Pepper, 5 March 2019

NARRATOR: Why do we clap? We take it for granted, but how did clapping come to be a sign of appreciation? Behaviourist Desmond Morris’s theory is that it’s a kind of pat on the back from a distance. No one knows when we first started to clap, but it appears to be a learnt behaviour rather than innate. Primates also clap, but when they do it, it seems to indicate disapproval rather than approval. Clapping gets mentioned in the Bible, but it really seems to have taken off in ancient Rome. We know this because plays from the era included the word ‘plaudite’ at the end of a scene. This is where we get the words plaudit and applause from. Actors would sometimes pay members of the audience to clap enthusiastically. Professional clappers were known as clacquers in France. Clapping was like the Roman equivalent of a poll rating and a critical gauge of a leader’s popularity, both then and now. Maybe a bit like, likes and shares on social media. While a slow hand club is an ironic sign of disapproval. Now, etiquette alert, it’s regarded as a faux pas to clap between movements at a classical concert. But that didn’t used to be the case. Mozart loved to hear the audience clap when he played. Children have played clapping games for centuries to test their dexterity. Nobody is quite sure when and where these began.

But there is a theory – they are related to traditional African music and rituals. It used to be common for passengers to clap when the plane landed. The earliest record of this is 1948, when passengers clapped in relief when that plane landed at Cincinnati airport after the landing gear malfunctioned. There's been a recent movement to replace clapping with jazz hands - the British sign language equivalent of clapping as some people with autism or anxiety find the sound of loud clapping disturbing. But one thing is for sure, it's a lot harder clapping at concerts these days while you're holding your mobile phone in one hand.

508. Why do we cross our fingers for luck?

How did fingers crossed come to mean good luck? A brief history of this very valuable hand gesture.

Made by Dayglow Media & Pencil & Pepper, 22 August 2018

NARRATOR: We cross our fingers for luck. We've been doing it for centuries. But why? Originally, the gesture needed two people. It was an ancient pagan custom for people to cross fingers with each other. They believed their wishes would be kept safe at the point where their fingers crossed until they came true. This idea of capturing good fortune also explains the practice of tying string around a finger. For Celts and Anglo Saxons, it would literally tether good luck to a person. The gesture also has roots within Christianity. When faced with persecution, early Christians would cross their fingers to invoke the power of Christ's crucifixion. And in a secret handshake, they would cross fingers with fellow Christians before gathering together in safety for mass. The handshake made the Christian symbol of the Ichthys, or sign of the fish. It's thought that Christians who were persecuted would cross their fingers to absolve themselves from the lies they told to their tormentors. And that is why we cross our fingers behind our back when making a promise we don't intend to keep. In England in the 16th century, people crossed their fingers to protect themselves from evil coughs and sneezes. In a 1787 book of popular superstitions, it recommended keeping your fingers crossed after walking under a ladder until you see a dog. But it is the gesture's association with good luck, that has stood the test of time. A recent University College of London study found that crossing fingers confuses the way our brains process pain signals, actually reducing painful sensations. And if that's true, then that would be a bit of good luck for everyone.

509. Why do we have so much stuff?

Modern life just seems to be full of... well, stuff! But why do we have so much of it?

Published on 2 August 2019

JACQUI OTABURUGAU *Documentary Producer and Shopper*: I have an entire operation around shopping. I take it very, very seriously.

EMMA FRIENDSHIP-KILBURN *Shopping Enthusiast*: I've got loads of items I just never even wear. Beautiful, beautiful quality. I've had it for over a year. It hasn't even been taken off the hanger.

PROFESSOR JAMES FITCHETT *University of Leicester*: When we look around the high street and stores, we see lots and lots of stuff. But the most interesting thing about consumption and buying is what's going on in our minds. The story of stuff begins in our imagination and in our fantasies. That's the space where we dream about all the things that we would really, really love to have and what a wonderful life we would have if only we could have this stuff.

JO: I always think, yep, this is it. This is the item. This is what's going to make me happy.

HILDEGARD WIESCHEFER-CLIMPSON *University of Derby*: What we consume is an expression of our identity because our identity consists of a number of different facets. We have an actual self, who we actually are most of the time. But then we also have a social self. We buy products, clothes that express who we want to be at any point in time.

JO: I have two moods. So I have this mood and I also have this mood. And they're both as vital to me as the other, like I feel like sometimes clothes help me take on the character.

EFK: Buying something new makes me feel excited and like full of adrenaline.

HWC: Marketers are very, very good at speaking to the parasympathetic nervous system. The one that makes your heart just flutter. They can't do anything about it.

JO: I buy clothes quite frequently. I tend to do a lot of my shopping online. So I have orders come in at least once or twice a week. I actually have an order right now, that I'm going to pick up, it's a new dress and I'm quite excited to wear it.

CAPTION: But is all this good for us?

HWC: Excessive consumption is actually proven to make us feel, if not bad, it doesn't make us feel good. Recent research has shown that when we have too many things, we are constantly dissatisfied.

JO: Let's say I spend about half my lunch break looking at clothes and then a little bit in between work tasks. And then you add that to some time when I get home and then the actual purchasing, I would say maybe like three hours a day is spent looking at websites, looking at baskets, returning things. Yeah, it takes up quite a lot of my time.

CAPTION: How did we get here?

PROFESSOR FRANK TRENTMANN *Author, Empire of Things*: before the 16th, 17th century, many cultures thought of things as opposed to the self or the soul. And what we see in the modern period is a reversal, it's a cultural shift that things start to be seen as central to our identity.

CAPTION: But have we now reached peak stuff?

HWC: There's something really interesting happening, actually, with consumers. People are actually beginning to get fed up with stuff.

JF: We spoke to three generations of grandmothers, mothers and daughters. To the grandmother generation in that post-war era, there was a much greater emphasis placed upon being frugal. The mother's generation, they wanted to be modern and embrace technologies like the freezer and the microwave. The daughters rejected a lot of that. They saw themselves as being experimental buying different ethnic foods, trying different styles of cooking, buying organic produce, ethical products. What we found was that these generations of women were all the same in wanting to be different. And the way in which they did that was through how they shopped and bought and used stuff.

JO: With the topic around climate change and the impact the fashion industry has on the climate, I am trying to be more mindful of my shopping, so I've recently made a rule to try and make sure that at least 50 cent of my wardrobe comes from vintage stores. And I really want to get to point where I'm more mindful about it. And it's less and fast fashion and less . . . less vapid.

JF: We've got so much stuff now, we don't really know what to do with it. We spend a lot time trying to work out how to get rid of the stuff that we've got. Now, rationally, we might say, 'Well, maybe we should stop buying all of this stuff,' but we don't do that. What we do is retreat back into our imaginations and into our fantasies. And so we start the cycle all over again.

JO: I would say, yes, I do have a mild problem when it comes to shopping. But I like to think that I could stop if I wanted to. Oh my god, that's exactly what an addict says, isn't it?

510. Why do we have stag and hen dos?

When you think about it, stag dos and hen parties are pretty weird - full of crazy fancy dress, and mad games. So why do we have them?

Made by Chocolate Films, 2 October 2019

MALE PRESENTER (*paintballing*) Stag do. I'm following a noble tradition. You can date stag dos all the way back to Spartan warriors in ancient Greece. They have this big banquet to toast the husband to be.

FEMALE PRESENT (*at spa*) Hen nights go back just as far. In ancient Greece, women used to gather round and pay tribute to Artemis, the goddess of childbirth and virginity. (*dressed in 'hen do' clothing, on street*) Stag and hen dos aren't just a British thing, although we do get a bit of a reputation for it. The French, they like to get all poetic about it, call it the burial of your girlhood: 'L'enterrement de vie de jeune fille.' And in Italian, 'l'addio al celibato', or, 'goodbye to your celibacy.'

MP: So they call them bachelor or bachelorette parties in the US, but in German they call it 'Junggesellenabschied'. Try saying that after a few steins.

FP: The modern hen party can be traced back to the 1960s. A bride to be would celebrate with her co-workers, who she'd be potentially abandoning for the life of housewife or mother. It was often at lunchtime and pretty tame.

MP: Some argue that, for many, stag nights are a way of performing a hypermasculinity, creating a time and space outside our normal and rational lives, in which we use excessive consumption to supress any feelings of dread or loss. Normal rules don't apply, so an overindulgence in alcohol and excessive humiliation seem to be the order of the day.

FP: One of the earliest uses of 'hen party' in print was in The Times in 1976.

MP: One psychologist says stag dos represent a frenetic attempt to express deep rooted but increasingly threatened ideals of masculinity and indeed about marriage itself.

FP: Or is it all just a part of consumerist ideology as we indulge in stereotypes and hyper consumption, because it's the done thing to do?

MP: So if you find yourself getting off with a fruit machine the night before you tie the knot, bee comforted by the fact that you're probably expressing a deep rooted, consumer driven fear of threatened identity and indeed about marriage itself. That'll make you feel better, I'm sure.

511. Why do we kiss?

When did kissing start? What happens inside our bodies when we kiss? Is this just a human behaviour? A Valentine's treat.

Animation: Ana Stefaniak & Peter Caires, 11 February 2019

Made by BBC Ideas and World Service

SHERIL KIRSHENBAUM *Author, the Science of Kissing*: Our breathing can deepen and become irregular. Our heart starts to race, our pupils dilate, which might be one of the reasons so many people close their eyes during a kiss.

VAUGHN BRYANT *Anthropologist:* There are three sensations that one should really recognise when they're kissing. First of all, there's the wonderful feeling of touch because our lips are extremely sensitive. We have more nerve neurones on the end of our lips than any other place in our body, with the exception of some areas in our genitalia. And then, of course, also there's taste. Each individual has a unique taste to them. And some people are much better at recognising taste than others. And then, of course, there's also smell. Ovid in some of his poems, talked about kisses smelling like ripening apples in a chest.

SK: There's a lot of theories as to why we kiss. But some of it may have to do with our earliest experiences on planet Earth. When we're infants, through being kissed by parents and also through nursing, there are a lot of lip stimulation that becomes associated, through neural pathways in our brain, with these very, very positive emotions. And so we're building these neural pathways that attribute kissing and lip stimulation with love and security and all of these wonderful things that later in life when we want to express ourselves that way, we probably do so using our mouth. While we can't dip ourselves back in time and kind of discover when and where and how the first kiss took place amongst humans, what we do know is that other species are very attracted to the rosy bottoms of females when they're at peak fertility, when they're in estrus. There are some anthropologists that think that the lips are what's called a genital echo. So they mimic the female genitals in shape, composition, colour and texture. And they serve as a reliable indicator of when a woman might be ready to mate. Desmond Morris, a British zoologist who's actually done some research on lipstick, showing different men images of women's faces, asking who the most attractive are. And over and over and over, men are consistently choosing the women who are expressing the rosiest, most coloured lips in these studies. So there's something that does draw attention to the mouth and the colour red is a colour that many species used to exhibit this sexual signal.

VB: The earliest evidence that we find of any kind of kissing is about 2500, maybe 3500 years ago in some of the earliest Vedic texts that come from India. It turns out that the area right below your eyes has sebaceous glands that produce a unique smell for each individual. So these ancient Indians in northern India were sniffing each other. And of course, if they ran their noses across the cheeks of each other and then across the nose to the other side of the cheek, I think that occasionally, sometimes slipped and may have ended up on the lips. And because their lips are so sensitive, they may have found that that was much more pleasurable than just sniffing each other. The Romans can be looked upon really as probably the first great kissing culture. They had different kinds of kissing the savium was what we might call a French kiss, based on the word saliva, which we still use today. And of course, they enjoy practising this all the time.

SK: There's places where people just thought kissing was disgusting, which might not be that surprising when you consider that, for the most part, people weren't brushing their teeth and flossing and using mouthwash and all these things we do today, where it would probably be a lot less appetising not that long ago. However, it's something that even where we didn't do that, we were sniffing, we were patting, we were licking and sucking and nibbling and doing things all about each other's bodies to connect. And that connection is ultimately important for keeping us together, for keeping our bonds strong, for raising all of the different hormones and neurotransmitters, in our bodies that make us maintain our important relationships. And kissing is a big part of that.

512. Why do we like to be beside the seaside?

From Victorian retreats to the heady days of holiday camps, why do we like to be beside the sea? Made with the help of author Kathryn Ferry.

Published on 8 October 2019

This video was made by BBC Archive

NEWSREEL: Why do people like to be beside the seaside?

CAPTION: The seaside has long been synonymous with a sense of freedom. The expansion of the railway network in Victorian Britain gave many the opportunity to travel long distances for the first time. Tourism boomed and the seaside became a natural destination. Many aspects of Victorian getaways still endure today. The food. The entertainment. (*Punch and Judy show*) Buckets, spades and sandcastles.

N: These are the beaches of England where Rome can be built in a day. And the tide can come up in the evening and wash a whole city away.

CAPTION: The grand majesty of piers and promenades. The Holidays with Pay Act of 1938 liberated the masses. For the first time, ordinary workers got the right to paid time off work. And for many, the new-found freedom was enjoyed at the seaside. Bed and Breakfasts became the accommodation of choice for many holidaymakers. And the image of the old-fashioned landlady developed into a popular seaside stereotype.

EAST OF IPSWICH *1987*: Dinner's at 7:15. Except for Mondays, when there's a high tea at 6:30. If you'd like a drink before dinner, there's a bottle of sherry. But I don't encourage it.

CAPTION: Holiday camps emerged as a new accommodation option in the 1930s with brands like Butlins and Pontins becoming hugely popular.

ANYTHING LEGAL CONSIDERED: Good morning campers and it is indeed a grand feeling to be here on holiday and to be sure of a wonderful day. Whatever the weather every day is fine at Butlins.

CAPTION: On-site entertainment was included. And Butlins' redcoats became an institution. The seaside provided people with an important form of escapism. As the old music hall song put it: 'You can do things at the seaside, that you can't do I town.'

MAN ALIVE: THE DAY TRIP *1974*: I mean, we're away from home, why not enjoy ourselves while we're here? Oh yeah, I'm going to get a couple of fellas.

CAPTION: The more liberal attitudes were typified by the bawdy postcards sold in coastal resorts.

JAMES MOSSMAN *Summer Review, 1971*: Are any of us really like it says on the cards? Yes. A bit. Otherwise, why should they sell so many?

CAPTION: But as baby boomers gave way to Generation X, the allure of British seaside resorts began to fade. Affordable airfares and the growth of package holidays meant foreign destinations became the holiday of choice.

PANORAMA: MEDITERRANEAN *1971*: You've got the facilities here, it's so easy. Take a bottle of Bacardi for eight bob back to your hotel and you're made. I mean, a bottle of Bacardi in England, what's that, about £2, in the back of the mini? It's not the same atmosphere really, is it?

CAPTION: The fortunes of many seaside resorts began a steady decline. Seafronts built to tempt Victorian visitors began to look shabby. And the younger generation were less interested in donkey rides and sticks of rock. It all felt too old-fashioned for them. Some towns like Hornsea went to extreme lengths to dispel that image.

BERNARD FALK *Nationwide 1973*: (*behind bush, apparently naked*) Last week, the council on a vote of eight to three decided to open the doors of the town to nudes.

CAPTION: During the 1980s and 1990s, seaside resorts like Blackpool became associated with a more hedonistic image. Over time, a lack of investment meant attractions at towns such as Rhyl, Bognor and even Brighton fell into disrepair. In 2013, the Centre for Social Justice said seaside towns were becoming 'dumping grounds' for vulnerable people. (*Turning the Tide: Centre for Social Justice, 2013*) 'further depressing the desirability of such areas and so perpetuating the cycle.' Numerous regeneration projects mean there are signs of a revival. Bournemouth is developing its reputation as a tech hub. While places like Margate and Hastings have major new art galleries. At Morecambe, work is about to begin work on the Eden Project North. And while it's a stretch to say the British seaside is as great as it once was, a day by the sea still brings joy to many.

513. Why do we say 'cheers'?

Why do English speakers say "cheers" as a toast, or to thank someone? Etymologist Susie Dent explains the origin of the word.

Published on 16 September 2020

Made by BBC Reel

SUSIE DENT: There's been little a cause for celebration recently (*someone in facemask, referencing Covid-19*), but when the time comes to raise a glass to better days, many English speakers will be uttering the traditional toast, 'Cheers.' 'Cheer' is a happy word attached to celebrations and friendship, to supporting a sports person or team and lifting the spirits of someone who's sad. But its past wasn't all about joy and comfort. Sometimes the cheer embraced far-sadder emotions to. The story of cheer began in ancient times with the Latin cara, meaning head or face. Centuries later, as the word travelled into French as cheir, and from there into English is cheer, it describes someone's facial expression and particularly the reflection on their face

of their inner feelings, whether melancholy or happy, angry or calm. Most of the earlier references definitely linger on the sad side. In a 15th century reworking of the story of King Arthur, Sir Lancelot is described as departing suddenly with a heavy cheer. Others in the same period are described as having 'a sad and sorry cheer', or even a 'wailing and lamentable' one. It wasn't until another couple of centuries had passed that the noun cheer took on a happier note. To cheer someone on was to shout words of encouragement from the sidelines. To give three cheers, as early as the 19th century, is to celebrate a triumph or achievement. 'What cheer' was a common greeting meaning 'How are you?' Which eventually became worn down to 'Wotcha'. To utter 'cheers' as a sign off meaning 'thank you' was originally to wish someone good cheer upon parting. As for 'cheers' as a toast, you might not know the toast itself goes back to the mediaeval tradition of adding spiced toast to wine and to celebration. The person being toasted was thought to add flavour to the gathering, just as the toast did to the wine.

514. Why do we stand on two legs?

Very few creatures in the animal kingdom stand on two legs. In many ways, it's not very efficient or stable. So why do we do it?

Made by Preston Street Films, 23 August 2019

CAPTION: WHAT WE STAND FOR?

MARTIN NEWMAN, Leadership Expert: Humans are among the very few creatures who stand on two legs. We take it for granted but being upright is quite a skill. Take a normal four-legged chair - simple, stable, or even a three-legged stool. But try a two-legged seat... Human babies spend around 2,000 hours in their first year developing the coordination and strength to stand. It's the same amount of time an Olympic athlete puts into a year's training. Standing up is a major achievement, not only in our lives but also in human evolution. Why did we do this? We'll probably never know for sure but there's no shortage of theories. Hunters needing to take food home from the site of a kill or conserve energy to outrun other animals. Perhaps it was to carry and protect babies or was it for sexual display? Some say it was our environment, as forests died back it became easier to find food by walking and by climbing. And the higher your head, the further you can see. Plus being upright means less of your body exposed to the midday African sun. So maybe we stood up just to stay cool. There is agreement on one thing, standing freed our hands to become immensely sensitive and versatile tools and with that came a big increase in brain capacity. So from many points of view, standing is clearly a very good idea, giving us a whole new level of control and power. However, out of the millions of species on this planet being a permanent biped is incredibly rare. Some animals, baboons and bears, meerkats and chimpanzees can occasionally pull off a two-legged trick but permanently? Something we share with only a very few creatures on Earth. Like some obscure rodents, wallabies, ostriches and the giant pangolin. Turns out this biped thing is quite tricky. Think of robots tech companies

have invested massively to crack this problem of how you get a robot standing up on two legs. And the Daleks? They don't even try. So while they can destroy the universe, they can't chase the Doctor up a flight of stairs. We pay a high physical price for our standing chronic strain to our backs and our knees. Truth is, standing may give us power but it comes with exposure and vulnerability and that's what opens it up to manipulation. Here's an example, (Toilet sign) In every culture you can find different ways that society tries to teach us when to stand, when not to stand. Politicians play on our hopes and fears by telling us that we are broken or on our knees and that they and they alone have that magic that will make us stand tall and proud once more. In fact we're so obsessed about standing we talk about it all the time without even realising. How we stand also speaks volumes about how we're feeling. So no wonder many public speakers like to hide their legs behind a podium because how you're standing can reveal too much. If you see someone looping one leg behind the other half balanced on that point you're going to wonder insecure, uncertain? Or if you see someone with their hip jutted out you might read that as quite a sexual statement. Hands on hips? Is that reinforcing core strength and powerful or is it perhaps defensive? Slouching, well, quite clearly you're not exactly on top of the situation. Changing the way you stand can actually change the way you feel and how others feel about you. But beware, if your stance doesn't look genuine it may invite mockery. Own the way you stand. Standing is not only a state of body, it's a state of mind.

515. Why do we use a qwerty keyboard anyway?

It may have been around for almost 150 years, but it turns out qwerty isn't the best keyboard layout if you want to type fast.

Made by Objekt Films, 18 January 2019

CAPTION: Why your keyboard makes no sense. QWERTY has not changed for over 150 years. So surely it must be perfect? In 1868, Christopher Sholes, an American inventor and politician created one of the first commercial typewriters. Logically, he started with an alphabetical keyboard. However, the machine would jam when metallic arms next to each other collided. Sholes's solution was to split up commonly used letter combinations and QWERTY was born. But is it the quickest keyboard layout? In 1936, American brothers in law Dr August Dvorkak and William Dealey patented a new keyboard layout. And they decided to keep the most commonly used keys on the home (middle) row. When typing the 75 most common words in English, 70% of keystrokes are on the home row compared to just 32% for QWERTY. Most machines and software are programmed and controlled by a QWERTY keyboard, which makes innovation and change very difficult. Speech recognition is becoming more prominent. It has been shown to be three times quicker than typing. But people like typing – it gives them more time to think. And worse – everyone can hear what you say. Maybe it's good that QWERTY isn't all that quick after all?

516. Why does time go forwards not backwards?

Time moves forwards not backwards. We all know that. But why? Science journalist Alok Jha explains all.

Made by Flock London, 12 March 2019

ALOK JHA *Science journalist*: Time is a dimension. Just like length, breadth or height. But whereas we can move in any direction in those other three dimensions we can only move in one direction of time - forward, relentlessly. Why? Why can't we ever move backwards in time? For a long while scientists couldn't come up with a convincing explanation. The laws of physics, you see, work fine whether you're going forwards or backwards in time. Their answer finally came from an unexpected place - steam engines. At the start of the industrial revolution engineers were trying to understand how to make steam engines more efficient. In examining how all that heat and energy moved around an engine, they developed a whole new branch of science, which they called, appropriately, thermodynamics. But it turned out that thermodynamics could explain the behaviour of a lot more than just steam engines. In particular, the second law of thermodynamics helps us to understand why things happen in the order that they do. A cup smashes on the floor for example, and spills out all its contents. Now, we inherently know that that process is irreversible. Cups smash. Things have a way of disorganising themselves but they're not so good at reorganising themselves and the second law of thermodynamics tells us why. Another way of looking at it is in terms of messiness. A cup is tidy. A smashed cup is messy. The word for this in physics is... entropy The more entropy there is in a place, the more disordered, messy and useless it is. Here's what the second law of thermodynamics looks like. This 'S' represents entropy and this 'd' is a mathematical way of representing change. So 'dS' simply means a change in entropy. Now if you look at this equation from left to right what it says is that the entropy of a system always has to increase. When a cup smashes or a freezer defrosts that's fine according to the second law of thermodynamics because the entropy of those things increases. But if you expect melted ice to reassemble you're expecting entropy to fall. That would break the second law. That's a no-no. The second law tells us what order things can happen in the universe. It gives us a clear direction for the flow of what we call time - forward. Time simply can't flow any other way because that would decrease entropy and break the second law. But where is the relentless march of time taking us? The entropy of the universe, the disorder is always increasing. Always. At some point in the far future this means that our entire universe will be in a state of total disorder, a state of maximum entropy. Scientists call it the 'heat death'. This is how our universe will end. But don't worry, this bleak fate won't come upon us any time soon. The universe will have to wait trillions and trillions and trillions more years, by which time of course there will be no humans left to see how time and entropy have ravaged our universe.

517. Why food has a unique power to unite the world

Food has a unique power to bring the world together, says chef Marcus Samuelsson.

Published on 7 September 2018

Made by BBC Ideas and World Service

MARCUS SAMUELSSON *Chef*: Food is . . . is easier to understand sometimes than someone else's religion or someone else's political point of view or . . . or a language. I have a window into three different cultures, Ethiopia, where eating based on a spiritual compass is very big. Sweden, where we pickle and preserve and smoke and nature and food is really one. And then America, living in New York City where you deal with a multiculture and have the opportunity and benefit to eat any type of food in the world on any given day. Those three are very, very different. Africa's food culture has been around for thousands and thousands of years, way before European or American food culture. We fast based on our spirituality. We celebrate food based on our spirituality. We give food to people who . . . who don't have enough. We don't waste any of our food. People use everything. If you look at food waste in the West, it's about 30 percent. In Ethiopia, there is no such thing as food waste or very, very little. Food is a very highly confusing space. Where there's a lot of buzzwords out there? Food desert is a word that people use a lot.

CAPTION: Food desert. *Noun*. An urban area in which it is difficult to buy affordable or good quality fresh food.

MS: I was born in the desert. I know how the desert looks like. America doesn't have food deserts, or urban London doesn't have food deserts. For me, these cities and places are much more linked to what I call food apartheid, because it's really something that has being planned through decades of loss. That didn't just happen. Certain neighbourhoods are not allowed to have great food and we can then looking into deeper meaning why. There is a lot of hope in this moment. First of all of the youth, the youth is extremely diverse. I see a lot of hope working in, in, in London with diversity through food. And I also see a lot of similarities between New York and London. Some things are very different. But the undercurrents of hope a young people want to be engaged and involved in the food industry is similar. And that's something to build on.

518. Why impostor syndrome can be a strength

Do you sometimes feel you're not quite good enough? You may have impostor syndrome. Here's how to tell if you have it - and what to do.

Made by We Are Tilt, 20 December 2019

DR SANDI MANN *Pyschologist*: I describe impostor syndrome as having three elements to it. The first is the belief that other people have an inflated view of your own abilities or skills a far more inflated view than you have of yourself. The second

factor is that you have this intense fear that you'll be found out and exposed as a fake. And the third element is that you constantly attribute your success, that you do recognise, to other factors outside of your own abilities or talent.

CAPTION: Do you have impostor syndrome?

SM: Impostor syndrome can feel like a dissonance or a disconnect. But if you have it a lot and you're constantly feeling that way, then the disconnect between what you see as yourself and your public view just grows bigger and you feel fake and you feel an impostor. Impostor syndrome is something that affects so many of us that actually to call it a syndrome is probably a little bit inaccurate, because that suggests it's kind of a mental health condition or there's something wrong with us. But when it's 70% of us, it's probably more likely to be something that is almost normal really. You can't have impostor syndrome without being successful. You've got people like Tom Hanks who you'd think, well they've made it, they must be confident in their abilities. No matter who we are, no matter what we've done, there comes a point where you think, 'How did I get here and am I going to be able to continue this? When are they going to discover that I am in fact a fraud, and take everything away from me?' I think a little bit of self-doubt is very good for self-development. The impostor syndrome people are the ones double-checking their work, working really hard, trying to get everything right, never satisfied, always looking for more training opportunities and more learning opportunities. And those are all potentially good things. There are a number of factors from childhood that may contribute to impostor syndrome. When children are put on a pedestal, that's a very, very difficult premise to live up to, and that can help make you feel an impostor, because if you're not perfect, then you're not the golden child that they think you are. The term impostor syndrome was first coined in 1978 by Pauline Clance and Suzanne Imes in a paper that they entitled, Impostor Phenomenon in High Achieving Women. So it was originally something that was thought to only affect women. When we talk about impostor syndrome in the workplace, I see that as the same for men and women, but I do see a lot of men who don't think they're man enough. Social media has a huge role to play in impostor syndrome. We can see everybody else's successful lives. The more we present our best self to the world, the more other people will develop impostor syndrome because they're never going to measure up. I've had people who have wanted to give up their high-flying jobs because they fear so much being found out, that they would rather give it up and hand in their notice - even though objectively they're not fake and objectively they are successful. If you think that you're suffering from impostor syndrome, actually look objectively at your successes. Write down the things that you are successful at and then look at all the reasons why you might have achieved that success. Assign percentage scores to how much you think that factor contributed to that achievement. You can mistakenly attribute all of it to luck, but when you put it down on paper, you'll realise how ridiculous that is. So it's a bit of a reality check, and it makes you stop and acknowledge your successes. Impostors feel that they can't accept anything that's less than perfect. Learn to make mistakes and to accept failure. You don't have to be brilliant all the time. But you can be good enough.

519. Why is football so full of cliches?

At the end of the day… the cliché has its merits, argues Football Cliches writer Adam Hurrey.

Made by Somethin' Else, 25 June 2018

Made in partnership with The Open University

ADAM HURREY: Let's get stuck in early doors. Why is football so full of clichés? Broadly speaking, there are two types of football clichés. Firstly, there are the hypertruths phrases which are so obvious that they're not even worth repeating. 'That really was a game of two halves.' Or, 'If you don't, shoot you can't score. These hypertruths have persisted because they're comforting, reliable filler. The footballing equivalent of, say, talking about the weather with your in-laws. Then there is the received wisdom. Football phrases that have become accepted as true despite having almost no basis in logic. When a fan repeats such myths, as 'Some people say, you can score too early' or, 'Two-nil is always a dangerous score.' It taps into their most primal fear that their team will suddenly and spectacularly let them down. Paranoia and pessimism are, after all, central to the enjoyment of football. For all that, the English language of football has evolved into something rather ornate over the last hundred and fifty years, other countries have embraced their more poetic side. What we might describe as 'postage stamp' that is the extreme top corner of the goal, the Brazilians might call (*Portuguese phrase*) literally, 'Where the owl sleeps.' While English has countless ways to describe the fundamental act to scoring a goal, none are quite as evocative as the French (*French phrase*) literally, 'make the nets quiver.' Suddenly 'getting in the back of the onion bag' doesn't quite sound so impressive. Football commentary is awash with bizarre words and phrases borrowed from other walks of life, often from decades ago. When else in their day to day life with the average football fan use the words 'aplomb' that is a goal scored tidally, but with a flourish, or, 'swashbuckling', once used for 18th century pirates, but now for a defender who has a habit of suddenly bursting up field to join the attack. The development of the football lexicon has largely been a one way street, but it has given the occasional word or phrase back to the wider English language. 'Back to square one again', some claim, originates from the BBC Radio coverage in the 1920s when a commentator would refer to a grid system printed in the Radio Times to indicate where the ball was on the pitch at that moment. Despite the negative connotation, clichés do have a useful function. They exist to fill gaps, to lubricate debate and to act as a conversational leveller between a novice and an expert. So with the saturation of football coverage, pare a thought for the much maligned cliché, because at the end of the day, where would we be without.

520. Why is lying so hard to resist?

Why do we lie? And how often are you lied to? Well, sorry to break it to you, but it's probably more than you think.

Published on 21 November 2019

CHERRY STEWART-CZERKAS *BBC Ideas*: How often do you lie and how often do you think other people lie to you? Chances are it's a lot more often than you think.

PAUL SEAGER *Author, Would I Lie to You:* There are a number of different reasons why we lie, so we might lie for personal gain, we might lie to avoid punishment, we might lie because we get a kick out of pulling the wool over somebody else's eyes. So the white lies, I always say, are the oil that keeps life's machinery running smoothly. Everybody lies. Imagine a situation where we told the truth all of the time. I really don't think we'd last very long. We certainly wouldn't have friends for more than about 24 hours.

CAPTION: 61% of men and 60% of women in the UK think it's acceptable to lie in order to spare someone's feelings. 25% of men and 22% of women think it's okay to lie to cover up their own mistakes. *ComRes survey for the BBC.*

TALI SHAROT *Affective Brain Lab, UCL:* People lie to get rewards and avoid harm. So, for example, in order to get a good job, you might think I would lie on my CV. You might lie to gain more money. People also lie often because they want others to see them more favourably, in order to get a better date, you might think I would lie on a dating app.

CAPTION: 69% of people polled thought that to lie about your age or appearance on a dating profile was never acceptable. *Comres, 2019*.

CAPTION: Pulling a 'sickie'. 39% of men and 40% of women think it's acceptable to lie to take time off from work, with over half of young people between the ages of 16 and 34 agreeing it was okay. *Comres 2019*. One in five UK workers have 'pulled a sickie' as an excuse not to come to work. And only 29% of managers believed their staff when they called in sick, with food poisoning and cold and flu being the least believed reasons. *Source: Bupa, 2005.*

CAPTION: Why do we believe big lies?

CSC: According to George Lakoff at the University of California, we tend to interpret evidence differently depending on our personal beliefs. And anything that challenges that will actually be ignored or even attacked. Which might go some way to explaining why society can be so polarised.

CAPTION: Lies we tell our partners.

PS: Research suggests that when we're married, about one in 10 of our interactions is a form of deception. But when we're in the early stages of getting to know a person or dating them, it can be as high as almost half the things that we tell the other person could be deceptive in some kind of way. The most common type of lies that we tend to tell are the white lies, the . . . the protective lies. So imagine your partner is a budding Picasso. They come home from art class one night and they show you their latest painting that they're very proud of. You take a look at it and go 'Oh', and they say, 'Oh, what do you think of my painting?' We would typically go,

'Oh, yes, I quite like that.' We wouldn't necessarily tell the outright truth that we wouldn't have that on the wall if you paid us to.

CAPTION: How often do we lie?

CSC: When we learn to lie as children, we use something called the theory of mind, which is our understanding of the intentions and beliefs of others. We also develop skills such as planning and self-control, which help us help better porkies. Robert Feldman at the University of Massachusetts found that we lie frequently and we don't even know how often we do it. Participants in his study lied on average three times in a 10 minute conversation when they were meeting each other for the first time. They weren't aware that they were lying that much until they watched back the footage of the interaction.

PS: We like to think of ourselves as very honest, truthful, trustworthy people. So one of the reasons that we might not be good at tracking how often that we've lied, we might be underestimating quite a lot about how often we lie. We might underestimate to protect ourselves, to protect our self-esteem, make ourselves feel better about ourselves.

CAPTION: When lies get out of control.

CSC: You might think it's okay to lie in certain social situations. I mean, what's wrong with telling someone that they look good today? But are little acts of dishonesty, as harmless as they seem? Is lying about small things, the start of a slippery slope?

TS: There are many famous examples by which people started with small lies that seem to have expanded into bigger and bigger lies. Bernie Madoff is one example with his Ponzi scheme. He himself says that he started with small lies, but over time it became a really big snowball that expanded. So when someone lies, they often feel bad about it because we think lies are immoral. And so if we lie, we feel bad. But the thing is that when we have an emotion and then we encounter the same stimulus again, that triggered that emotion, the amount of emotion that we feel is reduced. If we allow people to get away with small lies, it is possible that over time they will be more likely to be more and more dishonest and actually commit bigger crimes. This has some implication for education, for example, trying to stop kids even when they tell little lies, but also for law enforcement. If we stopped small acts of dishonesty that could potentially, over time, make it less likely that people will commit large acts of dishonesty.

521. Why is the common cold so hard to cure?

Scientists have been studying cold viruses for 70 years - so why haven't we found a cure yet? Science writer Stephen Buranyi takes a look.
Published on 6 September 2019

STEPHEN BURANYI: You'd think there should be a cure for the common cold. Scientists have been working on cold viruses for over 70 years, but they've never found an effective cure.

CAPTION: Why haven't we found a cure for the common cold?

SB: The cold is the world's most prevalent infectious disease, adults get between two and four colds a year and children get way, way more. So this means that you'll probably get over 200 colds in your lifetime. And at any one point, hundreds of millions of people around the world have a cold. So we're going to talk about why it's so difficult to cure the cold in a moment. But before that, we should go back to the very first time we thought we were going to cure it. The golden age of cold research starts in 1957, with a scientist named Winston Price at Johns Hopkins University. Price is the first person to ever isolate a cold virus in a laboratory, and this is a really big deal because while people had described the symptoms of a cold for thousands of years, nobody had ever found the agent that causes it. So Price becomes sort of like a minor scientific celebrity. And he then announces that he's going to create a vaccine for it. But, the vaccine doesn't work very well, it only protects against a very, very small proportion of infections and Price has no idea why. Now this is pretty disappointing, but it's good to think about what's going on in science at the time. People are incredibly, incredibly optimistic about the potential for research and especially medical research. The polio vaccine had just been created in 1955, and it's the dawn of the age of antibiotics. And after the Second World War, governments are really, really, keen to invest in ambitious projects with definite goals that solve big problems in society. And so the cold becomes one of these things, and a huge amount of funding comes down on the problem. It moves beyond Price's lab and cold research centres open across the entire world. And my favourite one of these is the Common Cold Research Unit in Salisbury, in England. So the scientists there put ads in the local paper, basically advertising a two week vacation in the countryside - as long as you were willing to be locked in a draughty corridor or to huff bags of cold infected air and let scientists observe you for a couple hours every day. And so what scientists unpick over the next 30 years from all of this, is that the cold isn't caused by one virus, it's caused by seven different viral families, and each one has subtypes which are called "serotypes" which are recognised differently by the immune system. And so, this is why the cold is so difficult to cure and it's why Price's vaccine never worked, it was only for the one cold family and one serotype he'd isolated. The problem is, at the time that this is all known in the 1980s, vaccine technology could only fit in a few serotypes per injection, without causing an enormous immune response. And so, you basically have the science that we know at an impasse with the technology at the time. And people have been working on colds for almost a generation, 25 or 30 years, and the scientific imagination has a tendency to wander. Elite virologists and government funding start moving more into other projects, like AIDS - which is incredibly deadly and almost a total mystery at the time. And so colds kind of go out of favour as a topic of research and the common cold unit even shutters in 1990. Since then, we've gotten way better at dealing with infectious diseases. We've eradicated smallpox, gotten measles, mumps, rubella, tetanus, whooping cough, all kinds of things under control. And so cold research has undergone a bit of a renaissance lately. There's two totally different approaches that

are both quite promising. In the UK, there's a group that's taking a look at every single cold serotype, and trying to find a piece in common that they can target a vaccine to. It's quite like an elegant, direct approach. And then there's an American company who's trying to create a super vaccine. So this would be one shot, with all 50 of the most common cold serotypes in it. It's sort of a brute force approach. But, despite the promise of all this research, there's still one big hurdle to getting it finished and that has more to do with the business of science than science itself. The thing is, vaccines aren't very good bets for pharmaceutical companies. They're incredibly expensive to develop and failure rates are really high, even late in trials. It takes about $1 billion American dollars and almost a decade to develop a successful vaccine. Of all the thousands of pharmaceutical companies that there are, only about five work on vaccines really seriously and these are the biggest and richest companies. And when it comes down to it, would you really get an expensive injection just to avoid a few days discomfort? I probably wouldn't. So, even after all the progress over the past 70 years we'll probably continue to suffer from colds.

522. Why millions listen to this girl's advice

How a nine-year-old girl is helping to keep people safe at a London station.

Published on 20 July 2018

This video was made by BBC World Hacks

NARRATOR: A tube station in London has a problem. Each month, 15 people are injured on its escalators. But a surprising solution for the station has emerged. Wait for it. [*Megan comes up escalator*] Her parents work at the station.

MEGAN *Safety announcer, Victoria Station*. Hello, everybody and please listen up.

ROBBIE *Megan's Dad:*I said to my colleague that my wife was bringing down the two kids to meet me after work.

M: Take care of the escalator, hold onto the handrail and your luggage.

R: And he said, Would Meghan mind doing a P.A. announcement regarding the safety on the escalators? She does like a bit of acting, so I knew she'd be up for it.

N: It took several takes to get the perfect recording.

M: I was really nervous when I first was going to do it. But then once I did, I thought, 'This is actually okay.'

N: A quarter of a million people use Victoria each day.

VOX POP FEMALE: Gets your attention straightaway. You think 'Oh, what's going on?' Yeah. Yeah, I think it is a very good idea.

VOX POP FEMALE 2: I think everyone takes notice when a child says something. You know, they always mean it. There's always a lot of thought that goes in something they say.

DR VALENTINA CARTEI: Research shows that deeper adult voices are perceived by humans as having more authority.

M: Take care on the escalator, hold onto the handrail and your luggage.

VC: A child's voice wouldn't have that authority, but perhaps it's the shock factor.

N: Megan's announcements have been running at the station for six months. Transport for London says injuries have fallen by almost two thirds. Do you think adults listen enough to children?

M: No. They should listen more to children, because sometimes children are right.

523. Why new habits are so hard to stick to

Dr Radha Modgil explains what's going on in our brains when we try to make or break habits.

Published on 7 January 2020

DR RADHA MODGIL *GP and presenter*: I've always been a dedicated and compliant tooth brusher but I was never really encouraged to floss. A few years ago, I went to see my dentist and he said to me, "Listen, your teeth are fine but you need to start flossing." "OK." I said. "No problem. How hard can flossing be?" I got all the kits, I bought all the tape, the sticks, everything. Day one, I did it. Day two, I did it. Day three, I didn't do it. And then the days turned into weeks and the weeks turned into months and I was back at my dentist. Again he told me I needed to floss. Some nights I did, some nights I didn't, there were so many excuses. "I'm tired." "It's boring." "I'm going to punch myself in the face again by accident." But now I'm a dedicated flosser. So what changed? Radha Modgil: Sean Covey, author of the best-selling book, "Seven Habits of Highly Effective People" once said...

CAPTION: "Depending on what they are, our habits will either make us or break us." "We become what we repeatedly do."

RM: Some of these habits are helpful and healthy and some not so good, but what they all have in common is that we're unaware we're doing them because they become automatic and repetitive. Our habits combine like steps on a journey in life. They determine our direction and that's pretty scary considering most of the time we're not really consciously in control of them. So why are habits so difficult to break and new ones so difficult to make? Neuroscience tells us our brains set up things called habit loops. These habit loops consist of three stages. Stage one is a cue. This is a trigger - it could be from your external environment or your internal

environment for example, your emotional state. Stage two is a routine behaviour. It's the action you take in response to that cue. Stage three is the reward, so the release of dopamine in the brain, a neurotransmitter associated with feelings of pleasure. Because you've had that release of dopamine which has made you feel good you're more likely to repeat that behaviour in response to the cue next time and that's why a habit is hard to break and hard to make, because those neural connections are strong. But the good news is nothing's set in stone. Breaking old habits and making new ones can be done, but it takes an extraordinary amount of self-awareness and effort. So here are some top tips to help you through it and it may even save your gums at the same time. It worked for me. Tip one...

CAPTION: Find your motivation

RM: Why do you want to change? What are the benefits? What are the repercussions if you don't change that habit? And do you want those repercussions? Write them down and read them often. Tip two...

CAPTION: Be specific

RM: What exactly do you want to achieve and how are you going to do it? Make space and time in your diary to put the effort towards changing that habit. Take practical steps that will help you break that cycle of cue and response. Tip three...

CAPTION: Small steps are better than giant leaps

RM: Try the 1% idea where each day you improve or change something by 1%. That way you start to see progress and you're not put off by failure. Tip four...

CAPTION: Don't stop when you're on a roll and celebrate your success

RM: Keep the momentum of that new habit going, however small it is. The continuous nature of changing something about your behaviour will signal to your brain that this is an important change and one that you need to continue. Chart your progress and celebrate your achievements with a treat so you still get that dopamine hit. Tip five...

CAPTION: Be patient

RM: A study in 2009 showed that on average it takes 66 days to form a new habit with some easier habits being formed in 18 days and some harder ones being formed in 254 days. So changing habits can change your life. I think that once you notice a habit is unhelpful and you know why you want to change it then really, the rest is a piece of cake. So good luck, go forth and break some habits.

524. Why new things make us sad

In 1769, philosopher Denis Diderot described how his brand-new dressing gown made him miserable. Why is this effect still relevant today?

Published on 8 January 2019

Made by BBC Reel

BRENDAN MILLER: In 1769 in Paris, a French philosopher wrote an essay about an unusual experience. His name was Denis Diderot, most famous for his role in compiling one of the first modern encyclopaedias. In the essay, he describes how he'd come into possession of a new, luxurious red dressing gown, but rather than make him happy, it made him miserable. And the cause of that unhappiness is still being examined by psychologists and marketing professionals some 250 years later. The reason Diderot's dressing gown was making him unhappy was that its beauty and luxury clashed with his other, much shabbier possessions. 'Now all is discord, right? The overall effect is lost. There's no longer any unity or beauty.' This need for unity left him with a desire to upgrade his stuff, so that it matched the luxury of his new dressing gown. Soon there was a new tapestry, new paintings, new prints, a new chair, a armoire, a mirror, a new bureau, an expensive clock. Soon, his whole apartment was completely transformed. As Diderot described it, the imperious dressing gown had imposed her new harmony on his home. In 1988, anthropologist Grant McCracken coined the term 'Diderot effect' to describe this desire for unity and how it shapes what we buy. At that time, many economists saw consumer goods in isolation, each one owned just for its function and utility and therefore easily replaced if a cheaper or better version came along. McCracken argued differently. Rather than looking at possessions individually, he argued, the things we own reflect our identity and place in society and for this reason, often belong in sets, held together by the force of the Diderot effect. So, a banker buys a Rolex to go with his BMW and bottle of Bollinger, or a hipster buys a graphic tee and beard oil to go with his overpriced and under functioning bicycle. Now sometimes the Diderot effect stops a consumer buying something, even if it's useful and a good price because it doesn't fit with the set of goods that person already owns. But at other, times, the appearance of something new – what McCracken calls 'a departure good' can lead to the run of consumption that Diderot observed with his dressing gown. Each new purchase made to match the qualities of that new item. Now, Diderot may have observed this effect a long time ago, but even today, his insights on why we buy are still used by one group of people: those who sell us stuff. For example, look at Apple. For many, the purchase of the iPhone was a departure good that led, by the Diderot effect, to them buying other Apple products, seeking the unity and beauty that will come with them having the complete set. This is also why it helps IKEA to put its products in branded groups. You come in to replace a chest of drawers, but the Diderot effect tempts you to get the bed, wardrobe, dressing table and hat stand that seem to belong with it. The way things are laid out in stores works in a similar way. Each of these rooms is filled with items that go with the others and together represent a whole new identity or lifestyle. If you can be tempted by one element of the set, the Diderot effect means a whole run of new purchases are likely to follow. In all these cases, marketers are taking advantage of the Diderot effect. Each new purchase, exerting a force on our other possessions, constantly pushing us to upgrade our stuff. Other writers looking at the Diderot effect, like Juliet Schor in *The Overspent American,* have argued there is a cruelty to this neverending escalator of desire. She argues often we're buying something because of a symbolic fantasy

attached to it. In Diderot's case, perhaps he hoped that with the dressing gown would come the economic security of those who owned luxurious items just like it. Yet, Schor argues, when we get the product, we don't get the thing that was promised to come with it. And this was true for Diderot, who, despite getting the new gown, wasn't rich. Perversely, he felt more free in his old gown, which he was more comfortable using to wipe dust from books or clean his pen nibs. As he wrote, 'I was absolute master of my own dressing gown. But I have become slave to my new one'. His new gown promised security and freedom, but in the end it trapped him. So when you're shopping, imagining the life that will accompany the new and luxurious phone, chest of drawers dressing gown, try not to forget the benefits of the old and shabby.

525. Why our ears are unique (and amazing!)

You might take your ears for granted, but the human ear is quite an extraordinary feat of evolution and design.

Published on 25 June 2020

This video was made by BBC Scotland

NARRATOR: Let's hear it for ears! As unique to us as our fingerprints are, these curly, bendy bits of cartilage - called pinna - have grown out the side of our heads for good reason. Back in the day, they helped us hunt by pinpointing which direction that rustling in the bushes was coming from. But perhaps most importantly, ears help us communicate with other human beings. Even before we emerge from the womb, we've decided whose voice we like most - it's our mammy's! And we've probably had a wee jive to her favourite songs, because our lugs are already listening when we're minus 20 weeks old. After we're born, our sticky-out ears become even more useful. They deflect sound towards your eardrum, keep your glasses from falling straight off your head, they help us to socialise, too. The inner workings of the ear heighten the frequencies of the human voice - so much so, that some scientists claim that listening to someone is a more effective way to recognise and decode complex human emotions, than looking at their facial expressions. But if all the complicated goings-on seem to happen inside the ear, why do they stick out the sides of our heads - instead of sitting on top like a bunny, or hanging low like an elephant? It often comes down to whether an animal is predator or prey. Predators, like foxes, have ears on the top of their heads that they can point down at the ground when hunting. This allows them to hear what poor wee animals are burrowing underground, dig down, snack away. For animals that don't need to hunt, ears on the tops of their heads allow for better movement. A rabbit's ears can swivel 270 degrees and allow them to hear for up to 3km - meaning they can be alert for predators while looking at dinner. Our old pal the African elephant has the biggest ears of any creature on earth - making up about a fifth of their surface area. They use their giant lugs to fan themselves, while the thin skin does a great job of dissipating heat. Our external ears may not serve us so well on a hot day, but they can be an

indicator of our health, and in the most peculiar way. It comes in the form of a diagonal crease on your earlobe called Frank's sign. Benign as it may look, the appearance of Frank's sign has been linked to cardiovascular disease and diabetes. But scientists are stumped over why the crease appears and how it correlates to these diseases, just that it kind of... does. Now, while we're on the subject of earlobes, decorating them is nothing new, for humans at least. The oldest mummy ever found in Europe - Otzi the Iceman - had pierced ears. In modern times, because we're so damn edgy, we've found about 14 different ways to pierce our ears, each with their own name. The most fun of the bunch might be tragus. The word comes from the Ancient Greek tragos, meaning goat, apparently because the tuft of hair some people have coming from their ears looks like a goat's beard. If the idea of piercings makes you wince, cover your ears now and be glad you still have them, because if you were a criminal in 16th Century England, there was a chance your punishment would be cropping. That's where your ears were cut off to show the rest of the town who the delinquent was. You were even prescribed a haircut, so you couldn't hide your shame. For the uncropped, our ears never stop growing. Maybe good news if you've got eensy-weensy ears, but for the already large-lugged, they ain't going away and gravity is only going to make them get floppier as you age. Big or small, it's the shape and folds of your ear, and how the brain processes sound waves, that help us determine where a sound is coming from. So next time you lose your phone under the sofa, it's your twisty ear folds that are helping you locate that Coldplay ringtone. Such sounds might be painful to hear - physically even, if they're over 130 decibels - but our strange wee ears give lots to be thankful for. They allow us to hear our loved ones, and best of all, pretend not to hear them when you said you'd hang the washing out.

526. Why our lives will forever revolve around the sun

Just a few of the many ways the sun still governs our lives, from Dr Harry Cliff, curator of a new exhibition at the Science Museum.

Made by In-House International, 4 October 2018

Made with the help of the Science Museum

DR HARRY CLIFF, SCIENCE MUSEUM CURATOR: The Sun is just one of hundreds of billions of stars in our galaxy. In a way, there's nothing very special about it. It's a fairly ordinary star - not particularly large or bright by stellar standards. But it's very special to us. The Sun makes life on Earth possible. Cultures across the world, and throughout the ages, worshipped the sun. In some ways, modern life has cut us off from the Sun. In the developed world we spend 90% of our time indoors and yet the Sun is still a powerful force underpinning our lives. The Sun affects our perception of beauty. When people talk of the "golden hour", that time just before the Sun sets, it's a real thing. The Sun isn't actually yellow or orange or even red. It's all the colours mixed together. When the Sun rises or sets in the sky, the shortwave colours - green, blue and violet are scattered, leaving only the yellow and the red part of the

spectrum, giving that amazing glow. When the Sun is high in the sky, its blue waves bounce around which is why the sky looks blue. And when you see a rainbow, that's the light from the sun separated into all its magnificent colours. Although we talk of the Sun rising in the east and setting in the west, that's not quite true. It just seems that way to us. The Sun stays in the same place. It's the Earth that rotates on its axis. This movement of the Sun is deeply embedded in our biology. When sunlight enters the eye, it sends signals to a master clock in our brain called the suprachiasmatic nucleus. This internal clock regulates everything, from when we sleep to how we digest a meal. Messing with this finely tuned machine, when we work night shifts or fly across the world, can make us feel pretty rough. Even the bluish light from a mobile phone late at night is enough to disrupt and confuse our internal body clock. Being out of step with the Sun affects our mood and our ability to think clearly. And there's evidence that this kind of disruption can lead to higher rates of obesity, heart disease, diabetes and even cancer. We're living out of step with the Sun and some scientists say this could be causing a public health crisis. When the sun is shining, studies have shown that we tip more generously and are more likely to splash out on luxury goods. And crime may go down too. One study in the US found that when the clocks go forward for Daylight Savings Time, the number of robberies, rapes and murders went down around 50%. The Sun is a hell of a force to be reckoned with. Every hour, enough sunlight falls on the earth to power the world for a year. Deep in its core, at around 15 million degrees Celsius, the Sun is constantly fusing hydrogen together to make helium. These nuclear reactions release vast amounts of energy in the form of sunlight. If only we could work out how to harness this. But we are getting there. It's estimated that by 2022, 30% of our energy could come from renewables, with solar growing faster than anything else. The Sun is vast, dynamic… and sometimes violent. Viewed up close, the Sun's surface looks like a raging sea of fire, with huge eruptions rising hundreds of thousands of kilometres into space. There are even earthquakes on the Sun – called sunquakes. And what happens on the Sun can impact us. The Sun sporadically blasts huge clouds of charged particles towards the Earth, potentially wreaking havoc on the technology that we all rely on. But 97% of people have never heard of solar storms. In 1859, a gigantic solar storm hit the Earth, creating auroras that covered the entire planet, knocking out the telegraph network and sending sparks flying from electrical equipment. The solar storm of 1859 is still the largest on record. But if a similar storm were to hit the Earth today, the consequences for our way of life could be devastating, knocking out electricity grids, satellite navigation and communications for days, weeks… or even months. No wonder people used to worship the sun.

527. Why people are choosing to quit social media

Many people make an active choice not to be on social media. What motivates them?

Made by Polyphonic Films, 15 February 2018

RUPEN G KALSI*, writer*: I'm not sure that other people on the tube would be happy, but I look at other people more. I like to observe, have a look at what someone's wearing, imagine what sort of person they would be. Just try and live in the moment a bit more.

PROF GABRIEL EGAN, DE MONTFORT UNIVERSITY: That's right. No Facebook, no Twitter. No Instagram, no WhatsApp.

RK: What triggered it was a break up. I think when something like that happens, you need to just let someone die a social media death, and just remove them from your life. And then I realised that actually they weren't that useful to me anyway. So I just went the whole hog and didn't bother using them again anymore.

GE: The point about social media is the addictiveness. Nobody really wants to spend hours and hours every day updating their status and seeing what other people think about them. Nobody consciously wants to do that. But those behaviours are themselves addictive behaviours. Once you're trapped in that loop, it's very hard to break out. It's not that we want to go back to some idyllic past - an eden before the machines existed. It's that we need to take control of these machines and use them for their proper ends.

CAPTION: 36% of the UK population is not active on social media [source: We are Social]

VOX POP FEMALE: The bad thing is that you think people's lives are much more fun than your own life.

VOX POP MALE: When I'm the bus, I just see people like zombies and I'm like, "Alright, it's a sunny day. There is something to see - not only your phone." You know?

DR BERNIE HOGAN, *Oxford Internet Institute*: I like to be present when I share something about myself with someone, so I can get their feedback and either stop right there or tell them the story behind it, or give context. Sometimes I might withhold a certain opinion rather than being rapid fire, because maybe it requires a bit of nuance. And maybe the best thing is not for me to just shoot my mouth off online because some headline made me angry. The thing is, the world is real, whether we want to believe it or not. And it's really important for us to have a sense of where we are in that world.

JAMES WILLIAMS, *University of Oxford*: I don't like to use the term social media, at the end of the day, because it implies that it's designed to promote social behaviours, when usually it's designed to promote the amount of attention that we're giving it. In order to grab our attention - because there's so much competition - design has to appeal to the lower parts of us, to the kind of non-rational, automatic, impulsive parts of us. And so this is why we get things like clickbait, like sensationalism - things that appeal to our outrage. And there's a whole industry of consultants, of psychologists who are helping designers really punch the right buttons in our brains so that we do keep coming back for more and we do stay

hooked on the products. You know at the end of the day, they're advertising systems - not really social platforms.

CAPTION: 63% of the global population is not active on social media – 4.8 billion people [source: We are Social]

RK: Some of them take social media breaks quite a lot anyway, so it's not like I'm doing something that's particularly divergent, but they think it's a good thing. I think they realise, we all realise that we look at memes too much. We use Instagram too much. It's just whether we realise that and do something about it. There are things that give us, you know, instant pleasure and they're like the more gluttonous things like food and sex and stuff like that. And they give us a really high spike of pleasure. But the things that are the most worthwhile are the things that you spend a lot of time on. So playing the piano is not pleasant to begin with. But you get a much more steady wave of satisfaction. So it does matter because the pleasures that are sometimes the most time-consuming or the ones that take the most work, can be the ones that are the most fulfilling. Those are the pleasures that self-actualizing, that help you realise a part of yourself that you didn't have.

VOX POP FEMALE 2: I'm on it probably every day, just to be nosy! I'm sure I could live without it. We did before didn't we?

528. Why shouldn't men wear make-up?

'A Nasty Boy' - the magazine breaking gender taboos in Nigeria.

Originally published on 31 August 2017

Produced by BBC Africa

CAPTION: These guys are breaking masculinity taboos in Nigeria. They're posing for the online magazine, *A Nasty Boy*, launched this year. It focuses on breaking down gender constructs.

RICHARD AKUSON *A Nasty Boy Founder*: The idea that men can only wear pants or shirts, you know, when there are other men that would want to wear skirts and then the other men that want to wear makeup. So why don't we make it okay for them to do that? And so it's, you know, everyday trying to tell the stories of these many people and then allowing them to feel among . . . and then to feel very Nigerian, which they are.

CAPTION: Richard got the idea after being insulted by people when one day he chose to walk around in hot pants.

WOLE LAWAL *Model*: Men are not really allowed to express themselves. I mean, we're not allowed bisexuals and stuff like that, so it's like . . . it's very tight. So, like for a brand like this is coming up, I would say it's good. It's something different for

the people who like . . . who like to express themselves, who like to be themselves, who like to be different.

CAPTION: And it's not just men supporting gender fluidity here.

AJOKE ANIMASHAUN *Model*: This is the first time that someone has actually played with the gender roles, because in Nigeria we're very conservative. So girls are meant to be . . . wear dresses and look pretty and have their nails done. I don't have my nails done.

CAPTION: A Nasty Boy is a rebellious idea in Nigeria's conservative society, where you can be jailed for 14 years for homosexual acts.

529. Why smart people do stupid things

Some people are smart, but make all sorts of mistakes in their lives. Is that you? Here are four thinking traps clever people fall into.
Published on 14 October 2019

CHERRY STEWART-CZERKAS *BBC Ideas*: According to author David Robson, we're not always as smart as we think we are. Psychological research suggests that greater intelligence and education and expertise might actually amplify our errors.

CAPTION: WHY SMART PEOPLE DO STUPID THINGS?

CAPTION: COGNITIVE MISERLINESS

DAVID ROBSON*, Author, 'Intelligence Trap'*: Consider this question. How many animals of each species did Moses take on the ark? The answer of course is zero. It was Noah not Moses who was supposed to have built the ark. But many intelligent people get this wrong. They are cognitive misers, they are capable of intelligent reasoning but they don't apply that brain power effectively, instead relying too much on their gut feelings.

CSC: Cognitive miserliness can cause us to be swayed by irrelevant information and our own feelings. For example, leading us to poor financial decisions when buying a house. It can also explain why apparently intelligent people can fall for fake news if they rely too much on the gist rather than the details of a statement.

CAPTION: 2 MOTIVATED REASONING

DR: Sometimes, thanks to the emotional pull of an argument, we think in a very one-sided manner. So Arthur Conan Doyle is the perfect example of motivated reasoning. Now he was obviously an incredibly intelligent man - he was a doctor and also wrote all of the Sherlock Holmes books where he really shows a very clear understanding of what logical deduction should be. But in his own private life, Arthur Conan Doyle was not nearly so rational. He had a very strong emotional belief in spiritualism and often visited fraudulent mediums. Now, Arthur Conan Doyle's friends which included Harry Houdini the illusionist, often tried to persuade him that

he was wrong and to show him the evidence that he was being scammed by these people, but Arthur Conan Doyle just didn't believe their arguments. So for instance he would try to bring in the latest physics on the electromagnetic field to explain how fairies might exist but just appeared in another wavelength.

CSC: You may not believe in fairies but motivated reasoning can lead to polarized political views. It may also allow you to rationalise poor business ventures or a failing love affair.

CAPTION: 3 THE CURSE OF EXPERTISE

CSC: You may hope that education or professional expertise would protect you from error but these can also backfire. After years of experience in a job, experts for instance may begin to act on auto-pilot and that automatic decision-making can sometimes miss vital information.

DR: This may explain a terrible case from 2004 when a man called Brandon Mayfield was accused of conducting the Madrid bombings. Now, Brandon Mayfield had not left the USA during that time and yet the FBI's fingerprint examiners still accused him of the crime. The Spanish police had found a fingerprint on a plastic bag near the scene of the crime. Now the FBI had put that into their computers and they had found about 20 candidates who might have made the match. And when they looked at Brandon Mayfield's, they were sure that they were identical. Yet when you look at the fingerprints there are actually some very important differences that they had completely missed but thanks to the curse of expertise they were susceptible to confirmation bias. So they only saw the bits that matched and were completely blind to the bits that didn't match.

CAPTION: 4 THE TOO-MUCH-TALENT EFFECT

CSC: Sometimes smart people can act stupidly thanks to the people who are around us. A sense of conflict and competition within a group can actually reduce each team member's problem-solving skills and creativity. Even just one or two arrogant team members can completely ruin the group dynamic and reduce the performance of the whole team. One study found that people's individual IQ levels actually drop when they feel in competition with others.

DR: Just think of Iceland's victory in the 2016 Euro Championships. Now Iceland is a tiny country compared to the rest of Europe, it really doesn't have a huge pool of talent, and yet they performed extraordinarily well and in fact they humiliated the England football team by defeating them despite all of our really top tier players. Now this is an example of the too-much-talent-effect. Because England with so many star players really struggled to have a cohesive group dynamic, there were too many egos vying for attention.

CSC: Luckily there are things that you can do to avoid these thinking traps. For example, you can try arguing against yourself. Consider your initial gut reaction and then deliberately try to think from the opposite point of view. Another technique you can use is called self-distancing. Step out of your shoes for a second and think about your issue from an outside perspective. Or you might try mental time travel.

Imagine yourself in a month or a year's time, looking back at your decision. Lastly, why not try fine-tuning your emotional awareness. Being able to label our feelings helps us to control them. Various studies have shown that this simple technique has actually reduced emotional responses and made people less biased.

530. Why soil is one of the most amazing things on Earth

Soil is underappreciated. But it's vital in so many ways. Here's a look at the magic of soil.

Made by Flock London, 3 December 2020

Made in partnership with the Royal Society

BRIDGET EMMETT, SOIL SCIENTIST UK CENTRE FOR ECOLOGY & HYDROLOGY: Soil… it's one the most underrated, and little-understood, wonders on our fragile planet. Here's why…

CAPTION: SOIL… THE WONDER STUFF BENEATH YOUR FEET.

BE: Far from being lifeless dirt, it's estimated that in a single gram of soil, there could be as many as 50,000 species of microscopic organisms, or microorganisms. And in one teaspoon of soil, there are more microorganisms than there are people on the Earth. But much of what lies beneath, in this hidden and deep universe, is still alien to us. Despite being literally under our feet, humans have so far only identified a tiny fraction of the extraordinary life teeming underground. But these animals and microorganisms perform an invaluable role. Millions of years of evolutionary competition have led the microorganisms to produce antibiotic compounds to fight their neighbours. And these compounds form the basis of many of the antibiotics used by us humans. We literally make medicine from our soil. No-one knows how many new treatments could be lying under our feet, waiting to be discovered. One of the most special creatures living in soil is the earthworm. Darwin was fascinated by them and said: "It may be doubted if there are any other animals which have played such an important part in the history of the world," due to their importance in making and sustaining soil. Earthworms journey down and around, creating breathing holes, like lungs in the soil. This creates space for plant roots to grow and keeps soil alive. Under the soil, there are also vast and intricate webs of fungal threads. Plants and fungi need each other to thrive, and so they do a deal… Fungi can't capture carbon dioxide to grow like plants can, but they're better than plants at mining the soil for nutrients, so they trade. Plants give fungi carbon to grow, and fungi give plants nutrients like nitrogen and phosphorus. It's a mutually beneficial relationship. And just one example of the interconnected ecosystem we're all part of. Plant matter decays and provides food for microbes. They provide food for worms. Worms are food for birds and so on… Soil provides us humans with almost everything we eat. But it's not just about what soils can do for us. It's important we value, appreciate - and crucially protect – soil for a whole load of other reasons too. Think about this for a moment. It takes more than 100 years to build just 5

millimetres - half a centimetre - of soil. But just moments to destroy, through chemical contamination, urbanisation, landslides, erosion and more. Some soil is really ancient - dating back millions and millions of years. The oldest soil on Earth is thought to be in South Africa and dates back three billion years. In the UK, our soil is around 15,000 years old, and it formed after the last ice age. Soil is also a really valuable carbon store - capturing carbon and locking it away in stable forms deep underground. It stores three times as much carbon as all the plants on Earth combined, including trees. But because it grows so slowly, we need to protect what we have. We are not succeeding. We know many of the problems. Intensive farming is one of them. It releases carbon from our soils. And we're losing soil 50 to 100 times faster than it's able to re-build. In Europe, 60-70% of soils are thought to be unhealthy. And in croplands in the UK, in less than 30 years - from the end of the 1970s - we lost more than 10% of the carbon the soil had stored for us. And since then? Well, we just don't know, because in many countries there's little data on soil. It's poorly protected and regulated. We grow on it, build on it, build from it. It filters and cleans our waters, reduces flooding, and regulates our atmosphere. It's one of the most biodiverse habitats on Earth, and a vital part of the nitrogen and carbon cycle on our planet. But the sad truth is, right now, soil hasn't enough champions fighting for it. We literally treat it like dirt. And yet there is so much untapped potential, so much wonder, and so many secrets, just waiting to be discovered… in the ground beneath our feet.

531. Why some songs make you feel really old

Writer Rhodri Marsden explores how music has a unique effect on our concept of time.

Published on 9 June 2019

This video was made by BBC Archive

RHODRI MARSDEN: You may be terrified to hear that it's now 10 years since Lady Gaga's Poker Face was released. It's also 20 years since TLC's No Scrubs, 30 since Madonna's Like a Prayer and 40 since Gloria Gaynor's I Will Survive. There are many ways in which we're cruelly reminded of our advancing years, you know, rising blood pressure, forgetting where we put our keys. But the ageing of our favourite records feels particularly disconcerting, despite the fact that they're growing old at exactly the same rate as we are. The simple sums that causes these moments of distress have been given a name by music critic Peter Paphides: 'mortality maths'. Remember the baby pictured on the front of Nirvana's Never Mind album? He's just turned 28. Back in 1976, Abba sang of a Dancing Queen, young and sweet, only seventeen. But today that Dancing Queen would be old enough to qualify for a free bus pass. This, for some reason, is way more unsettling than finding out the average age of the four members of ABBA – 71 and a half, in case you were wondering. Maybe it's because we'd like to think of pop music as forever youthful. These Peter Pan-like cultural artefacts whose age should be ignored as our own lives career forward. Two Tribes by Frankie goes to Hollywood will always remind me of being 13

years old. But the realisation that the song itself is now pushing 35 gives me the familiar chill of mortality maths. Unfortunately, it gets worse. You might come to terms with the fact that it's 23 years since Blur and Oasis vied for the number one spot with Country House and Roll With It. But if you go back that far again, the UK had only recently stopped using pounds, shillings and pence. This cruel trick of multiplying by two has the effect not only of making us feel old, but also establishes how historically insignificant we all are. David Bowie's Let's Dance is nearer to post-World War Two clothes rationing than it is to the present day. More time has elapsed since River Deep Mountain High by Tina Turner than between its release and the outbreak of World War One. Double up the time since Elvis Presley recorded Hound Dog and Queen Victoria was still on the throne. But hey, mortality is something we all have to come to terms with. And perhaps a bit of mortality maths is one of the more tolerable ways of getting our heads around it, not least because it helps us to appreciate that even when we're gone, our favourite tunes will keep on keeping on.

532. Why strangers make good therapists

A psychologist is experimenting with 'problem-solving booths' staffed by strangers, where people can offload their troubles.

Published on 19 July 2017

This video was made by BBC World Hacks

I'm worried about what will happen when we move in together.

Do you think? Possibly. Maybe because of, you know, not so much your upbringing, but your parents that maybe you could be magnifying it?

No. I thought maybe because of that, I would be more tolerant.

CAPTION: They say ' a problem shared is a problem halved.' But would you open up to a complete stranger?

ANTONIO: Antonio.

NISHA: Nisha. So what brings you down to Soho today?

CAPTION: And would you do it spontaneously, in public?

CAPTION: Pop-up Therapy. A clinical psychologist is launching a bold experiment in London. Her team create pop-up problem solving booths. (*sign saying 'What it is – permission to talk, to listen, to help, to be human! Takes 5 minutes*) Anybody is invited to drop in and share issues weighing on their minds.

DR CHARLIE HOWARD *Clinical Psychologist*: So, problem solving booths are all about people realising that we can all help each other all the time. The thing is, we don't really have a culture of permission to ask. I'm a trained clinical psychologist. I

generally work in a clinic. And at the end of the day, I used to think, 'gosh, if only all the people that I've met in private in this clinic today could talk to each other because actually they're suffering with really similar things.'

UNNAMED WOMAN: The problem is I keep waking up thinking I've got to do this, do this, do this – every time there are more things that people are asking me to do.

UNNAMED WOMAN 2: I'm kind of laughing inside because that's exactly what I go through.

CAPTION: You can volunteer to talk or listen. The idea is to make mental health care more informal and accessible.

UNNAMED WOMAN 3: Nice to meet you. My problem is that my friend has broken up with her boyfriend and I feel like she's now treating me like her boyfriend. I feel like she's put a lot of emotional pressure on me.

UNNAMED MAN: Maybe just be honest with her?

CAPTION: Trained psychologists are on hand for the most serious cases. The results of the project are still being assessed. The NHS and London's mayor are backing it. If enough people use it, it will be rolled out more widely.

533. Why the 'millennium bug' didn't actually bite

In 1999, there was genuine fear that the 'millennium bug' would cause chaos around the world. The reality was something of a damp squib.

Published on 10 January 2018

This video was made by BBC Archive

CAPTION: At the turn of the century people were partying like it was 1999 . . . because it was 1999.

EDWARD STOURTON *BBC*: A lot of people spent a lot of 1999 simply having a good time.

CAPTION: The world's six billionth person was born. As was the euro. A teenage Britney Spears was riding high in the pop charts. But like the sun that year, the good times looked set to be eclipsed by something sinister.

MARTYN SHREWSBURY: There's something odd about the year 2000.

CAPTION: Chaos was predicted for the world.

BBC NEWSREADER: Patients' lives could be at risk because the health service may not be ready to deal with the so-called millennium bug.

UK GOVERNMENT ADVERT: What should we be doing?

CAPTION: Predictions included . . .

UNNAMED FEMALE VOICE: Planes falling out of the sky. Cashpoints not working. No food in the shops. Bit of a nightmare, all round really.

CAPTION: A few people prepared for the worst. As they stocked up on supplies. And Y2K survival kits. Which, for some reason, included edible candles. But what was not ok about the bug known as Y2K? In the early days of computer design, memory was expensive. To save money, years were coded as two digits rather than four.

UNNAMED FEMALE VOICE 2: So 1999 becomes 99, but when we hit the millennium, computers may be confused and not able to tell if it's the year nineteen hundred or 2000.

CAPTION: The problem was that everything that had a computer microchip in it had to be programmed to include four digits. Everything. The sheer scale of the task rather than the mechanics of it caused panic.

JERRY SANDERS *Editor, Computer Magazine*: The problem is enormous. Do not underestimate these problems. This will happen to you.

CAPTION: The UK government launched an 'Action 2000' plan. And governments across the world encouraged people to take preventative action.

SCIENCE FICTION CLIP: You are doomed.

CAPTION: To prevent global mayhem, Y2K teams set to work in a battle against time to right the wrongs of the millennium bug. It was estimated that over $300bn was spent across the globe to make everything Y2K compliant. It worked. With hindsight, some people thought the warnings had been overstated. But . . .

ROBERT SCHIFREEN *IT security consultant*: The point about the millennium bug was that there was a very big problem and the money spent on it solved it.

CAPTION: So, when it comes to bugs not biting, prevention is always better than cure. It's something scientists of the future may want to bear in mind when the next five digit millennium bug is due to bite in the year 10,000.

534. Why the Moon is still such a mystery

The moon landing, full moon, the dark side of the moon... The Moon has always fascinated us - but why?

Made by Flock London, 16 July 2019

NARRATOR: It is our constant companion, influencing many aspects of our culture, thought and being. Ever-present in design, art, music, science, technology, religion, but what is the Moon? It depends who you ask. The ancient Mesopotamians would

speak of Nanna, the god of the Moon and creator of all things. While a present day cosmologist might describe the stabilising influence of our Earth's tilt. And most of us picture the Moon as being closer than it actually is. Strangely, the Sun is 400 times further away from the Earth than the Moon and is 400 times its size. This means that, viewed from the Earth, they appear to be exactly the same size. Science fiction writer Isaac Asimov described this natural quirk as 'the most unlikely coincidence imaginable.' These correlations didn't go unnoticed by early star-gazing cultures. Notably, 108 is an auspicious number for Hindus who count 108 marma points, or sacred places in the body. Many believe the Moon affects our bodies. We know its push and pull affects the tides and we are organic creatures made largely of water who evolved in an ecosystem reliant on this celestial neighbour. What about the Moon's effect on our state of mind? The word lunacy is derived from the Latin word lunaticus, meaning moonstruck. Statistics do show a consistent rise in crime rates around a full moon. Scientists prefer to attribute this to convenient light levels for the plying of nefarious activity. And it's not only our minds in question the perceived connection between fertility and the cycles of the Moon goes back a long time. Perhaps that's just because the lunar and menstrual cycles correlate so closely. In the ancient world, the Moon was generally personified as male with the shift to female deities and ideas happening more recently, relatively speaking. If the Moon is female, there has been no shortage of historical characters trying to fathom her mysteries to harness this elusive beacon of the natural world. So it's nice to hear Nasa has just announced an initiative to put a woman on the Moon by 2024, aptly-named Artemis, after Greek god Apollo's twin sister. And the Moon's many faces continue with some seeing her as a harbinger of doom. The Maori people call the Moon Hina, the man-eater, who was the bringer of death. Then there's the melancholic reflective Moon. Around the turn of the 18th Century, as we adjusted to the brave new world of science and discovery, artists became increasingly focused on our place in the natural world. Paintings from the likes of Caspar David Friedrich and Joseph Wright of Derby turned to the Moon as a central theme often with small human figures, their backs to the viewer in quiet reflection. Finally in July 1969, we successfully landed two men on the Moon and we discovered what she'd been silently gazing upon for all this time. So what is the Moon? Male, female, a life support system, or a bringer of death? Inducer of madness, a conspiracy, a symbol of peace? What if it's all these things? Embodying all the light and shade of human experience. It seems the Moon is whatever we choose to see a constant reflection of us.

535. Why the phrase 'man up' is so destructive

David Brockway's workshops help teenage boys understand how damaging toxic masculinity is.

Published on 21 November 2018

Made in partnership with BBC Radio 4

DAVID BROCKWAY: I'm David Brockway. I'm the manager of the Great Man Project. We deliver workshops on gender equality to teenage boys in schools across London and the Southeast. Our topics include sexual harassment, homophobia, pornography and consent. But especially we talk about masculinity, feminism and what it really means to be a man. Adult men don't really talk about these issues very much. We want to get that conversation normalised starting at an early age. We use participator activities such as word association games. These allow the boys to explore the stereotypes that might be in their heads. We'll ask them to talk about the first words that come into their head when they think of a certain topic. For instance, when they are asked to think about men, they might come up with brave, strong or daring. For women, they may come up with gentle, kind and caring. So then we ask how and why. What causes these stereotypes? Where do the boys get ideas like it's weak for men to cry, or men are strong, women are weak? Most of the boys have never had conversations like this before. Our powerful moments are when we have light bulb moments when boys have the opportunity through talking to each other to realise that some of these ideas that they think they know are actually a result of conditioning and the world around them. Toxic masculinity is talked about a lot these days. We would define it as a set of negative behaviours that men think they have to follow in order to be proper men. On top of the litany of negative consequences that these behaviours have for women and girls, there are also many negative consequences for men and boys. At the top of this list would be mental ill health and suicide. Suicide rates in this country are currently much higher for men than they are for women. In our workshops, we find that boys have a lot of difficulty expressing their emotions, accepting emotional vulnerability and admitting to any form of weakness. Our workshops encourage boys to critique phrases such as 'man up' and 'take it like a man' which are really saying 'boys don't cry' and 'boys don't ask for help when they're feeling down.' The phrase 'man up' is particularly important for us. It's two words that put together mean absolutely nothing. But any man can tell you that when told to do so, they know exactly what was expected of them at that time. For years, the responsibility of dealing with these problems has been on women, grappling with sexism, sexual harassment and harassment at work. We feel that solving these issues is equally the responsibility of men. That's why it's so important to get these conversations started early. To bring boys into this discussion so that they can have a chance to not take forward those negative ideas and stereotypes. One of our most difficult topics is pornography. Our approach is not to shame anyone, but to ask questions such as: is this a good place to learn about sex? Can this be degrading? And where's the consent in this? We aim to educate the boys about the porn industry, to tell them that it can often be unsafe and coercive for women, that the things on display of rarely representative of a mutually pleasurable sexual experience. Sometimes the boys we work with go back to a home environment that is contrary to all of the things we've discussed. What they are taught and learn from the media is the total opposite discussions they had with us. Healthy relationships are about respecting, caring and communicating. Our aim is to plant a seed that will allow the boys we work with to start questioning these things and create their own version of being a man.

536. Why the term 'populism' is dishonest

US journalist and author Lionel Shriver argues the term 'populist' is loaded - and has become code for 'ignorant' or 'pig thick'.

Published on 1 February 2017

LIONEL SHRIVER: The term populism is dishonest. It's time to say what we really mean. Left-leaning pundits decry both Brexit and Trump as the fatal results of populism. So when the left wins, it's a triumph of democracy. When the left loses it's mob rule, a rabble brandishing pitchforks, barbarians at the gate. The Oxford Dictionary defines populism as 'support for the concerns of ordinary people.' Yet lately, populism seems a byword for voters not doing what they're told. To Remainers who want to rerun the referendum until Brexiteers get their minds right, populism means leaving important decisions to a bunch of idiots, of many ideological hues. Populism classically urges common people to unseat an unjust governing class. So the American Civil Rights Movement and Occupy Wall Street were populist. So is Jeremy Corbyn, yet, especially since the EU referendum commentators use one-size-fits-all populism to lazily lumped together disparate movements in the US, Italy, Hungary, Austria, Holland, Germany, Denmark, Sweden, Finland and France, missing all the nuances. The American press makes no distinction between UKIP and France's National Front or the US alt-right. UKIP is populist, period. It's this one word that makes Brexit and Trump seem mistakenly like the same thing. The term is troubling because it's loaded, since anyone who questions unfettered immigration is a suspect and backward populist has become wink and nod for ignorant, for pig thick. It's polite code, for racist, xenophobic, anti-Semitic and anti-Muslim. Some Trump voters may deserve these pejorative connotations, but Leave voters don't. So before reaching for the euphemism 'populist', let's try substituting 'bigoted' – because if that's what we mean, we should say it.

537. Why the world needs disagreeable people

Author and podcaster Malcolm Gladwell says we need people in society who can shake things up.

Recorded at Ozyfest - published 30 November 2018

Made by BBC Ideas and World Service

MALCOLM GLADWELL: Things don't go smoothly when you're around people like this. They shake things up. So you need to ask yourself: what is it that you want from your society? Are you happy being? Are things good enough? Is the status quo satisfactory enough that you can all sit back in privileged agreeableness and say, 'Let's just all abide by the rules of civility and everything will be fine?' Or do you think actually there is much to be gained as a society? If we . . . If we do change the status quo and introduce an element of friction into the way we all behave. What can we do as a society that allows people to express their disagreeableness? Are

there ways in which we can make dissent, deviation disagreements just more palatable, more easier to do? In the workplace, what do we think of as the role of a manager? Is the role of a manager to tolerate dissent, or find a safe place for dissent, or to obliterate dissent? A lot of managers, actually, try very, very hard to obliterate dissent and think that that's how they ought to be measured, how success ought to be measured. Whereas this would suggest actually no, maybe what we want from managers is that people who want to be managers ought to the people who have the thickest skins, the ones who are just more . . . who are the most comfortable with some degree of friction in those who are under their . . . under their control. And I think that's about how do you structure education so that children are taught that it's okay sometimes to be rebellious, or questioning, or sceptical, or that our willingness to tolerate disruptive behaviour, in people of our own kind is far greater than our willingness to tolerate in minorities and those who are powerless. And so what that leads to is not just higher levels of punitive action towards people in disadvantaged groups, but also disadvantaged groups themselves changing their behaviour to meet those different norms. So you see among, for example, in this country, African-American parents who privilege good behaviour in their own children as the most . . . as the kind of primary end point of childhood, whereas you see parents who are in the majority, who will privilege achievement, good performance as the primary endpoint. If you're going to privilege performance over behaviour, if you're in the group that is allowed to behave in unusual, disruptive, disagreeable ways, and I think that is an unacknowledged source of a great deal of . . . of inequity in modern life, that we just have these different standards for people on the inside and people on the outside.

538. Why water is one of the weirdest things in the universe

Science journalist Alok Jha on why water is so incredibly strange. Prepare to have your mind blown...

Animation by Oliver Smyth, 14 January 2019

ALOK JHA, SCIENCE JOURNALIST: Water. You might not see it, but this is probably the strangest thing in the universe. Here's why. Every molecule of water on the Earth and inside you or any other living thing has existed for billions of years. After it came to Earth, that water has been cycling through rocks, air, animals, plants and back again. Each molecule has been on an incredible voyage before coming to you. At some point, the water inside you would have been inside dinosaurs, bacteria, the oceans, storm clouds, the polar ice caps and much more. All of the water on Earth is alien. They might be a familiar part of our world, but our oceans formed hundreds of millions of years after our planet took shape. The water arrived on asteroids and comets from space, objects from the edge of our solar system. They were leftovers of the vast clouds of dust and rocks that didn't quite make it into planets. This is the origin of all the water you can see on the Earth. Water doesn't follow the normal rules of chemistry. For a start, it shouldn't really be a liquid on our planet. A water molecule is made from two very light atoms, Hydrogen and oxygen. And at the

temperatures and pressures on the surface of the Earth, rules of chemistry say that water should be a gas. And, unlike any other chemical, when water freezes it expands. And so ice floats on water. Now you see this every day, but take a moment to think about how weird that is. Over time, this odd behaviour has been very useful. By insulating the water underneath, floating ice has enabled complex life to survive and evolve on our planet, despite the many ice ages that have frozen the Earth's surface solid. And the strangeness just goes on and on. Did you know that hot water freezes faster than cold? Yes, really. No-one knows why. Water molecules can float upwards, against the force of gravity. That's because they love to stick to each other. They're so good at it that they can actually pull each other up through tiny channels, such as the tiny blood vessels in your body. That's how oxygen and nutrients reach the edges of your brain. The same process, called capillary action, allows plants to move water from deep below the ground to nourish the leaves and branches that grow in the sunshine. Our solar system is drowning in water. Once upon a time, we thought that we were alone on Earth with so much water, but in fact it's the second most common molecule in the universe. We now know there's water on the moon, on Mars, Pluto. In fact there's H2O on almost every object in our solar system. And where there's water, there could be life. So pour yourself a glass of water now, and take a good look at this colourless, featureless and tasteless material. It's actually remarkable. It breaks so many rules of chemistry that scientists struggle to understand it. But without its rebel behaviour, none of us, nor our world, would exist. You're only here watching this video because water is so strange.

539. Why we all love political memes

How internet memes have come to play a major role in the political world.

Made by Clear Story 20 March 2019. Original programme made for BBC Four

KENYATTA CHEESE *Internet Entrepreneur:* The circumstances of what it means to be a human being that's connected in this world has completely changed.

CAPTION: We think of memes as jokes we share on the internet. But they're becoming a new and powerful tool in political campaigns.

DONALD TRUMP DUMMY WITH GLOWING RED EYES: Come close to hear your future.

CAPTION: How politics became memetic. Political memes went mainstream in 2016, the year of Brexit and Donald Trump's electoral victory.

KC: All of a sudden, you have US presidential candidates talking about Pepe the Frog being a symbol of hate. You have memes being turned in to sort of like ideological IEDs and being spread on places like Facebook.

CAPTION: Even before the internet, new technologies spread memes to powerful effect. In 1830s France, lithographer Charles Philipon issued cheap prints that depicted King Louis Phillippe as a pear. The pear quickly became a popular protest meme scrawled on the walls of Paris. Today, with digital technology, the

difference is scale. The pear has its equivalent in literally millions of images and cartoons proliferating across the internet every day.

KC: We're all nodes on a giant network. It is really easy to get an idea from St. Petersburg, Russia, to the Facebook feed of somebody in Kansas.

CAPTION: The internet gives every user unprecedented reach – and the tools to manipulate images, words and music to create and endlessly modify memes. Of course, memes are not just political. There are thousands upon thousands of memes about cats.

AMANDA BRENNAN *Meme librarian at Tumblr:* A lot of meme culture is about finding your identity, figuring out who you are, whether it be through lolspeak or a gif or a video. A lot of people can just explore their identity in a really playful way with cats.

CAPTION: As cats, so with politics. Memes inspired new online groups. The alt-Right reworked memes to mock liberal political correctness.

KC: You have a group of people who feel disaffected, feel as if their identity is being challenged. And they're trying to find ways to express it.

CAPTION: Political memes are direct. They polarise and provoke an emotional response. They have also become a weapon for spreading hate. This Finnish journalist has investigated Russian trolls and become a target herself.

JESSIKKA ARO *Journalist*: I've had troll attacks on Twitter, harassment on Facebook. I was being sent memes all the time. So here they are saying that I make home visits and they basically frame me as a prostitute. Another photo manipulation. The trolls say I am restricting their freedom of speech. Here, trolls made music video. They are framing me as some kind of mentally ill person. I think that the trolls and the propagandists just want to silence me, to make me so scared that I would stop myself continuing my investigations. But instead of that, I did the opposite.

CAPTION: Trolling with memes can, however, be highly effective. In 2018 an MIT study found that fake information spreads faster and deeper than the truth. Some activists use fake memes as a way to fight back against bigotry. This is a troll who posts satirical web pages to expose racists online.

BUSTA TROLL *aka Christoper Blair*: A troll is somebody who goes on the Internet just to make people upset, a liberal troll is somebody who goes on the Internet to make a conservative upset. 'Sharia law must be stopped. Under Governor Brown. Students in California are now required to learn Arabic numerals. That's right, zero through nine. Comment one to ten. How much this angers you?' Oh, the irony. We market our page at conservatives in the area, 60 years old and better. 3.6 thousand people hit the love react on that. It's amazing how absolutely uneducated people can be.

KC: I wonder if this is the awkward teenage years of the global society. Right? It's the time where you start to question who you are.

CAPTION: Since 2016, trolls and memes have become ever more prevalent in politics. Perhaps they show up political culture as it really is – derisive, sceptical but also playful inventive and always changing.

540. Why we all need a bit of childlike wonder

Imagine a world where scientists were the people kids dreamed of becoming. Astrophysicist Karen Masters does just that.

Made by Somethin' Else 13 April 2018

KAREN MASTERS *Astrophysicist:* Imagine a world where scientists were the people kids dreamed of becoming. Where scientific literacy was widespread knowledge and experts weren't mistrusted and stereotyped. Most of the problems of the world, are not out of our grasp to fix. In my 'Scientopia', the scientific method is understood and beloved by all. Wonder and curiosity are at the heart of it all, backed up by understanding scientific evidence. As a result, no one mistrusts vaccines, so preventable diseases are a thing of the past. Medical research is funded better than Hollywood movies, leading to breakthroughs in the cure for cancer, Alzheimer's and more. The politicians of the world understand that climate change must be solved and don't trade short term votes for our long term future. Nations stop squabbling and join together to explore space. The universe is vast compared to our tiny big planet. Each speck of light in the sky is a star like our sun, most orbited by their own tiny planets. Billions of galaxies, each containing billions of stars, have been mapped. There are truly unimaginable number of planets in our universe. Yet the only one on which we've found life so far is our own. The perspective this gives on the fragility and unity of Earth brings humanity together like nothing else. The best ideas will come when everyone has a seat at the scientific table. Breakthroughs in social science will help us to solve the problems of unequal access to scientific learning. And we'll find ways to cure humanity of prejudice and discrimination so we can all work together. And don't think that in 'Scientopia' we'll neglect the importance of music and art. We'll understand what that brings to the development of creativity and well-being, so crucial to making those breakthroughs we need. All of this from some scientific literacy. Every child is a natural born scientist. We just need to work out how all of us can hang onto that curiosity and wonder. A little bit of childlike science (*sic, title is 'childlike wonder', not sure 'childlike science' makes sense?*) will take us a long way.

541. Why we eat turkey at Christmas

A whole load of fascinating facts about our (least favourite?) Christmas dish, from food historian Annie Gray.

Made by Somethin' Else, 6 December 2018

ANNIE GRAY: What would a British Christmas dinner be without roast turkey? Well, it would still be Christmas dinner. Turkey's dominance of our festive table is comparatively recent. And for much of the last 500 years, beef was the meat of choice. Turkeys are native to Central America, where they were domesticated around 200 B.C.. By the time Columbus and his fellow explorers started to discover the delights of indigenous foods, they were eaten far beyond their original pecking grounds and it spread to North America and the Caribbean. From there, the spread of Turkey was spectacular. By 1511, every ship leaving the Americas for Spain was ordered to bring back five breeding pairs. By the 1530s they were being farmed in France. And in England in 1541 they were restricted by law, along with cranes and swans to only one such bird being served per feast. It's not clear exactly where the British got turkeys from. They were imported from America, but they also came in via Turkey, hence the name. They were large, versatile and most importantly, visually impressive. After all, another competitor was the peacock – turkeys apparently taste better. A popular way to serve them was in a raised pie with the tail, wings and head and neck cooked onto skewers and put back in the pie, resplendently gazing back at the would be diner. Turkeys were not just for Christmas, they were eaten throughout the winter. Fowl was at its best from September to March. Inevitably, a big, juicy, expensive bird in season in December became associated with the feasting which went on for 12 days from the 25th. By the 17th century, turkey was well-established as one of the key Christmas meats. In America, the early settlers were saved from starvation by Native Americans who shared their food. In 1621, the first recorded Thanksgiving feast took place. Turkey was eaten and it became an established part of the various Thanksgiving celebrations, which were held over the next 200 years. Later, Thanksgiving was declared a national holiday with turkey at centre stage. By the 19th century in Britain, turkey was very much still a Christmas dish, but not the main one. If you were rich, you had lots of other meats and beef was still the mainstay. If you were poor, turkey was unaffordable, you might have a cheaper goose instead. That said, in 1861, the quintessential middle-class writer and sometime plagiarist, Isabella Beeton, declared that, 'A Christmas dinner with the middle classes of this empire would scarcely be a Christmas dinner without its turkey.' Things didn't really change until the second half of the 20th century, when, after two world wars and a depression, meals were rather smaller even for the rich and feasts centred on one meaty roast. In the 1950s, America cast a glamorous pall over British food. And as we greedily embraced images of golden Thanksgiving turkeys, we turned to them more and more for our own festive fare. Even if your oven was too small, help was at hand. Well into the 60s, the local bakers would open on Christmas morning, their ovens ready for the locals' Christmas roast. Now, our image of the ideal Christmas dinner is focussed on the turkey, but there are voices of dissent, 'It's dry, it's overbred and we can do better' they whisper and they may have a point. After all, turkey can apparently be a lovely thing. But if we really liked it, wouldn't we cook it more than once a year?

542. Why we kiss under mistletoe (and other curiosities)

Xmas, Santa, mistletoe, nativity... sit down with a mulled wine and find out where 12 of our most common Christmas words come from.

Made by Made by Mark Grist & Paper Rhino, 19 December 2018

MARK GRIST: We've all heard of the 12 days of Christmas. But what about 12 words of Christmas? Here's the story behind a few of them.

One: Xmas. Xmas has been contentious over the years, with some arguing it's a term designed to remove the religious importance of Christmas. In fact, X is the symbol for Chi. The first letter in the Greek word for Christ. And that is why Christmas or Christ's mass became Xmas.

Two: Santa. Santa Claus comes from the Dutch Sinterklaas', which literally translates as Saint Nicholas. Before Saint Nicholas was even born, though, the Norse God, Odin was believed to lead a hunting party through the sky during yule. And he even delivered presents to children.

Three: Carol, coming from the Latin 'carula', meaning circular dance, carols used to be pagan songs sung all throughout the year. They were swiftly adopted by the Romans and then by the church as they were so popular.

Four: Bauble. This used to be the term for a baton carried by court jesters or bauble-bearers in Tudor England. Back in the 17th century to give the bauble to someone actually meant to make fun of them.

Five: Tinsel. Coming from France, 'etincelle' meaning 'sparkle' or 'spark', it became part of our Christmas tree decorations thanks to a Ukrainian fairy tale all about a generous spider who took pity on a poor family, choosing to spend the night decorating their tree with a web of gold and silver.

Six: Stockings originating from an old English word 'stock' meaning trunk of a tree, our Christmas stockings also have their own Christmas tale behind them. In it, St. Nicholas wanted to help a poor man and his daughters. Knowing they wouldn't accept charity, he threw three golden balls through their window at night, each one landing in a different stocking. The balls were sometimes represented as oranges. Which is why we get oranges in our stockings today.

Seven: Chestnuts. We can trace the word chestnut back to 'kastaneia' which means nut from Kastania, a town in Greece. From here, our chestnut trees were imported to the rest of Europe. Roman soldiers used to roast them over an open fire or eat porridge out of them before they went into battle.

Eight: Nativity. The word nativity comes from the Latin word 'nativus' meaning born. It's thought the first nativity scene was created by St. Francis of Assisi in 1223. Mary and Joseph are usually placed on either side of the manger. Then you have the shepherds. And don't forget the three kings. They're traditionally added last.

Nine: Reindeer. Santa's reindeer technically come from New York. And a poem called *A Visit from St. Nicholas*. Rudolph is also American, first appearing in a series of colouring books promoting the Christmas goods of a department store. His red nose was nearly removed as the store manager was concerned there'd be links drawn between it and heavy drinking.

Ten: Mistletoe. The latter half of mistletoe evolved out of 'tan' meaning 'twig'. The 'mistle' part was another word for dung - bird dung, to be exact - named as it is because mistletoe sprouted out of trees wherever birds congregate. Kissing under the bird poo twig doesn't really sound as romantic, does it?

Eleven: Mince pies. Starting out as a large oblong, mince pies were originally a mixture of suet, fruit, cinnamon, cloves, nutmeg and . . . meat. Served around Christmas, the mince pie evolved throughout the Victorian era, with the meat eventually being removed.

Twelve: Mulled wine. Created by the Romans when they'd heat wine to defend their bodies against the cold winter, mulled wine spread across their empire and the regions they traded with. Its popularity continued throughout the Middle Ages as we mixed heated wine with spices, believing it would promote health and prevent sickness. And what better drink to sit back and toast to this world of culture and history we've surround ourselves with? Merry Christmas, one and all.

543. Why we need comedy now more than ever

US comedian Hasan Minhaj is about to get his own Netflix series. He argues we need comedy about serious stuff - including racism.
Published on 16 August 2018

HASAN MINHAJ *Actor and Comedian*: Comedy, I think, has an incredible ability to take people's guards down, and especially if you're funny, you know, you can engender empathy with an audience, even if they disagree with you in a variety of positions. So as long as you're cutting but not cruel, you will definitely find a way to reach people's hearts and minds. We are currently sitting in the crosshairs of history and we're definitely disagreeing on what it means to be an American and a patriotic American. [*graphic of geographical map of the USA, painted in stars and stripes, splits down the middle*] I think racism has obviously been a long problem here in America, primarily because race is intrinsically baked into the history of this country. And America is at its best when we can have sort of an honest dialogue about race and racism. And it's at its worst when we sort of deny the real apparent truths of this country.

CAPTION: As senior correspondent on The Daily Show, Hasan would regularly use comedy to address prejudice against Muslims.

HJ (*Archive, from The Daily Show*): This is a standard scarf right here. Okay? So this is a scarf, okay? (*puts round neck*) his is good. Okay? This is good. (*puts round head*)

Not good. Okay? (*puts round neck*) Good. (*puts round head*) Not good. Okay. All right? (*puts round neck*) Fun. (*puts round head*) Scary.

HJ (*Archive, from The Daily Show*) . . . President, he's banned immigration from these seven countries. And everybody's like, 'Yo! Is this a Muslim ban?'

DONALD TRUMP: No, it's not the Muslim ban.

HJ: Right, right, but *is it?*

HJ: The thing that both art and comedy, I think, have is. It's a very, you know, unique opportunity to just tell your story. And there isn't any sort of political or corporate baggage with that. It's just you speaking your truth. And when you do that, I think it engenders empathy with people and they can go, 'Hey, I can see where you're coming from.' I'm very interested to see how history plays itself out, hopefully with everything that's going on in the country right now. We end up on the right side of history.

544. Why we need to face our mortality

How should we face the end? My Father's Wake author Kevin Toolis reflects on the Irish approach to death and dying.

Published on 26 April 2018

Made with the help of BBC Radio 3

KEVIN TOOLIS: If you've never been to an Irish wake and have only seen the movie version, you probably think it's just another Irish piss up with a few people round a coffin drinking pints of Guinness, but you would be very wrong. In my father's island off the coast of Mayo, people go to the wakes of their neighbours, they see dead bodies, they touch dead bodies, they take children to those wakes. So even an ordinary life, away from the medical profession, would have seen 20, 30, 50, sometimes 100 dead bodies. My father didn't want to die. He was only 70, was a very powerfully physically fit, man. But then he got pancreatic cancer. And pancreatic cancer is one of those cancers that no one ever recovers from. He was quite stoic about and more importantly, his community accepted his fate. They came to see him in the dying process. The house filled with visitors, so many visitors that you actually thought the house was celebrating a wedding feast. I was at the foot of my father's deathbed. And I looked around and there were twelve people in the room, some of whom I didn't know. And at that moment, the 'Mna chaointe' the Chief Keener, struck up a very familiar Catholic prayer called the Five Sorrowful Mysteries. 'Holy Mary, mother of God, pray for us now at the hour of our death'. And then the chorus returned the other chant. 'Holy Mary, Mother of God, pray for us sinners now at the hour of our death.' When the chorus said that second verse, that sound grew louder and louder and louder in that room until it was almost the

loudest sound I've ever heard in my life. And I saw in that moment that what these people were doing were cradling this man into death like a lullaby, and that this death was not Western hospital, but a rite within an Irish clan, a way of dealing with death that was probably as old as the fall of Troy. A mechanism by which people could share their death, share this experience, learn about their own deaths, and also share this, normalise this within their community. Later, the same day my father, dead father, was taken, he was placed in a coffin and just moved a few feet away into the front sitting there. And there, we had a full, old fashioned Irish wake where the women came again, they're called 'Mna chaointe' – 'keening women'. And they sort of controlled the stage of the wake, the emotional temperature, whether they cried and keened, when a new mourner came in, it was a kind of wave of emotion which used to ripple through the room. It was a process by which you drained out emotion, were you moved on to the stages of acceptance of the death. And then . . . then we waked with my father, the whole night through. During this wake as well, there were lots of children around the world. There were three year olds and five year olds playing at the feet of the coffin. The house is full of people talking, feasting, being served tea and sandwiches. The other thing about the Irish wake is people come in great numbers to the funerals. So my father, although he was a very ordinary man, had three or four hundred people who came to his funeral, who were also under a moral obligation to shake the hands of the principal bereaved. So it wasn't just enough for them to be there in the crowd. They all came up to you and shook your hands. And as they shook your hand, they say it like a cliché, they say, 'Sorry for your trouble.' In fact, they shake your hand so many times that your ha— . . . the bones in your hand begin to ache. This was a way of countering death denial, because these individuals shaking your hand, pressing into your flesh. They're saying, it's not just sorry for your trouble, but they're dead. They're dead. They're dead. They're dead. They're dead. So you, at the end of that . . . that existential experience, it's very hard to then think, 'They're coming back', which again, is a very normal grief reaction. I think the best way to deal with death is not to invent a new ritual or appoint another priest caste of bereavement counsellors or medical professionals. It is to do what we've always done and that's gather together as fellow mortals in the face of our mortality and seek to bridge that moment of bereavement and loss together.

545. Why we say zigzag, not zagzig (and other quirks)

Zagzig, song sing, chat chit... these all sound wrong to a native English speaker. But why? Lexicographer Susie Dent explains all.

Published on 2 June 2020

Made by BBC Reel

SUSIE DENT: Why would an English speaker never dally-dilly or walk in a zagzig? Confused? The answer lies in an unofficial law of language. English has no government, no body or academy dictating its rules or development. But sometimes we come across a curious law that has been passed not by any formal authority, but

by the speakers themselves. Very few of us would know that we follow an ancient protocol that goes by the technical name of ablaut reduplication. It dictates then in any duplicating word combination we always put the ‘i’ sound as in pit or the ‘e’ as in see first before an A or an O. fiddle-faddle, ding-dong and riff-raff. No native speaker of English would ever dally-dilly or shally-shilly on their way to a song-sing while wearing flop-flips. Nor would we ever walk in as zagzig to a sawsee, have a chat-chit while katkit or, sadly, play a game of pongping. Even when an expression has three elements, the rule stands bash bosh bish just doesn’t cut it. And eeny, miny, meeny, mo sounds all wrong. The same law is found in many languages. The Japanese have the beautiful ‘kasa koso’, the rustling sound of dry leaves, while the Germans might speak of which ‘quitschquatsch’ – fiddlesticks, wirwar – a muddle, or a krimskrams, their version of the French bric-a-brac. And there’s another. We’ve all been doing this for centuries, yet the reason ablaut reduplication exists has never been fully nailed down. Sound is definitely key. When we produce an ‘i’ or an ‘e’, we position our tongue higher in our mouth. Whereas the ‘a’ or ‘o’ pushes it lower. This high-vowel, low-vowel sequence produces a pleasing rhythm, even if it’s one we reserve mostly for these playful combinations. Otherwise we might well be eating pirrodge breakfast. Luckily for native speakers, we never need to know what we don’t know. We just know it.

546. Why we see faces in clouds

As we go about our day-to-day lives, we all perceive the world quite differently. But why? How does perception work?

Made by Mosaic Films, 5 August 2019

Made in partnership with The Open University

NARRATOR: Ever since Aristotle, we’ve been told that we have five senses, but it’s now thought we could have around 20 or more. For example, the sense that tells you you’re feeling hot or cold, the sense that tells you you’re out of breath, and the sense of balance. We don’t consciously experience the raw information all these senses generate, because the brain is constantly engaged in the act of perception the analysis, synthesis and interpretation of all that data. Perception can utilise what’s known as bottom-up processing, whereby the brain relies on analysing sensory data. But certain perceptions are produced in a different way, by top-down processing - instead of relying just on sensory data, the brain calls on past experiences to make a best guess as to what might be there. In certain situations though, this type of processing results in mistakes. Like this - you’re probably seeing two different colours here, but in fact there’s only one. Based on past experience - that surfaces in brighter light are darker than they appear, and surfaces in shadow are lighter the brain expects that there should be two shades, and so that’s what it puts into the virtual model it’s creating. This top-down processing accounts for a number of human perception traits. We very often see faces, because we’re hardwired to tune into them. The fact that we’re all living in our own virtual

recreations of the world is revealed most sharply by cases of people with malfunctioning perception known as agnosia. It's a general term that covers many different conditions. What they all have in common is that the senses are still working perfectly. The brain is receiving the same information it always did, but its ability to process, interpret, and recognise is damaged. Someone suffering from prosopagnosia, for example, has serious difficulty recognising people by looking at their faces, but could still recognise them instantly from the sound of their voice. In extreme cases, sufferers can't recognise their own image in a mirror. A person with akinetopsia is able to perceive objects normally when they're still, but can't recognise, or make sense of anything that's moving. When someone with auditory verbal agnosia hears words, they just hear meaningless noises, so they can't have a conversation. But it's only the hearing of words that's affected they can still talk, read, and write. So, our ability to navigate the world is entirely dependent on the complex mechanisms which interpret all the noise our senses make and give it meaning. Or, as the famous neurologist Oliver Sacks put it, "Every act of perception is to some degree an act of creation."

547. Why we should ban 'cute' robots

Philosopher Daniel Dennett argues that people overestimate the potential of AI - and that we should ban 'cutesy' touches on robots.

Published on 28 February 2017

DANIEL DENNET: They're making smart tools, not colleagues. Artificial intelligence is now harnessing algorithms that mindlessly sift through gigantic datasets, yielding brilliant discoveries and designs. After several dormant decades, AI is booming again and computers are getting smarter fast. They're already better than the experts and many specialised domains. Various visionaries are predicting that super intelligent agents are inevitable. Balderdash. While I agree that it's possible in principle to make a super-intelligent, artificial agent smarter than any person, don't hold your breath. IBM duly famous Watson The Jeopardy quiz show winner could, in principle, be enlarged into an agent worth befriending, say. But the project would cost maybe a million times more than making Watson in the first place and who would pay for it? What we need is smart tools, not artificial colleagues. And that's all we're going to get in the foreseeable future. The biggest and truly imminent danger is overestimating the comprehension of these tools and ceding moral authority to them. People tend to overestimate the comprehension of any AI that gives impressive results. We must break this congenial habit and train users to treat the tool as a tool for which they are responsible. First, banish cutesy human touches which are, to put it bluntly, false advertising. Second, users should be licenced and bonded. The insurance companies would then insist that manufacturers divulge any known blind spots or weaknesses, the same way pharmaceutical companies must now reel off all the known side effects of their products, AI inventors have deep pockets, let's make sure we hold them responsible for the dangers they are introducing into the world.

548. Why you might actually be smarter than you think

Could broadening our understanding of what it means to be intelligent ultimately make us more successful?

Published on 5 May 2020

Made by BBC Reel

NARRATOR: Conceptions of human intelligence have changed a lot over the past hundred years. But how does the way we view intelligence have an impact on our society? Could broadening our perceptions of what it means to be intelligent change how we view human potential and ultimately make us more successful at solving the problems facing the world?

SCOTT BARRY KAUFMAN *Psychologist*: So we've traditionally measured intelligence through the IQ test. And the IQ test it kind of treat it as a cognitive buffet. You know, you go to the smorgasbord and you're like, 'I'm going to do some visual spatial reasoning over here. I'm on do some vocabulary testing over here. I'm going to do some . . . rearrange some blocks'. That's how we've traditionally viewed intelligence as the equivalent of cognitive ability. It's an extra step to then equate general cognitive ability completely with intelligence. That's an extra step that we make as a society. That skill set is important for navigating your life, especially navigating the complexities of everyday life. However, it's not a complete capturing of someone's intelligence. And there are many ways in which someone might have a higher intellectual potential that is not being captured in that testing environment.

N: Should we be redefining intelligence in terms of what it means to be successful in life? Psychologist Robert Sternberg, a leading figure in the field of human intelligence, believes we should move towards a broader model that he defines as successful intelligence.

ROBERT STERNBERG: Successful intelligence is your skill in setting meaningful pro-social goals in your life and then finding a way to achieve those goals. And then, as necessary, changing the goals as they are life changes. I think that there are four key components that comprise successful intelligence. The first is what the tests measure, it's analytical skills and those are important, your ability to analyse, to judge, to compare and contrast, to evaluate. And at least as important, is what you might call creative intelligence, which is your ability to come up with ideas that are somewhat novel and useful. So in life, you need creative intelligence to come up with ideas. You need analytical intelligence to know if they're good ideas. You need practical intelligence or common sense to be able to implement your ideas and to be able to convince other people of the value of those ideas. And you need wisdom in order to ensure that the ideas helped to achieve some kind of common good. We have done studies on four continents. If you look around the world, the conceptions of intelligence are much similar to my conception of successful intelligence than they are to the narrower conceptions that are just looking at academic intelligence. Let

me give you an example. If you grew up in rural Kenya, one of the most important things to learn is how to combat parasitic illnesses. What we found in our studies was that if we devised the test to measure the kids practical intelligence for using natural herbal medicine to combat parasitic illnesses, it was very predictive of their success in that society. But the correlation with IQ was actually negative. Negative means that the better you did on the practical test, the worst you did on the academic test. And the reason for that is that in that society, the smart kids leave school early. If you're smart, then someone wants to take you on as an apprentice. If you're not perceived as smart, you stay in school.

N: The way in which society view intelligence and the value it puts on this can have a huge impact on how we define and measure what success in a society looks like.

SBK: Our society, interestingly enough, I think, places too much value on general cognitive ability and sort of that ability to what some psychologist called the shotgun approach to intelligence, where it's like you sit down and there's like a shock on your head. 'Go. Be intelligent,' you know. And wouldn't that make anyone nervous and maybe not be at their optimal in terms of intelligence? And you have a lot of students who are falling between the cracks in our very outdated notion of what it means to succeed in life. I personally view the concept of intelligence as broader than just general cognitive ability, although I include general cognitive ability as part of it. I also include intellectual engagement and intellectual curiosity as a really important core part of human intellect. We certainly have a lot of smart people in terms of general cognitive ability, people who can apprehend (*sic, means comprehend?*) and understand and reason in some capacity. But we're really lacking in people who want to understand other people's perspectives, want to really get at the truth regardless of their ideology or . . . or personal prior belief. If I had to choose, you know, a couple extra IQ points for society or a heaping dose of intellectual curiosity and humility? You know, I think we could go with the heaping dose to make society a better place.

549. Why you should always wear trainers to work

Justine Roberts, founder of the website for parents Mumsnet, gives a few choice tips on getting what you want out of your career.

Made by BBC Studios 8 June 2018

JUSTINE ROBERTS: The thing that will keep you going through the hard times is the fact that you really believe in what you're doing. So my first tip is find your passion. Mumsnet took a really long time to sort of take off in any business sense. In those days, it was all about young guys being invested in by young guys. And here was I turning up, a 30 year old mum, probably with some vomit on my shoulder. And I remember one guy said, 'I will invest in your business, but only if someone else runs it.' And in fact, that someone was a 24 year old man. So I turned down his investment. But actually, you know, when you really believe in something, that's

what will keep you going through the low moments. So choose something you have a real passion about, because otherwise I think it's too easy to give up. My second tip is to make mistakes. In fact, Mumsnet was born out of a mistaken holiday. It was my first holiday with kids. I knew nothing about it. And I picked the wrong destination, the wrong time zone, the wrong resort. And it was an unmitigated disaster. And that was where the light bulb moment for Mumsnet came. Often the things that go wrong can be the prompts for what you can do, right. So my next tip is to wear trainers. I think it's a brilliant way to fit in exercise without going to the gym, and it's a brilliant way to catch up if you're running late. I mean, there's also another part of this: don't feel as a woman in business, you have to, you know, spend hours on your parents. Let's face it, Mark Zuckerberg wears the same T-shirt and jeans every day. And why should . . . why should women have a disadvantage? And my final tip is to embrace the chaos. I think it's almost impossible to fit in everything you want to do if you're trying to start your own business and you want to raise a family. You have to embrace the fact that you cannot be perfect. But more importantly, I think it's about not feeling guilty about stuff. So my fourth child, I cycled to his nursery with him in a seat on the back and he started singing this lovely little tune to me. He sang 'Mummy, mummy, mummy, mum, mummy, mummy, don't go to work.' And quite frankly, if that had been my first children (*sic*) I would have probably been, you know, in tears on the pavement. But, you know, you do get a bit wiser. Your kids will be fine. And having guilt is a wasted emotion. I think the thing that makes me get up in the morning, 18 years on and love coming and doing what I do is I really quite like finding solutions to things. Being able to come to work and collectively, with a group of great people, grapple with stuff and try and find a solution is something I find fascinating. And it is what keeps me going, really.

550. Why you should ditch FOMO for JOMO

Is it healthy to constantly compare our lives to others through social media? Or could embracing our limits make us happier?

Published on 7 October 2019

Made by BBC Reel

SVEND BRINKMANN *Professor of Psychology:* I would like to invite you to rethink the fear of missing out. And I would like to encourage you to think about missing out as something that can be joyful, as something that can give your life meaning and existential depth. Our fear of missing out is driven by a whole lot of factors in modern society. We have the social media where we can compare ourselves to others, see how wonderful their lives are. Perhaps mine is not equally wonderful. So I have to change. I have to develop. I have to become someone else, perhaps in order to experience life at its fullest. We also see consumer culture, with a big marketing industry that constantly tell us that we could have something more, have something better. There is actually much room for pleasure in disengagement from withdrawing from all these demands to consume and develop as a person because it opens up for . . . for deeper engagements in the world, from deeper

relationships to other people are actually more joyful than this constant doubt. 'Am I doing enough? Am I living enough?' To experience the joy of missing out, it takes practice to willingly miss out on all the possibilities that we're constantly bombarded with. What we now refer to as the joy of missing out is actually old news in Western philosophy. The idea of the moderate life goes back, at least to Aristotle in ancient Greece. He talked about finding a balance between two extremes, doing too much on the one hand and doing too little on the other hand. And this applies to any human activity, any human virtue. We tend to tell each other and especially inform the younger generations that they can do anything, anything is possible. They just have to make it their own choices. And of course, this is based on very good intentions, but I don't think it's very helpful. First of all, it's an illusion. Not anything is possible. We are limited in all sorts of ways as human beings and as individuals. And I think it's very good to know about the limits that there are to life and to my life as a person. But I also think that it would be bad, even if these limits weren't there. Even if we could do anything, because that would mean that we would exist in sort of an empty space, where it would only be my own preferences and desires that decided the course of my life. And that isn't . . . that isn't very human. To be human is to think about my own life in relation to others. What are my obligations to them? What communities, what society am I a part of? And what do I owe to that? The Danish philosopher Søren Kierkegaard actually analysed the limitless life, and he saw it as a life of despair and he used the Emperor Nero from ancient Rome as an example. Nero could do anything. He was the most powerful man in the world. He could point to whatever he wanted and he would get it. The whole world would bend to his desires. And as Kierkegaard says psychologically, this leads to despair. And Nero, in fact, according to a legend at least had to set Rome on fire in order to create something in the world that he couldn't just control. A life without limits is meaningless. And we shouldn't strive for that, in my view. I think we need to design environments that will make it easier for us to miss out and focus on what is important. I don't think it's enough to develop willpower individually. Ultimately, we all fall for temptations. I mean, Oscar Wilde said that he could resist everything except temptations. And there is some truth to that. We can only resist if we're not tempted. So let's decide environments in our homes and our workplaces and our schools for the children in which we are not tempted all the time. In that way. We will avoid this fear of missing out to a greater extent than we see today.

551. Why you're tying your shoelaces all wrong

Fed up with your shoelaces coming undone? Maybe you should try the 'superior reef' knot. Or if you're feeling fancy, the stylish Berluti.

Made by Objekt Films, 18 January 2019

CAPTION: You may think that after years of practice, you would have shoelace tying nailed down. But the majority of people are tying their shoelaces wrong. Achaeologists have discovered leather shoes with shoelaces dating back 5,500 years. The Areni-1 shoe was found in an Armenian cave in 2010. Shoes have changed a

whole lot since then, but the majority still rely on the shoelace. In 2017 mechanical engineers at UC Berkley carried out experiments on why our shoelaces come undone. They used runners on treadmills and robotic legs on pendulums. In the 15 minute lab test, 100% of the laces tied in the conventional way failed. The problem stems from tying the first part left over right and then tying the bow in the same direction, AKA 'The Granny Knot'. So how can you improve your shoelace tying? Simply by tying the bow the other way AKA 'The Reef Knot.' Let's show you that again. In the UC Berkeley lab test, this knot had a 50% success rate (in comparison to 0% of the traditional bow). However, there are plenty of other options available when it comes to tying your shoelaces. Including 'The Berluti Knot' Made popular by the famous Italian shoe designer Olga Berluti. Or 'The Surgeon Knot' Otherwise known as the Tibetan Trekking Knot. Or the fastest way to tie your shoes, 'The Quite Knot.' However, the mechanical engineers in this study found that all these shoelace knots will until eventually. So perhaps it's time to bring velcros back.

552. Why your first memory is probably wrong

Our memories are hugely important to our sense of identity. But how accurate are they? Can we really trust them?

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Made in partnership with The Open University

NARRATOR: What's your first memory? Whatever it is, you're bound to cherish it. The Greek philosopher Aristotle once called memory "the scribe of the soul" meaning that our memories are integral to our sense of self. But can we actually trust them? Nothing about memory is simple. For starters, where are memories stored? In which part of the brain? Hundreds of studies have come to the same conclusion there isn't one. They're stored, processed, and moved around the brain, creating complex connections across neural networks that we still don't fully understand. The potential storage capacity of the human brain is vast. It's not possible to quantify exactly, but estimates put it in the multi-millions of gigabytes. But memory is malleable. What we remember is not necessarily what happened. A memory is not a recording. It's more like a dramatic reconstruction and one that we can keep changing without realising it. For any experience to be remembered, it has to be encoded. This encoding though is not any kind of direct translation. It's a rich and complex process that creates associations and meanings. As sensory information is encoded, and also whenever it's retrieved, it's interpreted in a way that can change it, and introduce errors. Memory is a creative process, because unlike computers, we need to be able to make sense of the information we store. That means we're never remembering things exactly the way they occurred. We might be remembering something very similar, but subtly modified and coloured by our own sets of associations. Two people who see the same thing won't necessarily remember the same thing. And in certain situations that's very problematic. Psychologist Elizabeth Loftus produced groundbreaking research on eyewitness

testimony. Her work showed that memories can easily be influenced, even after they've been created. For example, if investigators ask witnesses a leading question about a crime, such as, "What colour coat was he wearing?" their memories may adapt to incorporate the suggestions. Similarly, if two eyewitnesses confer with each other, their memories of events often change, incorporating what they've heard from the other one but they won't realise this has happened. And witnesses who are shown an image of a someone after a crime, even if it's one of an innocent person, can sometimes paste it on to their memory of the actual event a process known as unconscious transference. The Innocence Project estimates that around 70% of wrongful convictions, later overturned by DNA evidence, are due to mistaken eyewitness testimony. In some cases, memories can even be deliberately created and implanted. The Lost in the Mall experiment took a test group of subjects and talked to them in depth about key childhood memories while also adding an invented one the experience of having been lost in a shopping centre. It was found that between a quarter and a third of subjects not only accepted this new memory as genuine, but enriched it with specific details. They'd created a new memory indistinguishable from memories of events that had actually happened. We've all possibly done the same thing. Most of us have certain key memories of being a very young child. But research suggests that they're highly unlikely to be actual memories due to the way memory is stored in the infant brain. In many cases, we probably imagined certain scenes at a later age, when shown photos or told stories about certain events. The subjective experience of these memories is no different to remembering childhood events that actually happened. Your precious first memory may well not be a real memory, and we're all perhaps living in our imaginations more than we realise.

553. Will humans keep getting smarter?

Is there a limit to human intelligence? Or will our brainpower be eclipsed by intelligent machines in the future?

Published on 2 June 2020

NARRATOR: Throughout the 20th Century the average score on IQ tests across the world grew significantly. Does this mean humans are getting smarter? Is intelligence going to keep growing? And what will intelligence mean in the future? Will emotional intelligence, showing understanding of others, be considered more important than abstract logic? Will humans be eclipsed by intelligent machines? We asked some of the planet's leading intelligence experts to share their views.

ROBERT STERNBERG, *Cornell University*: During the 20th Century, IQs around the world increased 30 points, which is huge. The difference between 100 and 130 is the difference between someone ranked as average and someone rated as gifted, and so what that shows is clearly intelligence can be increased. Academic intelligence or analytical intelligence can be increased. Creativity, you learn by having good parenting and good schooling that encourages you to be creative. And common

sense you learn from the mistakes you and others make in your life and how to fix them.

NARRATOR: Increasing quality of nutrition, better education, and greater exposure to more new technologies are all factors behind our increasing intelligence but will we ever hit a limit?

RICHARD NISBETT, *University of Michigan*: It's pretty clear we won't because we're going to keep on finding problems, creating problems, that require new tools and we're going to keep the old toolset and get some new ones and that's been going on ever since the industrial revolution. I don't know if we'll reach the limit of human intelligence because we don't know what the limit is. The one thing we can be pretty sure of is that we all could do much better than we're doing, so regardless of what that limit is people could be much smarter if they focused on, "How can we make the world a better place?"

TENELLE PORTER, *University of California*: We have no idea what the limit of human intelligence might be. I think in society today we've only scratched the surface on our intellectual capacity, and we will continue to grow. Moving forward I'd like to see us... embrace the notion that intelligence is truly malleable, that we can grow and develop and get smarter.

NARRATOR: But not all our experts agree.

GAVIN EVANS, *Birkbeck, University of London*: I don't think intelligence is rising at all and I don't think it has risen for a very long time. The earliest humans like us with our brain capacity go back 315,000 years and we know now that those people were involved in long distance trade. Go back 100,000 years and people were developing paint workshops and a little bit later they were developing plaques with abstract symbols. Those people were clearly modern human beings with intelligence like ours. I don't think intelligence has changed since then.

NARRATOR: One issue with trying to determine whether intelligence is increasing or not is how we measure it. IQ tests focus too specifically on abstract logic to tell us everything we need to know about a person's intelligence. So maybe we're looking at intelligence the wrong way. Perhaps it's time we stopped thinking about intelligence as an inbuilt quality we each have but as something more fluid.

RS: I would like to see society... place less emphasis on intelligence as it's conventionally defined because basically it's very much viewed as individual, whereas in fact most of what we do in the world is in groups so we work in teams, we work in groups, we work together mutually to solve problems. I think we need, as a society, to put more emphasis on real-world intelligence How do you use-- Whether it's your IQ or your creative intelligence, how do you use these kinds of knowledge and skills for a common good?

NARRATOR: If we start to think of intelligence as a way of improving the common good we also need to ensure that everyone's perspectives are included.

BONNIE EVANS, *Queen Mary, University of London*: The neurodiversity movement, which has been growing exponentially in the last few years, makes the argument that individuals with different kinds of neurological capacities should not be excluded but should be integrated into society because they have so much more to benefit that society. It was developed by autistic activists who argued that autistic people, people with intellectual differences, all people had the capacity to shape and change the world. Somebody like Greta Thunberg is a perfect example of someone whose different style of thinking has led her to be able to see the world in a new and radical and important way.

NARRATOR: It may be that we can all come together to use our different forms of intelligence to improve the world, but what about artificial intelligence? Are we likely to be out-thought, out grown, or even replaced by intelligent machines?

ELIZABETH KRUMREI MANCUSO, *Pepperdine University*: I would say that artificial intelligence and human intelligence really are two completely separate phenomena. I would say that artificial intelligence really isn't bound by the limits of human intelligence, for better or worse, and so there may be things that humans remain better at and things that artificial intelligence is better at.

GE: I think one of the great fallacies is the whole idea of using computers as analogy to brains. Our wet, organic brains are very, very different from computers. The kind of intelligence we have is responsive to environment in a way that a computer isn't so I don't think computer intelligence and human intelligence are in any way comparable.

NARRATOR: Well that's a relief. So although AI will change so much about our world it sounds like our old wet brains won't be eclipsed. And while our experts don't all agree that our species will keep getting smarter. How we use our intelligence to shape the world we live in is clearly still in our own hands... and minds.

554. Will office life ever be the same again?

Working from home has become the new normal for many people during the coronavirus pandemic. But how might office life evolve in the future?

Published on 28 August 2020

BRUCE DAISLEY, *Author & Podcaster*: Office workers will look back at 2020 as something of a tipping point in the world of work. Largely, workers proved to their employers that they could get their jobs done from home. So what does the future hold for the office? 80% of people who worked from home during the lockdown say they'd like to continue working at least one day from home in the future. Meanwhile two out of three of us say that we're longing to return to the office in some form. In other words, we want to have our cake and eat it. We want the best parts of the office and the best parts of working from home. The workplace property expert Anthony Slumbers said no firm ever wanted an office, they wanted productive

employees and the office was just one way to create that. Over the last few years, many companies had moved to open-plan offices. Well the promise was that we would be let loose in vast workplace savannahs, free to meet and bounce ideas off each other. In fact, open-plan offices tended to make us feel like we were constantly interrupted and unable to get anything done. We've realised offices are good for some things. The office had something called 'a network effect'. So it's chance encounters, bumping into colleagues and sharing thoughts just casually, that we're finding so difficult to replace. And there seems to be some pretty good evidence that our best 'aha' moments happen in these chance encounters. Professor Sandy Pentland from the Massachusetts Institute of Technology says the reason why these conversations are so effective is that these are the moments that we don't find ourselves supervised by our bosses, we feel free to have honest discussions. So if the office was good for a few things and the top one - chatting to colleagues is the one we're struggling to replace, what's the answer? Maybe your firm will join something that's starting to be called the TW and T Revolution, where workers work from the office on Tuesdays, Wednesdays and Thursdays but from home on Mondays and Fridays. And no doubt, in time, someone will come with a catchy name for people who work like this. Other firms are being still more adventurous, saying they want to free up workers to do their work whenever they feel most productive. They're adopting what's being known as asynchronous working. When we do something synchronously it means we're coordinated in time, like the swimmers at the Olympics. Asynchronous work says, 'how about we allow people to give their feedback or their ideas whenever they're feeling most inspired?' Companies who do this say it allows workers the flexibility to take their kids to school or even do leisure activities and this is what the asynchronous working firms believe will attract the best workers to come to work for them. Expect to hear a lot more of the word 'hybrid'. At the more adventurous end of hybrid, some firms are even talking about only getting their employees together one week a quarter. Meaning that, almost certainly, they don't need an office. More than anything, one thing seems increasingly certain… for many office workers, the era of getting up every day and going to the same place seems to be a thing of the past. And the question is... Will you miss it?

555. Will robots take over?

Will humanity will be enslaved by intelligent robots?

Published on 20 February 2017

This video was made by BBC Radio 4

NARRATOR: Will robots take over? If pop culture is to be believed, it seems pretty inevitable. The first time the word robot is used, in a 1920 Czech play, humanity is enslaved by intelligent robots. Even without bodies, artificial intelligences frequently pose a threat to our very existence. Skip forward to the 1990s and humanity is repeatedly getting enslaved or harvested for fuel. But the history of robots goes all the way back to classical Greece, starting in the Iliad. By the time of the

Enlightenment, automatons were built for entertainment. And this fuelled the idea that our minds were made of different stuff than our bodies. People feared the coming industrialisation that would feature automation and workers would be replaced by machines. This idea has never really gone away. We fear, but are intrigued by robots in equal measure. We design them to do our intellectual and actual heavy lifting, and that means we need them to be smart. So we taught them to play games. The first chess computer to beat a human was not very reassuringly called Maniac. In 1956, it beat a human, though only in a six by six board. It took 40 years before a computer beat a grandmaster in a full game. Deep Blue was very good at chess, but it couldn't play noughts and crosses. Humans are really good at learning one thing and transferring those skills to another. But even that barrier is being eroded. In 2014, Google's A.I. company Deep Mind built software that learnt how to play a range of classic 1980s arcade games better than any human ever could. We don't really know how human minds work, so we're decades away from creating artificial ones. Evolution has given us a headstart of billions of years in the mechanics of our bodies that house our intelligence. But there is no doubt robots are going to become part of our everyday lives. So we better get used to it.

556. Will we all be superhuman by 2039?

Super-vision, 3D-printed lungs and nanobots in our blood - as technology changes, so will our bodies. Will superpowers become the norm?

Animated by Paper Panther, 22 February 2019

Made in association with Nesta

NARRATOR: Sigourney Weaver in the P5000 powered work loader in the 1986 film Aliens. Could this be you popping out to the shops in 2039? And if the answer is 'Yes, please,' how far would you go to boost your physical abilities? When inventor and rock climber Hugh Herr lost his leg due to frostbite. He decided to turn his impairment into a super power and created the world's most advanced prosthetic legs. As a self-described bionic man, he believes that in 20 years' time, prosthetic limbs will be as powerful, or even more powerful, than the ones they replace. If this is the case, Paralympic athletes might be able to perform to such high levels that Olympic athletes are literally unable to keep up. For nurses and factory workers who deserve a gold medal but rarely get one, imagine how much easier daily tasks would be with a robotic boost. Like Sigourney Weaver's Ripley, you could use your power loader to effortlessly shift anything. Maybe your boss will even let you finish early. Or perhaps they'll just expect you to move this year's must-have Christmas toys quicker and with fewer breaks. Research has also suggested that an exoskeleton could help a piano player with arthritis to reach the top notes. And artificial skin could enable this new hand to feel as well as torch. After many years of stem cell research, by 2039 regenerative medicine could have also enabled us to grow replacement organs such as hearts and kidneys. Scientists predict that in 10 years' time, someone will have the first bioengineered lung. Could it be you? Wearable technology could also help you see and hear more effectively. Developers are

currently working on a variety of products, including motion tracking headphones that enable you to point at someone in a room you'd like to hear better and Wi-Fi technology that could allow us to see through walls. However, if everyone is able to hear and see everything, will the next invention be something to block other people superpowers? The 21st century equivalent of kryptonite? Perhaps with the help of cognitive enhancing smart drugs, we'll be able to get round it using our super brains. A 2016 survey found that 15 percent of Oxford Uni students already take pills to try and compete. Experts have also been predicting for a while that tiny nanobots will soon be able to flow through our blood scanning our bodies for illness. Perhaps by 2039, it might have finally happened and their findings could be checked by a medical professional without you even knowing about it, or by insurance companies. The ultimate development in preventative medicine, or just another way for big businesses to be watching you, both inside and out? Like many super rich tech enthusiasts, the Russian technology entrepreneur Dimitry Itskov is keen to live forever. He's even laid out a plan to remove the human brain and consciousness after death and keep it alive in a robot body. So in 20 years' time, how much of your body will be the one you were born with? And what percentage of enhancements would mean you're effectively a cyborg, as some people already believe they are? Could new powers enabled by technology be used to create a more equal society? Or if such powers are readily available to those who can afford them? Will they increase inequality? And if so, what's super about that?

557. Will we worship artificial intelligence in the future?

Robots would make terrible gods, argues Elizabeth Oldfield from Christian think tank Theos.

Published on 15 February 2019

Made in association with Nesta

ELIZABETH OLDFIELD *Theos Christian Think Tank*: I think technologies like AI make brilliant tools and used well can really contribute to human flourishing. But they would make really terrible gods. The idea of a robotic takeover has long been the stuff of dystopian science fiction. But it may soon be a reality. Some technologists think that the singularity, which is the moment when artificial intelligence become self-conscious, may happen in this generation. Many, like you, Yuval Noah Harari, think it's almost inevitable that we will end up subservient to these super intelligent machines. And others think that we will, or perhaps even should, start worshipping them. The argument goes that religion is in the past. And why would we need it when technology can help us overcome the frailties of our bodies and maybe even death? One of the pioneers of self-driving cars, Anthony Levandowski, has even gone so far as to set up a church preparing to worship this singularity. The argument has a kind of internal sense. If human beings have evolved out of the dark ages of religion into the light of a secular humanism, we have found that secular humanism really values human intelligence, puts a very high value on it, even defines human beings by it. If human beings then invent a machine with higher intelligence than our own, it

makes sense that we give that a higher status and perhaps even worship it. I'm a Christian and a humanist, and I'm concerned about the impact of these changes on human beings. I also think there's some quite serious, logical and factual flaws in the assumptions behind this thinking. So I want to propose something even more subversive and radical than a new religion worshipping machines: that we take a second look at the so-called old religions. Firstly, the idea that religion is in the past is just a fallacy. We thought that as societies developed, they would become more secular. But that's clearly now not the case. In fact, the Pew Forum predicts that the proportion of the world's population who are religious will go up from 84 percent as it is now, to more like 90 percent in the middle of the century. Secondly, although we all know the very real and disturbing instances where religion has caused individuals harm, those are the exceptions and not the rule. The research shows that in general, religion is good for well-being. I think, crucially, that most older forms of religion don't see the fragility of our bodies and the reality of death as problems to be overcome, not as bugs in the system that we can fix if we apply our reason well enough, but as central to the messy, fragile, rich, beautiful reality of being alive. And that religious impulse in us is a good thing. We shouldn't fear it. So as we develop these technologies, let's also not put too much childlike faith in machines that we ourselves have made. We already have all of these centuries of wisdom to help guide us, to help us tackle the heart of the human problem, which many religious people believe is not death or stupidity or ill health, but the human heart itself. We need to build a kinder, fairer, more human world and though the robots might help us, they cannot ultimately save us.

558. Would George Orwell have had a smartphone?

On the 70th anniversary of his death, we explore George Orwell's book, 1984, and ask whether he'd have a smartphone if he were alive now.

Published on 20 January 2020

CAPTION: George Orwell was one of the most influential writers of the 20th Century. His ninth book, 1984, was published in 1949. It imagines a society controlled by Big Brother where people are monitored and controlled through state surveillance. If George Orwell was alive today, would he have a smartphone?

ADAM STOCK, *York St John University:* George Orwell was born as Eric Blair in 1903. The name George Orwell - his pen name was something that was invented to be as English sounding as possible. Orwell is a river that runs through Suffolk, and George is that quintessentially English name. So Orwell is kind of a created self. He is a version of himself that he puts across in all of his writing in his essays, in his journalism. In a way, the character of George Orwell is kind of similar to how we today curate our online identity, particularly in social media.

DJ TAYLOR *Orwell Biographer:* Like most people of his generation, Orwell was fascinated by technology and what technology could do, without ever having any clear idea of what it actually practically consisted of. Just after the Second World

War, for example, he was given, or bought, one of the very first biros, which had just been invented. And Orwell thought, I think, that this was a kind of miraculous invention. Orwell's novel 1984 is full of technology, and what technology can do to help oppressive systems work their evil, basically. The principle controlling device, the telescreen, has this extraordinary ability to monitor people as they go about their daily lives, and literally spy on almost everything they do.

AS: But there were also a few spaces where these telescreens don't exist in working class areas of London, for example, in the prole pub. If only that were true in the contemporary world. There's no real escaping from our interactions with screens on a daily basis - it's almost impossible not to look at one. One thing that's different about Orwell's most famous book, 1984, and the present, is that in 1984 the state controls all the media and all the messaging that citizens interact with. In the present day, there's a much more diverse landscape in terms of how things are reported, and the fact that we can all, with smartphones in our pockets, type about what's going on in front of us and post videos online, is an important distinction to be made. This said, there are states who try to suppress people talking about things online, and we see this all over the world. Some recent examples might be in Kashmir, where there's been a media blackout, and in Xinjiang, in China.

DT: If he were alive today, it's perfectly conceivable that Orwell would have been sifting through social media, with the idea of writing some kind of structural analysis of how it worked, in much the same way that 70, 80 years before, he would write essays about the kind of magazines that teenage boys read in their spare time.

AS: Orwell, in a way is like the curation of our digital selves today. Part of the character of George Orwell that he creates is to be a truth teller - to tell it down the line. To tell it like it is. Orwell may have been troubled by the way in which mistruths and lies and even innocent mistakes can spread so quickly on social media, out of control.

DT: Technology enables this. It's very easy with a smartphone, or with Twitter and social media to sow a seed of disquiet - to seed an untruth into people's consciousness. Orwell was obsessed with the idea of future worlds, the shape of things to come, and obviously the part that technology would play in enabling those worlds to exist and function.

CAPTION: So, would George Orwell have had a smartphone? Of course it's impossible to say for sure, but here's what he wrote in 1937 about technologies of the day..."...the machine is here, and its corrupting effects are almost irresistible."

X

559. Xenophobism: The story of its ancient roots

What is xenophobia? And how does it differ from racism? Academic Kehinde Andrews gives us his take.

Made by Somethin' Else 13 June 2019

KEHINDE ANDREWS: The A to Z of isms… xenophobism. Xenophobia is a term used to describe the fear and hatred of the foreign other. It is a fear that the other, the less deserving foreigner, will take away your way of life. Xenophobia has a long history. The Romans and Greeks labelled those outside their borders as barbarians, uncivilised brutes who needed to be conquered for fears of them contaminating the empire. And xenophobia is shaping the political debate today. In the campaign for Britain to leave the EU, we were starkly warned about the threat of the hordes of foreigners supposedly swarming to the border of fortress Britain. The prime minister at the time of the vote, David Cameron, ushered in Brexit in part by badly misjudging the power of xenophobia, when he assumed that people would not vote themselves poorer because they don't like Poles living next door. Across the Atlantic, Donald Trump was elected on a wave of xenophobia against the imagined criminal gangs, drug dealers and human traffickers supposedly pouring across the border with Mexico. 'Build the Wall' is the perfect slogan of our xenophobic time, but it would be wrong to confuse xenophobia with racism, though the two are often related. Racism is more than the fear of the other. It is a system of oppression based on the belief that so-called races are superior to others. Just as much of the Brexit vote was based on a desire to kerb white migration into Britain, we have seen xenophobia in places like South Africa, where migrants from other African countries have been violently attacked by other black people who are themselves poor and lacking in opportunity. It is a logic of scarce resources, of the country being too full to sustain the outsider – and a reminder that you can be the victim of racism and perpetrate xenophobia. The Windrush scandal was caused by the hostile environment, a xenophobic policy aimed at squeezing out illegal immigrants by making checks of documents routine in all areas of life, including work, education and even visiting the doctor. The unsurprising result was that many, including those who had legally come from the Caribbean post-war, lost their jobs, or were deported to countries they had long left behind. But it was also the logical conclusion of decades of immigration policy that purposely restricted immigration from Britain's former colonies in the Caribbean, Asia and Africa. The expansion of freedom of movement from Europe was a continuation of welcoming white migration whilst closing the door on people of colour. Xenophobic fears are easy to stir when inequality increases. The pain the so-called natives feel through poverty and inequality are turned on to the foreigner trying to jump the queue. It is no coincidence that following the increased inequality since the 2008 financial crisis, xenophobia has been on the rise across the world. Thankfully, there is a way to tackle this trend: when society is more equal and provides for all, there is no need to fear the other.

Y

560. Youngism: Do we discriminate against young people?

You've heard about ageism. But do we need a new term, "youngism"? Poet Ife Grillo argues young people face all sorts of discrimination.

Made by Somethin' Else, 31 May 2019

IFE GRILLO: The A to Z of isms… Youngism. You'll definitely have heard of ageism. But what about youngism? Are young people discriminated against in the same way old people often are? It's hard to get much stats on this, and it's not a designated subject in sociology or economics. But look closely and you'll see it all around us. I felt and experienced it on a personal level. And so have many of my friends. When I started my first job, I was told by a colleague that young people don't know what real hard work looks like. I was judged negatively before I'd even done any work. Even when I used to go to the shop having signs that say, 'Only two school children at a time' felt like a slap in the face. We would never allow signs that say that about old people. So why is it justified when it comes to young people? And then there's youngism at a societal level. Young people are treated differently because of their age. They aren't given the same political rights and opportunities as adults. While no one is suggesting that babies should be heading to the polls, many do believe that 16 and 17 year olds should have the right to vote, as they now do in Scotland. Young people are also treated unfairly in the workplace. The minimum wage for young people is lower than adults, which means young people get paid less for doing the exact same job. Is that fair? Even in school, which is designed to help and nurture young people, they still often aren't treated with respect or taken seriously. Young people get no real say over their curriculum. Schools aren't designed to empower them. They are given little practical advice to prepare them for adulthood. We can't expect someone to suddenly become an active citizen when they become an adult. That process must start much earlier. Young people are our future, but need to have the power to change their present, if we want to create a better world. Young people have always played a significant role in shaping society, from the Edelweiss Pirates who opposed Hitler in the 30s to the March for Our Life protest against gun violence, there is a history of young people pushing to create change and fight for the rights of people across the world, not just in their own communities. Young people today are growing up knowing that climate change is going to threaten our world. They are likely to never buy their own home. And if they go to university, they are going to leave with tens of thousands of pounds of debt without any guaranteed job. It's young people who are going to have to solve the biggest issues we face today, all while facing these challenges. It's no wonder there's a huge mental health crisis. We need to treat young people with the respect they deserve, because if we don't, everyone loses out.

Z

561. Zionism: A very brief history

Confused about what Zionism actually is? Here's a three-minute history from SOAS professor, historian and author, Colin Shindler.

Made by Somethin' Else, 23 July 2019

COLIN SHINDLER: The A to Z of isms… Zionism. For its supporters, Zionism is the national liberation movement of the Jewish people. For its opponents, it is a means to establish a settler colonial state in the developing world. Theodore Hertzel, a Viennese journalist and playwright, founded the modern Zionist movement in 1897. Yet many Orthodox Jews strongly oppose the rise of Zionism. They believe that the Jews would only return to Zion, the land promised by God to the Jews in the Hebrew Bible, with the eventual coming of the Messiah – Jews should therefore not force God's hand. There were many types of Zionist, Marxist, religious, nationalist, liberal, social democrat, the forerunners of today's political parties in Israel. Both Zionism and Arab nationalism arose during the same period of history, with claims over the same piece of land, a geographical area known for centrists to Jews as the land of Israel. This is the ideological basis of the seemingly intractable Israeli-Palestinian conflict. While there's been a Jewish presence in the Holy Land since Biblical times, at the beginning of the 20th century, the Jews were few in number compared to Christian and Muslim Arabs. Unlike other national liberation movements whose supporters were actually living on the territory that they wish to free, Zionist Jews had first to emigrate from a far flung diaspora, build an infrastructure and only then initiate a liberation struggle. Zionism, therefore, does not fit into conventional theory. So is Zionism wrong or just different? In the aftermath of the French Revolution, many 19th century Jews began to regard themselves as a people with a history, literature, culture and language, and not just followers of an ancient religion, Judaism. Many were highly influenced by progressive national movements in Europe, such as the Risorgimento of Mazzini Garibaldi for as United Italy and Irish Republican efforts to throw off the yoke of British domination. The example of Russian revolutionary Lenin influenced the socialist Zionist leader and first prime minister of Israel, David Ben-Gurion. Lenin demonstrated what could be achieved with a handful of supporters. Many East European Jews wanted to escape the heavy hand of Russian anti-Semitism. So the early Zionists were often revolutionary socialists who not only wished to build a new country but also to construct a new society, unlike the ones they had just left. One of the building blocks of this new society was the kibbutz, a self-sufficient, self-governing collective. There were many possible territorial solutions where a Jewish state could be built. They range from the Portuguese colony of Angola to the Jewish Autonomous Region in the USSR, Birobidzhan, on the border of China. Hertzel even approached the British with the idea that Uganda might be 'a night shelter on the road to the land of Israel.' Some supporters believe that Zionism completed its task when the state of Israel was established in 1948. Others believe that the Zionist project cannot be considered complete until Israel is at peace, secure within its boundaries and within the wider region, and creates a fairer society for all its inhabitants.

0-9

562. 8 things not to say to someone with HIV

"How long do you have left?" People living with HIV share some of the over-the-top reactions they've encountered.

Originally published on 15 September 2016

Made by BBC3

[*Groups of two, with one asking the other questions as follows:*]

So how did you get it?

You've got a child! (*gasps*)

You're so brave.

If you give me a blow job and I wear two condoms, will that be okay?

CAPTION: What not to say to someone who's HIV positive.

How long do you have left?

Oh god.

People have cried on me. You're going to die!

Oh, and you're on medication? Oh, my God. Oh, I'm so sorry.

Somebody who is HIV positive now can live equally as long as somebody who doesn't have HIV.

She was looking up at me with these sort of panda eyes from crying after discovering she said, 'You know, Andrew, I'm going to . . . I'm going to be there to the end.' And I was like, 'Well, darling, that's about 70 odd years away.' I was like, 'I'll be bored of you by then.

CAPTION: So you can't ever have sex again?

Oh. So, this is a question I get asked a bit, 'So you can't ever have sex again?'

No. Being HIV positive does not mean castration.

People message me that all the time. So, if you've got HIV can you have sex? I was like, 'Yeah, that's why I'm on this app.'

There has been a partner study. HIV positive people on medication are not passing the virus on. It's people who do not know their status that are . . . that are passing

this virus on and they're the ones that stand in the corner and point their fingers at the likes of you and I and say 'Be careful of him, he's got AIDS.'

CAPTION: 'You should tell people straight away.'

'You should tell people straight away.'

I hate that one.

It's not as if like, 'Hi, my name's Tom. I'm a Libra and I'm HIV positive,' is it?

Telling somebody you've got HIV is like a really scary moment.

It's a tough decision, you know, because once you let that genie out of the bottle, it's out.

Then most later, she told someone and someone told someone. This was at school. At the end of lunchtime, everyone was talking about it. And I had no clue what everyone was talking about. But every time I'd go past, someone would shout, 'HIV'.

CAPTION: 'If I share a drink with you will I get HIV?'

If I drink your drink, will I get HIV? If you drink my drink, you'll probably get a slap.

I've had a lot of people being like, 'I've heard if you drink loads and loads of saliva, you get HIV.' It's like, 'Why would you want to drink loads and loads of saliva anyway?'

You could recreate the umbrella scene from *Singing in the Rain,* using my semen instead of rain, and there would still be no chance of catching HIV.

CAPTION: 'You must be promiscuous'

And what?

It takes one time. One time. Literally, when I got HIV, I hadn't had sex for a year.

I am a hedonist and I do enjoy sex. And I just don't think I should be ashamed about it. I wish more people hated the virus, rather than fearing me.

CAPTION: 'So you can't have a family?'

Yes you can.

Exactly.

Sometimes it'd be easier not to have a family. That's probably the wrong answer.

Some people like really don't get it, but now because I've got a son, I'll be like, 'Look, my son's here and he's HIV negative. Say no more.'

CAPTION: 'How did you get it?'

Oh. This is a question you get for the rest of your life, 'How did you get it?'

Well, how do you think I caught it?

Well, I had sex.

I did what your parents did.

This idea that I try and . . . apologise first for, like, 'Well, actually, I got it because of this, and you know, I was always very safe and du-du-du-du-du.' I had sex, it was unprotected, the end.

Do you get the whole there's like good HIV and bad. So, if you had a blood transfusion that . . . that's okay. But if you had sex . . .

Oh, so that's good HIV is it?

So I've got bad HIV.

I've got the bad one, because I had sex.

Oh right, okay.

I mustn't do that.

They want to find out how you got HIV, whether it was with 12 guys in a sauna. Was it with one guy that was your boyfriend? Because that's okay to them, or the other one's not.

CAPTION: 'Do you wish it never happened?'

'Do you wish it never happened?'

Well, that's the question, isn't it?

I actually love being HIV positive because, as you said, I've helped a lot of people.

I've had so many people that were in the viral closet and actually have come out and been like, you know what, because you're standing here and talking about it and making it okay, they can to.

Of course, in an ideal world, I wouldn't have HIV and none of this would ever have happened, because I've had some very dark times, but I've found more out about myself in the last couple of years and other people and met some incredibly brave and beautiful people.

People sometimes have said to me, like, 'I don't know how you get through the day.' And it's like . . . like everybody else. And I'm . . . I really see I'm thriving. I'm not *surviving*, I'm not suffering.

See, the great thing about having HIV now is you can live, love, play whatever with no risk to anybody else and be . . . and live as long a happier, healthier life as anybody else.

Other

563. Relativism: Is it wrong to judge other cultures?

Is it wrong to judge other cultures? Or are some things just plain wrong? Philosopher Nigel Warburton unpacks relativism.

Made by Somethin' Else, 26 September 2018

NIGEL WARBURTON: The A to Z of isms… relativism, moral relativism is the view that what's right in one culture may be wrong in another and that there is no way of judging between the two. It's all relative. There's no absolute truth of the matter. Different strokes for different folks. And that's okay. Imagine a Martian landing on earth. She would see that people behave differently in different places. They've got different moral rules, different social customs. What's right in one location is wrong in another. She might well conclude that there's no such thing as the right way to live or the right thing to do for everyone at all times. It's all a matter of cultural norms. So in parts of Spain, bullfighting is seen as a spectacle, whereas in many other countries it's considered outrageous cruelty. Try setting up a bullring in present day London, for instance. If the visiting Martian could get an overview of the history of the world, she'd see that in ancient Rome it was fine to have gladiatorial combat to the death and to own slaves. But that both practices would be widely frowned upon in present day Rome or Amsterdam or elsewhere. Attending fights to the death and keeping slaves was acceptable for the Romans, but would be wrong in today's Europe. This sort of relativism has been popular with some anthropologists who've attempted to appreciate other cultures from within, understanding sets of interwoven practices as responses to particular circumstances and traditions. They recognise that morality is different in different cultures, and they often argue that it's ethnocentric to impose your own set of values elsewhere, as if you know best. Such non-judgemental relativism might seem attractive. But think about Nazi Germany. There it became socially acceptable and even required to treat Jews, homosexuals and gypsies as less than human. This became *right* there, both legally and morally. A relativist would simply have to bite the bullet and say that that was indeed *right* for Nazi Germany. That's what morality meant there and that a morality which treats everybody with equal respect is no better or worse than the Nazi way of doing things, just different. Unless you want to embrace that sort of repugnant conclusion, it's probably best to steer clear of moral relativism. Some people go further and say that everything is relative, even truth, that what is true at one time in one place isn't true for everyone everywhere, or that there is no such thing as objective truth, just the truth, according to me. We see hints of this in politics today. There is a big problem with this sort of relativism, though. The theory of relativism itself would have to, on its own account, be relative. So the theory that truth is relative couldn't be absolutely true.

564. ‘Art needs to become political’

George Mpanga - better known as George the Poet - argues artists need to be more political.

Published on 29 August 2017

GEORGE MPANGA: Entertainers can’t sit on the fence. Art needs to become political. I’m not a rapper, but irrespective of what anyone might typically think, my art and my community are inextricably linked. I’m a representative of the life I live and the people I’ve spent it with are meant to give my thoughts on our situation. It’s more than art is articulation. I want to see more artists engage and starting to change things, doing our part, to pass on the past information. See, art’s part and parcel of participation. It’s not just what you say it’s the energy you say it with. And the lived experience behind that statement makes it inherently native. Native to your existence. See, creatives have jurisdictions. This is why I left my record deal. My role was compromised and I couldn’t take any more restrictions. See, signing is a form of corporate ownership. Labels can promise support but won’t commit. If they think your art jeopardises the bottom line, the budgets will be slashed till you haven’t got a dime. But that’s not to say you can’t make more noise. In this day and age they can’t take your voice. So now is the time to have a bigger conversation, a deeper connection with the population. We’re standing on the dawn of a social movement, which I believe art is supposed to drive. And that would mean the artist is supposed to fry. There’s only one way to ensure that both survive. Art needs to become political. It’s common sense. Entertainers can’t sit on the fence. And people like me, we’re from the ends. Our chart positions bring us closer to changing our conditions. So if I’ve got a young audience to recognise my truth, I’m perfectly positioned to energise the youth, to demonstrate the fact that you have to play your part. And that’s a basic start to advocate with art. See, everyone is evidence of something. It’s just a question of building your case. And art can bring to life every truth that’s not revealed on your face.

565. ‘Arts should be available on prescription’

Dr Daisy Fancourt argues that doctors should be able to prescribe arts to patients they think would benefit.

Published on 17 April 2018

Made with the help of BBC Radio 3

DR DAISY FANCOURT: My name is Dr Daisy Fancourt, and in my humble opinion, the arts should be available on prescription to everyone in the UK. Currently, about 20 percent of GP visits are made not from medical, but for social reasons. For example, unemployment, low level mental health conditions, low level chronic pain. And there are two problems with this. First of all, people rarely get support that actually tackles the problem that they have. And this means that they can actually not feel like their

problem has been solved or their needs have been heard. And the other problem with this is that it's a big cost for the NHS. In fact, the cost is thought to be the equivalent of the salaries of 3750 GPs each year. So as a result of this across the country, over the last few years, we've been trialling a scheme called Arts on Prescription. Now, this works just like a normal prescription service in that GPs can fill out a simple paper form. But instead of taking this to a pharmacy to get medication, people can take this to someone called a link worker. The link worker's role is to know all about existing activities that are available in people's communities. So these can range from community choirs, book clubs, drama groups, gardening associations, and we've got a huge number of these resources available. So the link worker works with the patient to co-create a prescription. And this is a much longer consultation than we normally have the luxury of having in a GP practice. It could even be as long as an hour talking through someone's actual needs are, not treating the condition, but treating them as a person, as a whole being. So let's have an example of someone who's gone through this. There's a woman called Debs who I spoke to recently, who told a very powerful story and said I could share it. Debs had had a mental health condition for a very long time and for many years had been unable to work and on medication and benefits. And she had a crisis point about seven years ago when she was in hospital at her worst, her lowest moments. But then her psychologist referred her onto an arts programme in the community and she said that was an absolute turning point in her life. She went along to the first class a little reluctantly because she didn't feel she was particularly artistic as a person. But she said as her painting improves, her mental health started to improve, too. So now Debs has been off medication for six years. This is someone who was taking 21 tablets a day prior to that. She's no longer on benefits. Instead, she now works for the NHS trust that used to teach her. But she's also a really active member of her local community. But what this really shows is this can have a very tangible impact on someone's life. NHS England has now taken this on as a scheme and across 2018 and beyond they're looking to roll this out across the country. We're hoping that 42,000 GP will be able to take part in Arts and Prescription by the end. But it's also a way of thinking more carefully about how health care is delivered. This is a joined up approach between health, between community, voluntary sector and the arts sector. But also it's something that places the person in the middle, really empowers them and gives them the opportunity to do things that don't just treat their symptoms, but actually enable them to move forward with more fulfilling.

566. 'Climate change need not become the legacy we leave'

Spoken word poet Magero reflects on our personal responsibility to the planet.

Made by Weirdos and Creatives, 13 March 2019

UNNAMED MALE: The immediate effect is just not felt.

UNNAMED MALE 2: Why is humanity not paying attention to what the Earth is trying to tell us?

UM: I don't know, you've got to ask.

MAGERO *Spoken word artist*: If the sky were to crumble, would the world shed a tear? If so, would that tear resemble an Arctic iceberg, nosediving into an expectant sea full of fear and regret. A liquid spectrum of human neglect. Or perhaps these premature tears have already begun. Because for one, we seem to be draining our natural resources, blazing fossil fuels, subtle fools, increasing carbon emission and involuntary emission, distorting our green vision of living. Caught in the heat of the moment, provoking the oceans' levels to rise as our reluctant planet decides to have a meltdown. But wanting only to chill out, keep cool under the pressures of privately preserving this precious present at present. Peace. But piece by piece, global warming takes its portion unable to resume my morning jog without consuming fumes. Ironic how vehicles disrupt my drive, coughing up industrial consequences whilst contemplating the causes of our most recent heatwave, clutching onto a feeble hope that my gleaming, sweat filled complexion is rich enough to throw a watery shade upon the subsequent wildfires crop failures and droughts that accompanied my extended summer. An unaffordable luxury when the mind is in custody, under arrest, thus unable to rest, fearful of surface flooding, my home with force. So how does one drown out these thoughts? A conspiracy. Come on, man. Climate change is real. Coral reef degradation cause fish to seek asylum, becoming migrants festering further north of the Pacific Ocean. The specific notion is that disaster targets those may be striving to survive, guys. Finding Nemo is becoming real life and deforestation reinforces that statement, as if burning bushes could be any more blatant. Excuses are void, and I aim to avoid the climatic drama. I would rather recycle and cycle if that means preventing this cycle of events. But then again, who am I to vent? Every night my dirty laundry of contradictions, I still buy products that harm the environment. Prejudged this ignorant without a sense of innocence. Or why not clean our air as not to pollute our minds? Preserve mankind for our great descendants to find who we may never meet. But climate change need not become the legacy we leave. If the sky were to crumble amidst the multitude of soot surrounding altitudes, once draped in ice, and Arctic life, like polar bears, polar opposites to what would be left, deserted oceans reflecting only a mirage of moisture. If the sky were to crumble, then would you shed a tear? Knowing that you could have made a difference. If so, would that tear resemble an Arctic iceberg, nosediving into an expectant sea full of fear and regret? Be careful what you neglect because you won't miss it until it's gone.

567. 'Don't leave censorship to Facebook'

Historian Niall Ferguson argues social networks have not empowered us – and that we should decide what we block on the internet, not them.

Published on 9 November 2017

These videos were made by BBC Newsnight

NIALL FERGUSON: Social networks haven't empowered us, the users. To Silicon Valley we're such losers. For most of recorded history top down institutions like states have tended to dominate social networks. Kings ruled, generals gave orders and bosses . . . well bossed.

VOICEOVER: You're fired.

NF: But there have been two eras when new technology has empowered networks and weakened hierarchies. The first was exactly five hundred years ago when Martin Luther launched his campaign to reform the Catholic Church. The second is our own. Had it not been for the printing press, Luther would have been just another chargrilled heretic. But printing, the early-modern internet, enabled his message to go viral right across Europe. Luther was a utopian. He believed his reformation would create a priesthood of all believers. Instead, Europe was plunged into conflict. In the same way the high priests of Silicon Valley promised us a global community. But now, as then, newly empowered networks have led to polarisation, not unity. Now, as then, the networks have been conduits for fake news and extreme views. Today, regulators call on Silicon Valley to kick hate speech off their platforms. We should be wary of giving the big tech companies even more power. If it's censorship you want, don't leave it to Facebook. Personally, I'll take free speech at the risk of being offended by what others say. I'll decide what to block myself rather than leaving it to Citizen Zuck. But then I've always preferred networks to hierarchies.

568. 'Dying is not as bad as you think'

Palliative care doctor and author Kathryn Mannix argues that it's time to break the taboo that exists around death.

Published on 29 March 2018

Made with the help of BBC Radio 3

KATHRYN MANNIX: My name is Kathryn Mannix and in my humble opinion, dying is probably not as bad as you're expecting.

CAPTION: IMHO… Dying is actually not as bad as you think.

KM: We've stopped talking about dying. We've stopped mentioning the D words. Instead of saying 'dead' we say 'passed' or 'passed away'. Instead of saying 'dying' we might say 'seriously ill'. And families don't understand that death is approaching when those words are used. And that is in fact a bit of a problem for us. And so now a family will sit around the bed of somebody so sick that they will be dying, and not know what to say. Not know what to say to each other, not know what to say to the dying person. And the dying person doesn't know what to say either, and doesn't know what to expect, wondering whether each breath might be their last breath. A scene of sadness and anxiety and despair. And in my humble opinion, it doesn't need to be like that at all. We've lost the rich wisdom of normal human dying, and it's time

for us to talk about dying and reclaim the wisdom. So what does normal dying look like? Well, dying, like giving birth, really is just a process. Gradually people become more tired, more weary. As time goes by, people sleep more and they're awake less. Families can learn when to give medicines and when to introduce visitors. Sometimes a visitor might happen or a medicine might be due during that sleep. And that's when we can discover that the change has taken place. It's tiny but it's really significant. And it's that instead of just being asleep, this person has temporarily become unconscious. We can't wake them up. We can't give them that medicine. We can't tell them that visitor is here. And yet when they waken later on, they tell us they've had a good sleep. So we know that this coma doesn't feel frightening. That lapsing into unconsciousness just isn't noticed by us when it happens. So as time goes by people are awake less and asleep more, until eventually they're just unconscious all the time. We will be so relaxed that we won't bother to clear our throats, so maybe we'll be breathing in and out through little bits of mucus or saliva at the back of our throat. It can make a rattly, funny noise. People talk about the death rattle as though it's something terrible, but actually it tells me that my patient is so deeply relaxed, so deeply unconscious, that they're not even feeling that tickle of saliva as the air bubbles in and out through it from their lungs. So, at the very end of somebody's life, there will be a period of shallow breathing, and then one out breath that just isn't followed by another in breath. Sometimes it's so gentle that families don't even notice that it's happened. So normal human dying - just a really gentle process, something we can recognise, something we can prepare for, something we can manage. And this should be something we can celebrate. This is something we should be able to console each other with. But because it's become impolite to talk about dying, it's the really best kept secret in medicine. So, in my humble opinion, dying is something we should be reclaiming, we should be talking about. We should be consoling each other about. Please pass that on.

569. 'Five ways the world is getting better – not worse'

In this opinion piece, psychologist and writer Steven Pinker argues that life is improving – not just in the West, but worldwide.

Published on 28 March 2018

This video was made by BBC Ideas

STEVEN PINKER: My name is Steven Pinker and in my humble opinion, life is improving not just in the West, but worldwide. We often fail to appreciate the areas in which our lives are becoming better. And one of them is leisure time. People work 20 fewer hours a week compared to their Victorian-era ancestors. And because of labour saving devices, we spend less time on housework. And that generally 'we' means women spend less time on housework. There used to be a concept of wash day, where a woman would have to take out one day a week just to boil the water and scrub the clothes and bring them out and hang them up to dry. Now it just takes a couple of hours a week. So an entire day of the a week has been returned to the lives of people. It may be hard to believe, but humanity is getting smarter. There is a

phenomenon in which IQ scores have been rising by three points a decade for a century. So even people today are 30 IQ points smarter than their ancestors, likely due to increased nutrition and health, but also increases in education and the general proliferation of ideas from academia and experts to the population at large. Nowadays, most educated people know what a zero sum means, or a trade off or a placebo effect - ideas that came from abstract academic theory a couple of centuries of ago, but are now part of everyone's conventional wisdom, and they literally are making a smarter. Another area in which life has clearly gotten better is access to culture. Now, any movie that I'm interested in, I can stream on demand. I can get access to high quality colour images of any great work of art. I can hear great performances. I can download music from any genre, just with the device that I carry around in a shirt pocket. There's a great deal of discussion about increased inequality in developed countries, like England and the United States. But it's easy to lose sight of the fact that across the entire planet, inequality is decreasing, because there's been such a massive improvement in the fortunes of the worst off. Extreme poverty, defined as the minimal amount of income necessary to feed yourself and your family, has been plummeting. 200 years ago, about 90 percent of the world met the definition extreme poverty, that has fallen to less than 10 percent. 90 percent of the world is not extremely poor. Because of this this rise at the bottom, the poor countries have been getting richer faster than the rich countries have been getting richer. And as a result, inequality measured in the planet as a whole has decreased. To acknowledge facts of human progress, the fact that we've been living longer, fewer of us are poor, fewer children die, fewer mothers die in childbirth, isn't to say that everything everywhere is always getting better. That would be magic, not progress. And at the same time that we've enjoyed progress, there are massive unsolved challenges. There's the threat of harmful climate change from the emission of greenhouse gases. There's the ever-present threat of nuclear war. There's the rise of illiberal movements such as autocracy and fascism and nationalism. These are very much worth our concern. But given the progress that we've made against other threats in the past, they at least indicate that attempts to identify the problem and to solve them are not futile. We shouldn't give up. We shouldn't be fatalistic and assume that we're doomed no matter what we do, but rather identify the best solutions and energetically implement them.

570. 'Guns are making ghosts of our children'

Abstract artist Sean Scully takes aim at contemporary American gun culture.

Published on 1 February 2019

SEAN SCULLY: The gun itself is actually an imitation of a penis, because it fires bullets, it fires bullets that end life, whereas we are supposed to be firing bullets that make life.

CAPTION: America and guns: an artist's perspective.

SS: Art is so important because art crosses boundaries.

CAPTION: Sean Scully is one of the most famous abstract artists in the world. Scully's latest work is a departure for him [*holds up US flag, with hand gun where the stars should be*] It's a series of paintings about gun violence in the US.

SS: The thing that started me off on my series of paintings was a video that I saw of the death of a 12 year old boy in Cleveland – Tamir. I saw this video of a police car, pulls up and shoots his boy point blank. And this boy died. And I myself know what that's like to lose your child. It's about the worst thing that can happen to anybody.

CAPTION: Sean's first son was just 19 when he died in a car accident.

SS: I started to make a series of paintings I called Ghost. And the reason I called them Ghost is because this little boy is now a ghost. And the principles of America that we talk about in positive terms are also in grave danger of becoming a ghost. 'Now bullets are sprayed into American streets like rain. And its children fall, becoming ghosts. What can stop this affection for violence? Separating people from people, creating fear in place of fellowship. Making America, the land of the free, a ghost of what it once promised to be.' Here's a painting, typical of the group, where instead of the stars living where they're supposed to live, which symbolise hope and unity, they've been evicted. And they've been evicted by a gun. What I'm doing is virtually sacrilege because besides the gun. America has a fetishistic relationship with the flag. I mean, you see it everywhere, in people's gardens. I often wonder if they've forgotten where they are. You know, why do you need a great big flag in your front garden? You don't know you're in America.' I don't know any other country that does this to the point where it's fetishistic.

CAPTION: The 2nd amendment of the US Constitution talks of 'the right of the people to keep and bear arms.' There are different interpretations of what's meant by this. A 2018 poll showed 46% of Americans want stricter gun control and 47% do not.

SS: The American constitution. It doesn't really have anything to do anymore with whether it's working. It's, it's, it's a document that has virtual religious significance and weight, something that the Americans worship. And the Second Amendment, of course, has to be repealed for the sake of the future of America, for the sake of the children of America, who are in our hands. And they all belong to us. We are all responsible for them. This is part of the struggle. So, and people that believe in a better future have to keep fighting. As Ernest Hemingway said, 'The world is worth fighting for.' – and it is.

571. 'I became a model in my eighties'

Frances Dunscombe became a model in her 80s, and posed nude at 82. She reflects how she's grown in courage and confidence in later life.

Made by BBC Studios, 24 January 2019

FRANCES DUNSCOBME: My confidence has changed so much with age. I don't care what people think about me.

CAPTION: Frances Dunscombe became a high-end fashion model in her 80s.

FD: I was never a beauty. Never, never near to being a beauty. I was called 'sunshine' or 'smile'. A sense of humour is so, so essential in life. And I've always found it easy to laugh.

CAPTION: Now 86, she's modelled luxury brands, on magazine covers and catwalks. Frances started life in Streatham, South London in 1932.

FD: I was a little exhibitionist. I used to dance on my . . . on the kitchen table and it was a case of Shirley Temple (*sings 'The Good Ship Lollypop*).

CAPTION: At the outbreak of World War II, she was evacuated to Wales.

FD: Being evacuated must have affected my confidence. I can remember crying a lot initially, I wanted my mummy. There wasn't the chance to be an exhibitionist anymore.

CAPTION: As a teen, her body didn't conform to the ideal.

FD: I was very self-conscious of my body. I was so skinny, I so wanted to look like particularly one girl when I played netball, who had those muscles that I never did. But it was the fashion then to be muscly. The majority of people want to lose weight now. Can't be too skinny, it seems.

CAPTION: Frances left work as a typist at 26 when she had her daughter.

FD: I went back to work at the age for about 42. And it was quite hard because you do need a lot of confidence, which I can't say I . . . I had. But . . . and I did get, I did . . . experience some . . . some bullying, and I think it was from there, very gradually . . . that I . . . I learnt to have courage. Courage comes before confidence. With each sort of session of bullying, I found I could cope. Having found yourself able to cope on . . . first one occasion and then . . . and then another occasion, it's inevitable that, your confidence increases.

CAPTION: Frances was sked to pose nude when she was 82.

FD: I rang my daughter and I said, 'I can't do this. It's awful. I'm so . . . I'll be so embarrassed.' You know . . . and I suppose I must have . . . 'Yes, I'll do this. I'll do this, I'll have . . . I'll have the courage to do . . .' Courage. (*laughs*) And yes, that was the result. I mean, initially, I was like, 'Oh, my God, look at my skin. Ugh!' But no, I don't care.

CAPTION: Does youth = beauty?

FD: I don't think beauty is tied up with youth at all. There is a classic beauty, which I think we all recognise. And we'd all like . . . well, I don't know about you, but I could wish to have, of course. Everyone has a beauty of sorts. You know, we know

we all have something that we . . . we don't like about ourselves. But there are always those good points. There's always something you can offer. Always.

572. 'I went from prisoner to PhD'

Stephen Akpabio-Klementowski tells the extraordinary story of how he transformed his life through education.

Made by Mat Hale at Presence, 4 August 2020

Made in partnership with The Open University. OU consultant Dr Daniel McCulloch.

STEPHEN AKPABIO-KLEMENTOWSKI: Prisoner. PhD. Drug dealer. Father. Each of those words conjures up a different picture. None of them tell you exactly who someone is. My name is Stephen Akpabio-Klementowski. I'm a PhD candidate and I'm a lecturer in criminology at The Open University. I work with students in prisons. I love what I do. It feels deeply personal to me, because I used to be a prisoner too. All these labels have been mine. So growing up, life was tough. My father died in a car crash when I was a teenager. And that hit me really hard. I didn't see the world as a meritocracy. I had to grab what I could. But being sent to prison for dealing drugs was a shock. I was sentenced to 16 years. For the first three months inside, I didn't speak to anyone. Eventually, I started working in the kitchens. And as people got to know me, I was eventually assessed for my educational potential and encouraged after that assessment to enrol at the Open University. But the most difficult barrier was actually inside of me. I'd left school with no qualifications. Nothing. I was scared of my future and I decided to try. My day job working in the kitchens and on the servery meant that I had to study at night. So I had to study on the toilet, while my cellmate snored. So when I finished my first module, it gave me hope, and it gave me something I could focus on. There was no going back now. Other prisoners and guards kept asking me why I was wasting my time - studying wouldn't matter with my criminal record. I felt I was changing. I discovered I loved learning. And that was enough to keep me going. I served eight years of my 16-year sentence. By the time I left prison, I had completed my first degree. I had also completed two further degrees at Masters level. So, after I was released, I got a job working with students in prisons - not in spite of who I was, but because of it. It's hard to describe how I felt the first time I went back to prison as a lecturer, and the governor came down, and shook my hand. What I want people to know is that I'm not different or special – anybody can do this. Almost half of all prisoners have left school without achieving any formal qualification. I know how that feels. And it had a massive impact on my confidence. But that does not mean that you're not able to learn. Everyone has the potential and the power to change. I've seen it. And I've lived it. It was Winston Churchill who said: "There is treasure, if you can only find it, in the heart of every man." What do we want from our prisons? Is the primary goal of prison to punish, or to help find a different path? The policy isn't coherent, you see. Research shows that education does reduce reoffending. It allows former prisoners to make different choices. So when I sit with prisoners, I say to them: "I was in your shoes. But I am now released, on the outside. I've got a good job. I've got a good life. I'm with my

family." Had I met somebody like me when I was younger, things might have been very different. No-one believed in me. I didn't believe in myself either. It's taken two decades to get here. And this is only the beginning. The word "prisoner" is just a label. I found freedom within my own mind. You need to remember that you have the capacity to learn. You have the capacity to change your life. There is treasure within each and every one of us.

573. 'I'm a man, not a baby!'

In this performance piece, actor Cian Binchy reflects on what it's like to be adult with a learning disability in the UK.

This video was made by What Larks! 10 May 2018

CIAN BINCHY: Hello, my name is Cian Binchy, I have autism, which is a learning disability, which means I find it hard to concentrate on more than one thing at a time. So therefore, it's hard for me to live independently. I'm also a professional actor and a spoken word poet. I don't always dress up like a baby.

JESS *Cian's careworker (played by an actor)*: Hello. I'm here to give Cian a support lesson so he can live independently. What we've built here is a secure and healthy environment for Cian can to live at home, in which he doesn't need a full time member of staff looking after him.

CB: I'm 27 years of age, I should be leading an adult life. Instead I'm this overgrown kid.

CAPTION: Around 900,000 adults in the UK have a learning disability, of whom only 15% own or rent their own home.

J: Now I'm going to approach the service user and feed it. There we are. Come on, drink it up. So this teaches him the importance of keeping fed and watered. As the client progresses, he will learn how to prepare a meal. And what is an appropriate portion for a single diner?

CB: Why a single diner?

J: I don't suppose that's a serious question.

CB: You simply don't desire to get married and have kids and we won't stay out late, get drunk, take drugs and smoke. Having sex is creepy because you're fearful of children.

J: Never mind him. As I was saying, we offer a range of services to our clients who are most in need.

CB: Most in need? What about people with mild learning disabilities that may only need a little support to be fully independent?

J: What do you propose as an alternative?

CB: I propose that people with learning difficulties are treated with dignity and respect and not to be made to feel like children.

J: Time for beddy-byes.

CAPTION: In a survey, almost 1 in 3 young adults with a learning disability spent less than an hour outside their home on the previous Saturday.

CB: The system does not care about us, because the system is not scared of us. It needs us to be simple, it needs us to be young. It needs to build a ladder. And yes, we're at bottom rung. Grow up. Grow up and let others grow.

574. 'I'm a woman with a beautiful beard'

Harnaam Kaur has PCOS, a medical condition which causes her to grow excess hair. She's proud of her body and wants to empower others.

Published on 15 November 2018

Made in partnership with BBC Radio 4

HARNAAM KAUR: There is one motto that I live by. And that is: my body, my rules. I like to strip down gender stereotypes. I like to break down the norms of what beauty is in society. Hi, my name is Hard CoHarnaam Kaur and I am a motivational speaker. I have polycystic ovary syndrome and I've had it since I was eleven or twelve years old. And one in five people with ovaries actually have this condition. And not only does it affect our physical health, but it also affects our mental state, too, with an excess of oils in our skin. We are likely to get acne. We are likely to go through infertility. Also, because we have an excess of androgens in our bodies, we can also have an excess of bodily hair. I was being bullied about the bodily hair that I was growing, especially because everyone in your class, or every girl in your class, you don't look like them. As I went through puberty and my body changed I started sprouting hair in other places, too. I went through a very deep, dark depression and this led to me being very suicidal. And I used to self-harm, too, because I hated the body that I had. At the age of 16, I decided to grow out my facial hair. I actually call her Sundri, which means beauty or beautiful. And I decided to call her beautiful because, you know, I was being labelled with such horrendous names. So why can't I allow myself to name such a beautiful, luxurious beard in the most beautiful way ever? It was the hardest decision I had to make because going out in society, I was ostracised, I was discriminated against, and I was bullied even more horrendously. But I realised that if you wish to look this way, you have to be resilient. You have to be strong. I have realised that my story in itself can resonate within many people's lives because it's so multifaceted. And so many people have polycystic ovary syndrome or they go through bullying and body shaming in their own way. And I decided to become the spokesperson for these people that actually need help. And now to use my platform and my story to help inspire others to be exactly what they

want to be, regardless of what they look like. I like to go into schools and talk to children about what it means to be body confident, what it means to have self-esteem and self-worth and even to love ourselves. Because children forget and even adults forget that one act of kindness can be life-changing and that single joke can be actually cruel. Young people are so set in their ways and they're very taken in by the images that are portrayed on billboards, advertisements, social media accounts and TV too. And we forget that 99.9% of images have been Photoshopped or altered in some way, shape or form. And these images can be very damaging to children's self-worth and their own sense of self. And these images are very one dimensional and do not represent everybody. As a motivational speaker, I'm very fortunate enough to go to various events and different conferences where I might get parents approaching me about how their children love my images on social media or they want to now help in school with anti-bullying schemes. I also get the opposite side of that where, you know, people are very threatened by me or they don't understand me. So then they react in fear. So I do get a lot of death threats. I do get a lot of, you know, just people being very horrid. One of the best things about my job is being able to touch people's lives and actually showing people that regardless of who you are, where you've come from, you know, what religion you are, what culture you are. It's okay to be you. And regardless of how different you might look, you need to own it, celebrate it and worship yourselves. It's been a revolutionary process of being me. And I like to stick my finger up our society and actually tell people that I'm happy being me and this is who I am and I'm not going to change.

575. 'Losing a parent made me more resilient'

Losing a parent in childhood is incredibly tough. But can the experience help set someone up for success later in life?

Made by Silverfish Films, 5 November 2019

REBECCA GASCOIGNE, *Student*: So my mum died when I was five. She had breast cancer. I was so aware of everything, I just didn't have the words to describe it.

CAPTION: What is the impact of the loss of a parent on a child?

CAPTION: And why do so many people who lose a parent when young go on to become leaders?

CAPTION: MAHATMA GANDHI CAPTION: DILMA ROUSSEFF CAPTION: NELSON MANDELA CAPTION: INDIRA GANDHI CAPTION: JOHN MAJOR

RG: It makes you so tough because it's just like when you lose your primary caregiver when you're so young and having to overcome that is the hardest challenge.

DANIELA LACOVELLA, *Child Bereavement Counsellor*: When we're faced with death I think that it's like that veil kind of gets lifted up and we feel fragile.

REBECCA GASCOIGNE: You are faced with just sadness and numbness and extortionate pain and sometimes it feels like a living hell.

SIR ALBERT AYNSLEY-GREEN, *Professor Emeritus Of Child Health*: My dad had been admitted to hospital for what was thought to be a routine operation. My aunt appeared and she said, "Albert, your daddy has just died and you have to be the man of the house now and look after your mummy and your sister." My childhood ended.

DL: It's almost like a table, a leg of a table coming out and so there has to be a kind of readjustment.

AAG: As a 10-year-old I wanted to become a doctor to stop other boys' and girls' mummies and daddies dying. And that was the motivation, the purpose in my life which has persisted until now.

CAPTION: WINSTON CHURCHILL

JULIE STOKES, *Psychologist and Executive Coach*: He said to his private secretary, "Have I done enough?" And his private secretary, sort of, was taken aback saying, "Of course Sir, look at what you've done world peace and so on." And he said, "No, have I done enough to make my father proud?"

PROFESSOR JANE RIBBENS MCCARTHY, *FAMILY SOCIOLOGIST, THE OPEN UNIVERSITY*: It's called post-traumatic growth. There may be things that children and young people take from it. A greater sense of maturity, a different sense of purpose. There's something about empathy - somebody who's been through an experience like that may be a better listener. Whether that leads to leadership or not I don't know. One would like to think it might.

JS: I think the correlation between a significant early loss, like the death of a parent, and leadership, particularly successful leaders doing great things, is probably to do with passion and drive, wanting to make a difference and somehow at some level wanting to make that person proud.

CAPTION: But losing a parent can be destabilising...

AAG: There's a disproportionate number of children who end up in prison... unemployed, etc. So the downside can be simply staggering.

DL: Everybody is different, but what we know about grief generally is that it doesn't really go away. There has been different models of grief over the years that have kind of said that it starts off overwhelming and slowly gets smaller and smaller over time but actually it's not really what we've found to be true.

JS: What seems to make a lot more sense is this concept of growing around your grief and creating a bigger world so that you're not suffocated by the grief.

AAG: I have never, ever, been allowed to say goodbye to my dad. And that image of him on my shoulder - he never knew I'd passed 11-plus, he never knew I'd met a wonderful wife who has been with me for 54 years - that regret is also very, very powerful.

JS: People who have done quite a bit of work on it and work on themselves and they've found a way of making sense of what happened to them and they've got this growth mindset as it's called, they can be fantastic leaders - real inspirations. They have a kind of optimism, ironically.

RG: I'm such a happy, optimistic person now. My identity and the things that I like most about myself are directly from being bereaved. When you reach a point where you have accepted it and reframed it into a more positive narrative you have gained so much determination, so much resilience, compared to that, everything else is nothing, it's a walk in the park.

576. 'Mental toughness is the secret to success'

British gold medal-winning sprinter and former gymnast Asha Philip tells the story of her success - and her tough journey along the way.

Made by Mat Hale, 24 July 2018

ASHA PHILIP: Some people say you have to be broken to be fixed again. My name is Asha Philip and I run. Athletics for me was just a bit of fun. It was something different and it was something new. Trampolining was my main sport and I loved it, and then I fell into double mini trampolining and then I became a world junior champion at it. I was at the world championships in Quebec. I bounced up, but when I came down I didn't land right. I could just hear the crunch. I could just see my leg pointing in a different direction. Then I just remember grabbing my leg, and then just screaming and screaming. There was nothing holding my legs together. In a heartbeat, everything was just gone. Everything I worked hard for, had vanished. Everyone told me I was a write-off. So how does a child, of age of seventeen, get back up. It felt like I had lost something. I had lost a part of me. I wanted to give up. And when you're at that point of just giving up, that's when you're meant to really turn your life around, and change. It was my Mum who believed in me, and for that I believed in her. I really do question how I made it out. It was little by little. Coming in to do the rehab. Step by step you started to see improvement. The crutches went away, then I could walk, I was able to jog and then run. But then I had loads of injuries along the way. The only thing standing between success and failure, is mental toughness. It's about being resilient. Being an athlete isn't like a normal job. The gym. Strengthening. The mind work. The fitness. For one shot. For eleven seconds. There are a lot of knock backs. A lot. It's how you handle it. But it's also the most amazing release. I let out all my stresses, all my bad energy. Every time I show up to train, I have the opportunity to learn more about myself, and how to run correctly. Some people train brilliantly, but in a race they don't win. You need focus. You're in an arena of thousands of people, and you're on the start line with seven other women then you have a man holding a gun, and you have to learn to channel all this, and not panic. But there's so much going on. You've got your family in the crowd, everyone screaming, wanting you to do well, and obviously they're screaming for the girl alongside you. How do you put that all aside, and say, OK. I have to focus

on myself, focus on my lane, focus on me. There are sacrifices. There are lots of ways to have fun. Go after your goals, and balance it out the right way. In the end, it's about knowing what's important to you, and what makes you thrive. That's not just athletics. That's life.

577. 'My life has been like a movie'

Dream big, speak your own truth, and write down 10 ideas every day - some great tips on success from writer and entrepreneur Martyn Sibley.

Made by BBC Studios, 29 June 2018

MARTYN SIBLEY: I think it is harder to succeed when you are disabled. I think there's a lot of the odds are stacked against you. It's harder to get into . . . into school an open school. It's harder to go to university. It's harder to get a job. So, really, success is far, further away when you're starting out. However, when you have a disability, you learn certain things like resilience and communication. Just because it's how you get by in day to day life. And if you're able to harness those in the right direction, in the right way, then I think that enables you to be successful.

CAPTION: Martyn is a blogger, author and entrepreneur. He was born with spinal muscular atrophy. In 2017, one of his businesses was sold to Airbnb. He has travelled to 20 countries.

MS: My first tip is dream big. I could remember watching Michael Palin on the TV and thinking, 'Wow, I'd love to just travel the world like him.' When I was at university, I decided I would go for a trip on the other side of the world. I can remember being at Sydney bridge and looking over the harbour and having goosebumps on my arms, I was there, I'd done it and it was such an amazing feeling of achievement. I've not been able to stop travelling ever since. I'm definitely not suggesting that everyone should do the kind of adventures I have done. But I think it's very important for people to push their own comfort zone, because it just gives you so much confidence and a feeling that you can achieve anything and you can put that back into your day to day life as well. So my next tip is write 10 ideas a day. Creativity is like a muscle and you have to train it. Every morning, I write my ten ideas on my phone. I write down the numbers one to ten. I pick the topic that, could be about business, or it could be about how to improve my health and well-being, or it could just be about how to have some fun tomorrow. The point of the exercise is just to come up with ideas and there is no pressure or expectations actually use any of them. The first five normally come really quickly. But as you start to get near the end, it gets really hard. And that's a bit like going to the gym, you know that you're stretching the muscle and improving it. Say it straight is my next tip. Good communication is key to all relationships in life, in personal and professional. So with my disability, sometimes it's difficult doing handshakes and there's been some quite awkward moments where people think I'm leaving them hanging and it's just a bit uncomfortable. But I've learnt to say quite directly, 'Please, can you shake my left hand?' Because that just enables me not to have to take my other hand off the

joystick. So I would say overall, you don't ever have to be rude or nasty to people, but you should always speak your truth. My final step is to make jokes. Having a good sense of humour is a powerful tool and it breaks down lots of barriers, particularly in my life. There are definitely times where people see the wheelchair before they see me and I could get angry by that, or I could try to be very educating and serious. So I find that humour is a good way of putting them at ease and opening up a more normal and relaxed dialogue. When I look back on the achievements, it's quite surreal it sometimes has felt the last couple of years that my life's been like a movie. So I think there's a bit of . . . it's still sinking in to some degree as well.

578. 'Our love is unique' - living a non-monogamous life

What happens in relationships where each partner has consent to see other people? One couple share their story.

Published on 12 February 2020

Made by BBC Reel

ANITA CASSIDY: Remember that time you were seeing someone else on Valentine's Day? Just went out and shagged some random girl.

ANDREA SOLZA: I was experimenting.

AC . . . on Valentine's Day and part of me's a bit like, 'This shouldn't matter. And part of me is also a bit like I'm kind of annoyed about that.

AC: Oh, we did discuss it, by the way.

AS: So we talked about it.

CAPTION: Loving differently – consensual non-monogamy

DR LOR BETH BISBEY *Psychologist and Sex Coach*: Sometimes people say, 'Well, how can you . . . how can you love more than one person?' And I say, 'How many children do you have?' Right. 'How many dogs do you have? Because it's the same thing. Right? Do you love them any less?' The limits aren't on love. The limits are on time and energy. Those are the two things that provide the limitation to how many relationships you can have and successfully manage.

AC: So I was very much married and very happy. And you were in a relationship as well?

AS: Yes, I was also in a long term relationship. I'd been with her for about a year by then and we . . . well I came out . . .

AC: Yeah.

AS: . . . if we can say that, as non-monogamous about six months earlier. And we were trying to navigate that change to see if it was possible to carry on as a non-monogamous couple. It did not work for her. But, well it gave me you.

AC: Yeah.

LBB: The research shows that we report better relationship satisfaction overall than people who are monogamous. And that might have something to do with being able to ask for what you want and be more likely to get it met.

AC: Within a year or so of us meeting, you know, things have become more serious in terms of our commitment to each other. And also my ex-husband had realised that it really wasn't for him long term. We did separate after about two years of being open. Mark and I had been married for seven, eight years and I've been becoming increasingly frustrated with kind of the mismatch in our libidos and the mismatch of certain things that we needed.

LBB: As humans, one of the things that really turns us on intellectually, emotionally and physically is newness and mystery and some spontaneity. Right? And so when you know somebody like the back of your hand that . . . it's hard to bring that in. But if you are in consensually in non-monogamous relationships, when you get that new relationship energy over here, you can bring that back. So you come back to the house with all this, you know, up and down and brightness and excitement. And you can bring that into your current relationship.

AC: His needs or my needs or vice versa, can get met elsewhere. If someone's having a hard time or they're just going through an ebb and a flow of their libido, then actually it doesn't matter. You know, it's not . . . it's not putting unnecessary pressure on the other partner, because the other person is going through a tough time.

AS: There's a very entrenched romantic idea . . .

AC: Yeah.

AS: . . . that somebody giving up everything . . .

AC: Yes.

AS: . . . in order to be with that person and suffer with them, is something that, you know, it's very . . .

AC: Yeah.

AS: . . . it's a very powerful narrative.

AC: Yeah.

AS: And people really buy into.

AC: Yeah.

AS: I'm not sure that it . . .

AC: Renounce all others. That kind of thing, yeah.

AS: I'm not sure that the reality can match that.

AC: (*speaking over*) I'm not sure, yeah, I'm not sure the reality can match that. But also I'm not sure how healthy that is emotionally or physically. We're used to the idea that you might have different friends for different things, but the idea that you could have those different friends and be sleeping with them or very physically intimate with them in a way that maybe isn't sexual, but which involves lots of touch, people still find that quite a difficult things to get their head around.

LBB: All forms of non-monogamy have rules and the rules are mapped out within each individual relationship. And so any time you break your relationship rules, that's cheating.

AC: People think, oh, we can do this, not feel jealous or do this and it'll never . . . it'll never, you know, mess up or be difficult. It's like, well, no, no, you're going to mess up. It's going to be difficult. You're going to feel uncomfortable. You are going probably feel jealous or angry or upset at some point in time. And it's the degree to which you can sit with that and not, you know, not kind of just call it quits because it's difficult, really. One of the things I've found is that people tend to ask a lot about the kids and, like, the impact it's had on the children. And I think for me, the biggest change with the children has been that they've seen me a lot happier. Actually, I'm a lot happier to be around the children. I'm a lot more relaxed. I'm a lot more calm. Before, I was quite tense and quite upset because there were things going on that I didn't really understand. And, in an age appropriate way, I've always been open with the children about what's been going on. I remember someone . . . we were a party once, and we we're talking about openness and they we're like, 'Oh, but you look so in love.' It's like, 'Well, we are.'

AS: (*laughter in voice*) What did you expect?

AC: It doesn't . . . it doesn't . . . it doesn't mean we don't . . . it doesn't mean that there's not an intensity of feeling. And I think, you know, it's just about kind of shifting the stories we've been told and realising that actually you can kind of create your own. You know, our love story is unique now. And I think it will continue to be unique over, you know, over the rest of time, really. It's kind of like it will always be . . . yeah.

AS: Yes.

579. 'People are nicer than you think'

Rutger Bregman, author of Utopia for Realists, argues people are generally nicer than we think.

Published on 7 March 2017

RUTER BREGMAN: It starting to assume the good in each other. I've got two minutes to remind you of the most fundamental truth of life. Most people are pretty nice. If you start paying attention, you see it everywhere. For every corrupt politician, there are a thousand idealists. For every act of terrorism, there are a billion acts of kindness. Recently, a British study found that the vast majority of the population identify more closely with values such as helpfulness and honesty over money and power. But at the same time, the researchers found that most people also hold other people to be more selfish than they truly are. Why? The answer is simple. Because we're constantly being inundated with bad news about each other 24/7, the news engulfs us with negative stories, with corruption, hate, violence, politicians from Washington to Westminster respond by tripping over each other to draft laws, predicated on the assumption that people are inherently bad. The result is a bureaucratic surveillance state that brings out the worst in all of us. If you continually treat people like potential cheats or scroungers, criminals or terrorists, you'll soon have yourself believing that's the norm. What you assume is what you get. Now, imagine if we were to treat people the way most of us really are. Pretty nice, creative and more than willing to contribute to the common good. It would spark a revolution on our workfloors, in our Social Security. And even in our democracies. Novel policies would start to look like commonsense, policies for autonomous teams freed from top down management, for an unconditional basic income to eradicate poverty and for participatory democracy that empowers its citizens. Now, more than ever, at a time of systemic suspicion, is an act of rebellion to assume the good in each other.

580. 'Prayer is the greatest freedom of all'

Father Giles, a Benedictine monk for 47 years, reflects on what freedom means to him.

Made by Tiger Lily Productions, 24 May 2019

FATHER GILES, BENEDICTINE MONK: I think that freedom everywhere, anywhere, is love. Letting yourself be loved, which is always risky. And loving, which is maybe even riskier. I've been an monk here at Pluscarden for 47 years. Prayer I suppose is the greatest freedom of all, because it's a relationship, it's a gift of God, it's very mysterious I think. It's a gift and you just accept what comes. Silence is an enabling thing. It frees you for listening, for availability, for avoiding imposing yourself. How often in speech are we trying to do someone down or demonstrate our superiority or all of that. So, silence frees you from those things. Most monks do all sorts of things. So you take your turn washing up, peeling the spuds, cooking the lunch, driving the car. Many little jobs. Just like a family. Habere est Haberi, which means, "What you possess, possesses you." The less you've got, the more freedom you have. And that's a freedom which is quite hard to acquire in some ways because letting go of things is detachment. It's difficult but it's essential for freedom because as our lives go on, you have to let go of things. Maybe your memory, maybe your sight, maybe your hearing, maybe mobility. You've got to let them go. Because one

day, you have to let go of your life the ultimate impoverishment. But that's the only way to get to the freedom of eternal life. It will be tough at times, everybody's life is tough at times. But as they say, the retirement benefits are out of this world.

581. Stop telling me I'm speeding in my wheelchair!'

The BBC's Ellis Palmer, activist Tanni Grey-Thompson and YouTuber Lucy Edwards on how to talk about disability without being awkward.

Published on 24 January 2019

Made in collaboration with BBC News

ELLIS PALMER *BBC Journalist*: Quite a few times when I've been standing at a bus stop, people have given me money mistakenly thinking that I was begging rather than just riding on a bus.

TANNI, BARONESS GREY-THOMPSON *Disability Rights Campaigner*: I was eight months pregnant. I was in the street and somebody stopped me and pointed out I was pregnant. They then said to me, 'How did you get pregnant?' So I did end up saying, 'I had sex with my husband. How do you think I got pregnant?'

LUCY EDWARDS *Freeland Journalist and YouTuber*: There are so many times when members of the public come up to me and you, don't they Olg (*her guide dog*)? You look at them don't, you? I'm what is she doing? What is she looking at? Is it something that I have to be alert and aware of? I feel so bad sometimes saying, 'Please don't do that.' But it is really unhelpful.

EP: For many people, disability can seem to be a complex thing to talk about, perhaps very fear saying the wrong thing or seeming patronising. Two thirds of us are uncomfortable when talking to disabled people, according to a survey done by the disability charity Scope. A disability can be a broad range of physical conditions, chronic health problems and mental health issues. Some disabilities are clearly visible, while others can't be seen.

CAPTION: Can you say: do you suffer from your disability?

EP: No! I don't *suffer* from my disability. Rather, I live with or have cerebral palsy. Saying a disabled person suffers from their disability, portrays quite a negative image of a disabled person rather than someone who just needs adjustment, or the right support to be able to thrive.

TGT: There's still a huge amount of low level discrimination that disabled people face. Oh, they think it's amazing and wonderful and aren't you incredible because you're out and about – not something that just should be an accepted part of society. And we're not all inspirational, just because we've got out of bed in the morning. It is actually one of the most patronising things for a disabled person to experience is for someone non-disabled to come and say, 'You're so inspirational', because if you say 'Why?', they often don't have an answer.

CAPTION: Is it better to say ‘disabled person’ or ‘person with a disability’?

TGT: I’m a disabled person, I’m not a person with a disability. ‘A person with a disability’ is often used by non-disabled people, because they think it sounds nicer. But actually for me, it’s society that makes my life different. It’s steps, it’s cobbles, it’s lifts that don’t work. My disability is not a separate part of me that I can choose to pick up or put down.

CAPTION: Is it okay to pet a guide dog?

LE: I lost my sight six years ago. One time I was approaching a kerb with Olga. She was on the pavement and I wasn’t. A gentleman came over and gave her a stroke. It made her stop in her tracks a bit, and I was still in the road. Please don’t distract her because she’s doing her job. She’s my eyes.

CAPTION: So, how do I talk to a wheelchair user about their chair.

EP: I’m not wheelchair-bound, confined to, or in a wheelchair. Rather, I just use my wheelchair to get around. So I’m a wheelchair user or someone using a wheelchair. Jokes about my speeding or whether I’ve got a licence are pretty weird when you consider that my wheels are essentially my legs. It’s not about avoiding topics or trying to say the right thing, rather just treating people as you yourself would wish to be treated. Like many things in modern society, it’s about asking a person’s consent and how they want things to go down, rather than just assuming.

TGT: Stop and think how you talk to anyone else and use that when you talk to a disabled person. Just listen to what they say.

LE: What would be so great is if people came up to me and *asked* me if they could stroke Olga. I think it’s really important to have that dialogue between me and the person interacting with me, because the audible world is so important to a blind person.

EP: We don’t need to be condescended to or treated differently. We need to be respected and supported.

582. ‘Surveillance capitalism has led us into a dystopia’

In this opinion piece, activist Aral Balkan says we’re living in a world where data companies have become factory farms for human beings.

Published on 16 October 2018

Made in association with Nesta

ARAL BALKAN, *Activist*: Companies like Google and Facebook are factory farms for human beings. That’s how they make their money, they make their money by tracking everything that you do, by profiling you, and then monetising that by manipulating your behaviour with this intimate insight. We’re not sleepwalking into

some sort of dystopia. We're there. My name's Aral Balkan and I'm a cyborg rights activist.

CAPTION: SURVEILLANCE CAPITALISM HAS LED US INTO A DYSTOPIA.

AB: When you go onto Facebook Instant Messenger and you're messaging your friend you might think that you're in a room together and only you two can hear each other. That's not the case. Now for you, it might be you feel that you have nothing to hide, you don't care if Google has your data. You might start to care the next time you go to renew your insurance and your premium's double. And then when you ask them, "Why have my premiums doubled?" they say, "Well, your smart fridge told us what you're eating." Now that might be when you start to care, if you have a lot of privilege. For other people it's a life or death issue. People who do care might be, for example, people who are gay but live in a country in which it is illegal to be gay, and Facebook knows that they're gay based on their likes. Now this is a problem for them. Shoshana Zuboff from Harvard business school calls the system that we live under 'surveillance capitalism'. Surveillance capitalism is the feedback loop between surveillance and capitalism. Capitalism is about the accumulation of wealth. Now, what happens when that accumulated wealth and the people who have that wealth and power then invest that wealth in surveillance devices which allow them to gather information about all of us which in turn allows them to manipulate our behaviour which in turn makes them more money and reinforces this feedback loop. Well that's Surveillance Capitalism. We have to regulate the abuses of the surveillance capitalists, and we have to replace them with ethical alternatives. Why don't we start thinking about funding those technologies from the commons for the common good? Unless we change how technology is funded today, we can't fix this problem, because this is not a technology problem. If we want a different society, if we want different ideologies amplified, then we need to fund them differently, we need to build them differently and then, we have a chance of a progressive future.

583. 'Talking about suicide makes it smaller'

Suicide isn't easy to talk about. But it's vital we do. Here are the stories of three people who came close to suicide but decided to live.

Published on 8 September 2020

Made in association with Living Words

A LIVING WORDS PRODUCTION IN PARTNERSHIP WITH NHS LOCAL AUTHORITIES, KENT AND MEDWAY.

TJ: As soon as you see or hear that word, suicide, Jesus, people panic around you. It's nice to talk about it, just knowing that it's not going to hurt anyone. Talking about it, it does make it smaller.

THESE ARE THE STORIES OF THREE PEOPLE WHO HAVE COME CLOSE TO SUICIDE… BUT DECIDED THEY WANTED TO LIVE.

SALLY-ANN: I struggled to relate to the tragedy of my life. I didn't have any feelings apart from humour. Anything not to have that empty void. Did I want to kill myself? I just wanted everything to stop. What stopped me was my sense of humour. This is ridiculous. And the dog was something to look after.

EACH YEAR IN THE UK AROUND 6,000 PEOPLE DIE BY SUICIDE. THE WHO ESTIMATES THE GLOBAL FIGURE TO BE ALMOST 800,000... EVERY YEAR.

TJ: When I was a child, I used to count in between the flashes. It was such a comfort to me, believing that someone was signalling to me. Like so many people, childhood wasn't easy. I'd make myself get angry, so I wouldn't cry. I would hit myself. Things like that. I didn't know it was called self-harm. To me, it's just what I had to do to carry on.

SAM: At 20, I overdosed. I was found by my family. They were, and are, fantastic. As soon as I done it, I was fighting. I wanted to live. I did everything I could to stay awake. It came from my heart, the desire to survive. I felt it in my whole body.

TJ: For the first time in my whole life, I did actually reach out. I picked up that phone. I said to her, "I want to die. I don't want to do what I'm doing. Please don't let me die." She stayed with me. We made a deal. We had to ring each other throughout the night. She kept me safe through to that morning. I can't even remember her name. Do you actually want to die? Or is it you just want to get away from the pain?

THREE-QUARTERS OF SUICIDES IN THE UK ARE AMONG MEN. MANY SUFFER WITH THEIR MENTAL HEALTH - AND FEEL THE STIGMA OF THAT HEAVILY.

SAM: There are many battles to fight in this war that is mental health. Protect yourself. And push ahead. Remember, you are not alone. Deep breathing helps me when I feel triggered or get flashbacks. It helps me to tell myself, "This is my past. And it stays there." I don't want to give up. If I can do it, you can.

SALLY-ANN: There were massive holes in me. Massive spaces. Now, I am beyond recognition. I'm free. How did I do it? Hard work. Absolutely one foot in front of the other. Every day I put my mental health first - top of the list.

SAM: No matter how hard things are, you can succeed. I now have a degree in history and politics. "I'm alive!"

SALLY-ANN: I feel quite proud of myself. One foot in front of the other. Do the right things. Allow yourself to love yourself. One foot in front of the other. "And now as a warrior I stand strong… "

IN EVERY TOWN, VILLAGE AND CITY, WE ARE HERE. LIVING WARRIORS. WE ALL STRUGGLE SOMETIMES… HELP AND SUPPORT IS AVAILABLE: BBC.CO.UK/ACTIONLINE 0800 066 066 LINES ARE OPEN 24 HOURS A DAY, ALL CALLS ARE FREE

584. 'The problem with the strong black woman stereotype'

Why are black British women more likely to experience anxiety, depression, panic, and obsessive compulsive disorders than white women?

Made by Team SASS Productions, 29 October 2019

AMANDA WRIGHT *Writer and Actor*: Fierce, sassy, va va voom, fingersnapping, neck-winding, bootilicious realness, jam packed with attitude. Strong, independent black woman. That's me, right? (*music stops*) Am I doing it right? I'm asking because I often feel like I must be doing it wrong. I must be. Because it seems so easy for those stoical, wisecracking black women I see on the TV screen. This is what's expected of me. What happens if you don't fit the mould? What happens if you're made to feel that by just being yourself, you're doing it wrong? What effect can this have on your mental well-being? Depression was something that happened to other people, not me. Ain't nobody got time for that. Too busy being strong and independent, working twice as hard as everyone else and trying to make good use of the opportunities that now presented themselves to me because of the grit and determination of the strong black women who had paved the way before me. So I was shocked when depression came for me in 2008. What was most shocking was the realisation that it had been there for a very long time, waiting in the shadows. I felt like I'd failed. Until I did some research and discovered that this is more common than I've been led to believe. Stats from Gov.uk show that four times as many black people were sectioned under the Mental Health Act in 2017-18 than white people, *four times* as many. According to the NHS, black British women are more prone than white women to experience common mental disorders such as anxiety, depression, panic and obsessive compulsive disorders. And a recent University of Cambridge study revealed that black women aged between 16 and 34 are more prone to self-harm than white women. Something isn't adding up here. The data's saying one thing, but social media memes and the entertainment industry in general are still pushing the strong independent stereotype. After I was diagnosed with depression, I suddenly became aware that I didn't see the world in the same way that everyone else did, that the way that I constantly criticised myself, pushed myself to excel and was cautious about celebrating achievements wasn't the norm. Actually, that's not quite right. It wasn't the norm for my white friends, but it was normal for the women in my family. They struggled to be what was expected of them. But instead of rejecting the stereotype, they perpetuated it – a survival mechanism, which allowed them to integrate and build communities in a hostile and unwelcoming environment. But at what cost? I would see glimpses of their pain and anger in private. But they would quickly hide it away. From an early age, I was taught that you should never let anyone see your pain because they would use it against you. There was a sense that life was a battle. To win, you had to work twice as hard as everyone else. For half as much reward and keep smiling and laughing, but not too much. If you are too happy, then someone would take it away from you. That's a lot, right? Where does that mindset come from and how does a black woman navigate her way through? Luckily, there are mental health organisations out there that are specifically designed to support the black British community. I spoke to Jacqui Dyer and Nathalie Creary from

Black Thrive to discuss their work. So where do you think this stereotype of strong, independent black woman comes from?

JACQUI DYER *Co-founder and Chair, Black Thrive*: I think it comes all the way back from slavery, to be quite frank. These are some of the stories that went round in order to help to enslave our black population.

NATHALIE CREARY *Programme Delivery Director, Black Thrive:* The black woman is expected to carry the weight of the world on their shoulder and to provide the support and the care for others, when actually black women also need to be cared for, they need to be nurtured.

AW: Where else can black British women receive help and support?

JD: Take some steps and communicate what is going on inside you that you actually don't need to be bearing on your own.

NC: To be a strong black woman is also to be a vulnerable black woman.

JD: I'd say find somebody who you can trust, who you can talk with.

JD: Going to see your GP, reaching out to your social networks. We need to kind of be able to let our guard down and to say, 'Actually, I'm feeling vulnerable and, you know, I need help.'

AW: The strong, independent black woman trope was a much needed survival mechanism. But for second and third generation black women, it's a mechanism that has served its purpose and has the potential to become a self-destructive identity that can actually do more harm than good. I'm so grateful for the sacrifices made by my elders and the hardships they had to endure. Their strength will always lie within me, which means I can allow myself to be more than just strong. Out of respect for them, I'm learning to show the sides of myself that they had to keep hidden away. It's okay not to be okay. It takes courage to speak honestly about how you're feeling. I can be strong and accept my weaknesses. Independent and vulnerable. Move away from the stereotype and embrace my true self.

585. 'There's a danger of losing our tenure on this planet'

James Lovelock is one of the most influential environmental thinkers of our time. Now aged 99, he reflects on the climate change challenge.

Made by BBC Studios, 24 January 2019

JAMES LOVELOCK: There is a real danger of losing our tenure on this planet altogether.

CAPTION: James Lovelock is a scientist. And one of the most important environmental thinkers of the 20th century. At almost 100 he's dedicated his life to ideas about our planet.

JL: We've got to care about this matter of global warming, because if we don't do anything about it, there won't be anybody here.

TITLE: Older and wiser.

JL: During my lifetime, the big change that's happened to the world has been the development of machines and devices and inventions. It's about time we went back to taking an interest in the environment.

CAPTION: He then formulated his then controversial Gaia theory, while at NASA in the 1960s.

JL: The Earth has an impossible atmosphere. For it to have happen by accident, the odds against it run into countless billions to one against. So something's going on.

CAPTION: According to the Gaia theory, the earth is a self-regulating system.

JL: I tend to think of the earth as alive in a sense, like an animal or plant or any other living thing.

CAPTION: Today his ideas are widely accepted.

JL: What happens to the planet when more carbon dioxide is put in the air. The Earth will get hotter. It will heat up to a point where no life on it of our kind will be possible.

CAPTION: What do we do about it?

JL: Take an interest in the natural world. Plants and animals and things grow naturally. Not worry too much at all about schooling. The three R's, yes, they're very important, but all the other stuff I think could be ditched in favour of a better understanding of the world. There are answers of various kinds, but I think it needs the right sort of politics to change people's thinking about these things. And I'd like to see these youngsters using their energies and their talent in this way. Rather than looking for some techie answer, because I don't think the answer is going to come that way. I think we have all the things needed to stop global warming. We're just not using them.

586. 'We need to stop the schizophrenia stigma'

Esme Weijun Wang has schizoaffective disorder and says to break the taboo around this mental illness more people need to tell their stories.

Animated by Easy Animal studio, 11 October 2019

ESME WEIJUN WANG People have a general idea of insanity or craziness or madness that they associate with the idea of schizophrenia. It's kind of an idea of wildness. Not so much what psychosis might actually be, but more of an idea of violence or

just being crazy. My name is as my Esme Weijun Wang. I attended Yale University and Stanford University, and I've been diagnosed with schizoaffective disorder, bipolar type, since 2013. Before I was diagnosed with schizoaffective disorder, I had already been in the mental health care system for quite a number of years. I'd been diagnosed with depression and anxiety since I was about 15 or 16. And then I was diagnosed with bipolar disorder in my late teens when I was finally diagnosed with schizoaffective disorder, I felt a great sense of relief. It's quite common for people to go through a number of diagnoses before they reach their final diagnosis. And I think that part of the reason this happens is that schizoaffective disorder in particular, but also the schizophrenias in general, is a rather stigmatised diagnosis. And so often doctors will resist that diagnosis for as long as possible. So they start with the kind of, quote unquote, 'easier diagnoses'. They might start with depression and then move on to bipolar disorder, as they did in my case. People tend to think of schizophrenia in a way that they don't think about other mental health diagnoses. When people think about depression, they often think about the person that has depression as still themselves. When they think about schizophrenia, they tend to think about this person who is who they were, but then kind of scooped out and removed and replaced by this awful disease and the person who used to be there and was a good and normal person is gone. They're possessed as though by a demon, as though in the movie *The Exorcist*, except instead of a demon, they're replaced by schizophrenia. Because people think that there is a kind of possession involved in schizophrenia, or the schizophrenias, they also believe that the person has no autonomy over themselves and no right to make decisions over their own care. Therefore, forcible treatment or forced hospitalisation becomes necessary. I think that in order for schizophrenia and the schizophrenias to become less taboo in culture, there need to be more stories. I think that people need to come out about their diagnoses, there need to be more narratives about what the diagnosis means. But there also needs to be better treatment. And if there is better treatment, if there are more stories, if there are more narratives, if people can know that there are people all around them who have this diagnosis, I think stigma will decrease. I use my accomplishments. I use the way I dress. I use my relationships all as ways to prove like I'm still worthy member of society, even though I have this severe form of mental illness. This also means that I'm part of the problem when it comes to looking at people who are perhaps less, quote unquote, 'high functioning'. The person on the bus who's screaming, the houseless person who has lost their job because there is something very wrong with them in terms of their mental health. And I know that that is me dealing with the stigma as well, the self-stigma that is . . . their diagnosis as well as mine. I would like people to understand that it's possible for you to know somebody who has schizophrenia or some form of schizophrenias without you knowing. People with that diagnosis like me are everywhere and we are living lives that are full and wonderful. And we also like blueberry pie.

587. 'What Stan Lee's comics taught me about black history'

Grime artist Joe Grind on why reading X-Men comics helped develop his understanding of black history and politics.

Published on 27 June 2018

JOE GRIND: Hi, my name's Joe Grind, I'm from SN1, a recording artist from Peckham. So, today I'm going to be talking about the X-Men and why that's important to me. So the X-Men are a mutant team who came together to make a difference within the mutant world. They're led by one of the greatest X-Men, called Professor X. He brought them together. He trained them. Because they're mutants, the human world did not understand and they had powers, they had abilities. They're not . . . they're not dangerous, because they're different, because people don't understand them. But a lot of people fear them because they don't understand them. As a man who grew up in . . . a black man who grew up in Peckham, South London, an area that was proclaimed to be dangerous, wherever I went within the country, I was assumed to be dangerous – a threat. So, those things related to me. As the X-Men, they took the hard route. They took a lot of people that were throwing rubbish at them and speaking horribly about them on the news, even though a lot of stuff they were . . . everything they was doing was for a positive cause. And they took that route. They took that route. And then later on, the President of the United States thanked them for a lot of things. It made me believe that if the X-Men, who were such a great force, who people respected, can go through all this, that pain and . . . and a lot of people giving them a lot of negative feedback on whatever they're doing, good and everything, if they can go through these things then I can go through these things. As a black man, I can take all this pain and still do good and still do positive stuff. And then later on be accepted for the great things that I do.

CAPTION: Comic books have always represented important issues in society, with many superheroes modelled on real-life figures. Creator Stan Lee said that the characters of the X-Men reflected the struggles of the American Civil Rights Movement of the 1960s. "… What if I made other people fear and suspect and actually hate them because they were different? I loved that idea. It not only made them different, but it was a good metaphor for what was happening with the Civil Rights Movement in the country at that time." (Stan Lee) The characters of Professor X and Magneto are often compared to Martin Luther King and Malcolm X – Professor X being Martin Luther King, Magneto being Malcolm X. Dr Martin Luther King believed in equality of all races and fought to end segregation. Malcolm X was more radical and encouraged black people to fight racism 'By any means necessary.'

J: Professor X – Martin Luther King, he believed that mutants and humans could live one, like they could be equal, they could be fine, they can live in a world together, where Magneto, where all the pain a lot of mutants had been . . . had gone through, because of the humans who didn't understand them, he had enough. They were two people who stood for the same results, except for they believed that to make this happen, it had to happen in two different ways. And as a man who grew up in these kind of things, like I thought, 'Wow, this is . . . this is amazing, like they're putting this in . . . in comic books. They're put my history . . . ' which we wasn't taught in school, when you're young, you don't spend so much time with your parents because your parents are at work. And so you wasn't taught these things. So

I'm reading and I'm learning them, understanding more black history through a comic book. And that meant a lot to me.

588. 'What being a hostage taught me about happiness'

Terry Waite was held hostage for almost five years. He reflects on what the experience taught him about anger and finding your inner self.

Made by BBC Studios, 24 January 2019

TERRY WAITE: I had a limited amount of suffering. Yeah, okay, I was tortured and so on, many people suffered far worse than me.

CAPTION: Terry Waite spent five years as a hostage. Much of that time in solitary confinement.

JULIA SOMERVILLE: The Archbishop of Canterbury's special envoy, Terry Waite hasn't been seen for more than 24 hours.

JEREMY PAXMAN: Fears are growing that he may be held against his will in West Beirut . . .

FRANK BOUGH: Where he's been trying to negotiate the release of more hostages.

TW: I had nothing. I never saw the sun or the sky or the felt the wind on my face. That's an extreme situation. But from extreme situations, you can take something that is applicable to normal life. Initially, I was kept on underground in a cell and then later on in bombed out buildings. I slept on the floor and had nothing. And I just had to say, 'How am I going to utilise this time? What am I going to do?' I wrote a short poem about anger, because I was angry at times, I had to learn how to master anger. And the short poem reads: 'Anger is like a consuming fire seeking all whom it may devour. Do not extinguish the flames totally, but calm yourself by the gentle glow of the embers.' What I was really saying is that if I allow my understandable anger to get the better of me, it will destroy me. And it's a natural human force. We all have it. You can't obliterate it totally. But take that force and utilise it constructively. I used to say to myself, 'Although we are in restricted and limiting circumstances and you've no idea whether you're going to be out tomorrow, whether you're going to be out in five years, whether you're going to die in this place. Remember one thing: this is your life now.' Not tomorrow. Not yesterday. Now. And in this moment, don't be defeated. There's no reason to feel sorry for yourself.

CAPTION: Terry was released on 18 November 1991.

TW (*Archive*): After 1,763 days in chains, it's an overwhelming experience to come back and receive your greetings.

TW: I thought those years in captivity were totally wasted at the time, but looking back, they weren't. Because I was forced there to use my imagination, I was forced, I wrote my first book in my head. The brain is like a muscle. You use it or you lose it. Today, it's a great regret to me that the arts, music, literature, poetry is seen as not being really necessary, because at times of life, you need to have in your mind something that you can draw on, something that you could refer to, something that will fill out your life. So many people are suffering from mental illness, from strain, from stress, from having so much pressure faced off or forced on them. And somehow we need today more than ever this ability to be at peace with ourselves within. I'm not sure whether ever one really reaches a state of complete happiness. It's an elusive term, really. I suppose all I can strive for is to have a greater degree of inner contentment, which is, in fact part of the road towards happiness.

589. 'What quantum physics taught me about queer identity'

Writer and performer Amrou Al-Kadhi (AKA Glamrou) on the inspiration to be found in a 'beautiful, strange and glorious' sect of physics.

Filmed at Futurefest, published on 21 September 2018

AMROU AL-KADHI: My name is Amrou Al-Kadhi or Glamrou. And I have an identity that you might categorise as intersectional. I'm British-Iraqi, gay, non-binary and also identify as Muslim. And reading about quantum physics has really helped me understand my queer identity. Quantum physics is a beautiful, strange and glorious sect of physics that looks at the subatomic particles that govern our world. So, inside the neutrons, electrons and the protons you're looking at the quarks, leptons, bosons and the Higgs. Whereas classical Newtonian physics is obsessed with the universal formula that govern our reality, it's so fixed on resolute answers. Quantum physics reveals that there is no fixed reality and it's full of beautiful contradictions. We can now observe that the same sub-atomic particle can be in many places at the same time. So if we fire an electron through a wall with two holes, for instance, we should be able to see that it goes through one or the other. But, on a quantum level when you observe what's going on, we see that the same particle is actually going through both holes at the same time. Multiple versions of the same event are happening all at the same time. What's so remarkable about quantum physics is the fact that what's happening on a subatomic level contradicts what we're actually seeing happening in reality. It shows us that reality is itself a construct, and what's going on internally on a subatomic level belies what we're actually observing. Quantum physics to Newtonian physics is, to me, what queer theory is to heteronormativity, i.e. looking for normative constructs of society male, female, of gender, of race categorising everything in a neat, rigid way. I am very comforted by this as a queer person with no real fixed identity. It gives me immense hope that there's this model of the world. This real physical, philosophical model which shows us that reality is just a set of contradictions with no real fixed foundation. It is in this model of space-time as a series of entanglements that I'm able to piece together all

of the fragmented sects of my identity being able to identify as British and Iraqi, as queer and Muslim, as someone of many genders and potentially no genders at all.

590. 'When I'm dancing I feel like I'm flying'

Dancing is freedom to Isabela Coracy of the ballet company Ballet Black.

Made by Tiger Lily Productions, 24 May 2019

ISABELA CORACY, BALLET BLACK: When I'm dancing it makes me feel like I'm flying. It feels like I'm free and it's the best feeling. I started dance when I was seven years old and I didn't know that I wanted to be a dancer, but this was inside of me and was so easy, it was like my body was ready to do that. I just realised that I want to keep doing this for life. When I was a kid, I was the only black dancer in the studio with more than 50 white ballerinas. When you think ballet, you think about white people dancing. I heard that I was never going to make any classical company because I was a black ballerina. How you say to someone that you're not going to make your dreams and I never stop to fight and I'm here now. Freedom came when I moved to London and I can see that I could be a black ballerina. I can dance with white dancers, black dancers and it's just amazing. When I'm improvising it's kind of my style of dance. It's a mix of what I learned as a classical, as a contemporary dance but it's the way I move my body, it's not really choreographed. I do love to dance the big classicals and everybody looked the same - same arms. This is like, technical. But I do love to have this freedom as well - that I can move as me. It's the movement, it's the music. It's part of freedom that you connect to with your own body. It's been an long journey and I love how far and how beautiful I've become. Inside the studio we have all types of bodies, all types of dancers, and colours, we are mixed. And we only have one single language and it's dance. We are celebrating freedom. We're celebrating diversity, equality in one studio and I wish it wasn't just inside this studio, it was in the whole world. I have a tattoo saying "believe" and it's like an note to... I'd wake up or when I'm on the train or somewhere and I look and say "you always have to believe that you're going to get there." To never forget.

591. Why I chose refugees for housemates'

Amsterdam's Startblok initiative houses refugees and young locals together, helping society and saving them money on rent in the process.

Published on 13 March 2017

This video was made by BBC World Hacks

CAPTION: This is Bobbie. She has chosen to live with refugees.

BOBBIE: I really felt that living here could be really concrete action of how I could help with the refugee crisis or at least how to handle it in the Netherlands.

CAPTION: Abdullah, Syrian. Moutie, Syrian. They are part of a unique integration project. The project is in Amsterdam, called Startblok. It houses 250 refugees and 250 Dutch locals. Everyone has to be aged 18-28. Normally it's hard for refugees to make friends with local. But studies show that if they can make these networks they're more likely to become productive members of the economy (- University of Birmingham).

MOUTIE: When I arrived in the Netherlands, I didn't know anyone to ask for help. After I moved to Startblok, it got better. We can integrate together and learn about different cultures, languages and food.

CAPTION: For Amsterdam, rent here is cheap $400 - $500 a month. So the authorities hope young locals will move in. Bobbie helps them with Dutch. [*footage of language lesson between the flatmates*]

B: We had so many misunderstandings. But from those misunderstandings, we got even closer, I would say, because you have to struggle a bit more to put energy into friendship.

CAPTION: It's not just a one-way street. Moutie shows Bobbie how to cook Syrian food.

B: It's also about the normal things you also do with other friends. And in that case, it's also not so different apart from we have really different backgrounds.

CAPTION: Could this work elsewhere? It depends on attracting people as committed as Bobbie.

B: We're trying.

592. Why I had to change my name to Steve

Dame Stephanie Shirley has lived an incredible life - from child refugee to software pioneer and philanthropist.

Made by BBC Studios, 24 January 2019

DAME STEPHANIE SHIRLEY: I'm just such as stubborn person. When adversity hits I'm more motivated and I'm not going to do this. I'm not going to let them get me down.

CAPTION: Dame Stephanie Shirley is a tech millionaire. She's 85 years old.

SS: My childhood made me able to cope with change and eventually to love change.

CAPTION: Dame Stephanie came to the UK aged five, as a refugee from Nazi Germany.

SS: I arrived on the Kindertransport with my older sister. I can really only remember the childish things. One little boy that kept being sick, losing my doll and then finding her again. These are ingrained in my personality. It has made a big impression on my life. It still impacts me. I want to make sure that the life that was saved was worth saving. I don't fritter my days away. And that goes back 75 years.

CAPTION: She was brilliant at maths and went on to work at the world-renowned Dollis Hill Research Station. But found that opportunities for women in computing were limited.

SS: The sort of sexism that I experienced being fondled, being pushed against the wall, after one of those instances, I really decided I have had enough. I went home, thought about it, and the following day came in and gave my notice. Society was very different. It was conventional to stop working on marriage or when your first child was expected. So my computing world was full of people with experience, who were basically being ignored by the workforce. I had everybody working from home and started not paying by the hours that somebody worked, but rather the tasks that they achieved. And that was a big change that really made a difference. We see it now in the gig economy, but these social changes and not overnight. They don't just come with the changes in technology, but gradually society adapts to them.

CAPTION: Her business got off to a slow start, when letters to potential clients went unanswered.

SS: My dear husband thought, 'Well, are they not replying because you've got a Stephanie Shirley, this double feminine. And we decided to write the same letters to the same people, but signing them Steve Shirley. And surprise, surprise. We began to get a few replies.

CAPTION: Starting with a capital of £6, she grew her business into a multi-national company all the while looking after her severely autistic son.

SS: Managing the dual pressures of running a company and coping, and that was the right, operative word, with home demands was not easy. I can't say that my husband didn't suffer. It was not a good time in our lives, but it can be done. And, of course, if you have to work from a financial point of view, it will be done. And if you have to work from your own professional competence point of view, it will be done. And I was the latter.

CAPTION: The future of tech?

SS: Tech is just such a wonderful opening into the future. I think everyone should just embrace it. It opens up so much for you. There's no doubt that artificial intelligence is going to really replace a lot of jobs and we don't know what's going to happen. That's part of the exciting thing. We can actually be a big part of making it happen.

CAPTION: When she floated her company in the 1990s, she became a multi-millionaire.

SS: One of the things that I did in my company was to share the ownership of the company with the staff. I got this idea of how pleasant it was to be able to make something happen with the money that I had made earlier in my life. It's ridiculous to keep it all for myself and to be selfish. I get such enormous pleasure from my

593. 'Why I'm still fighting racism at 90'

Anti-racism pioneer Roy Hackett reveals the extraordinary level of racism he faced when he first arrived in the UK in the early 1950s.

Made by BBC Studios, 24 January 2019

ROY HACKETT: We have a saying, "You've got to be in it to change it." And that is my word, "In it to change it."

CAPTION: Roy Hackett has spent 50 years fighting against racism. At the age of 90 the fight goes on. CAPTION: OLDER & WISER

RH: Try and try, never stop trying because trying is what I did in my life, in my whole life. I keep trying because everybody thinks I'm a no-good and I keep trying until I become a too-good.

CAPTION: Roy arrived in Britain from Jamaica in 1952.

RH: Great Britain was not great to its Commonwealth people because we were of different colour.

CAPTION: At the age of 29, he made his home in Bristol.

RH: I came and I walk along the road for about ten doors and every one I knocked that didn't have a card on it to say, "No gypsies, no dogs, no Irish and no coloured." A lady opened the door and saw me and she didn't say a word she just slammed the door. I said to myself, "I think that's the norm here." There was no rule about discrimination and what you shouldn't do. They thought they could do anything and get away with it. When I tried to buy my first house there was a big crowd of white people standing out and I thought they'd come to welcome me in their midst. No. You know what they did? They said they didn't want me there. I said, "Why did God make two colours or three colour people? Why didn't he just make everybody black, everybody white, everybody pink? We wouldn't have had this trouble." I felt extremely degraded and thought, "But what am I doing here?" And I think I've just got to put up with it until something comes along.

CAPTION: Roy helped set up the Commonwealth Coordinated Committee to unite the Caribbean community.

RH: We decided to fight anything that a black person was involved to help them out.

CAPTION: In 1963 the committee face their greatest challenge, when the Bristol Bus Company refused to hire non-white staff.

SPOKESPERSON: Whilst we can obtain white labour in this city we intend to go on engaging white labour rather than coloured labour.

RH: In a country ruled by Britain, we drive our buses. We drive aeroplanes, we drive helicopters, we drive trains. So why is it in England we can't do it?

BUS DRIVER: Well we don't want them on there that's the main reason. There isn't going to be enough work for the whites, let alone the blacks.

RH: They were not shifting. We said, "We've got to take it to the other level." We are going to form a group and stop the buses. We physically sit down in the road. At the time, Arthur Scargill was having the miners' strike up north and we were having the strike down here, and at one stage they said, "Arthur Scargill, Roy Hackett and Tony Benn are the three worst persons in England."

CAPTION: The boycott attracted national attention. The bus company lifted their ban. And two years later there was a change in the law...

RH: In 1965 Harold Wilson stood up in Parliament. The battle against racialism here in Britain... And he said, "As from today, any person discriminating against another because of politics, religion, colour, creed or disability you have committed a crime punishable by five months in prison or five thousand or both." And I cried. I said, "Thank heavens for this." I said, "We won."

CAPTION: Roy has continued to fight racism over the decades.

RH: They never taught it in school that this happened here and I said, "Why, are they ashamed of what they've done to us?" I talk to the primary schools. I always tell them that we had to do that to bring you up and never forget your roots. Trying is a great thing and if you ever fail one try another time or try to improve what you fail on, you know, and try again. Really because young people today they are tomorrow's people and we must try our best to make them be a good tomorrow's people.

594. Why Spider-Man is my comic book hero'

Comedian Aurie Styla on why Spider-Man was so inspiring to him as he was growing up.

Published on 21 June 2018

AURIE STYLA: [*mimes being Spider-Man*] Ahh, you want me to do that? Hey, what's going on? My name's Aurie Styla, I'm a stand-up comedian and I'm a massive video

games and comic book fan. My favourite superhero has to be Spider-Man. Hands down. Anything with Spider-Man in it was gold to me, whether it be a comic book, whether it be a movie, whether it be a TV series, Spider-Man: number one. Spider-Man is a young boy who got bitten by a radioactive spider and then developed all these powers that made him, like, really agile, can swing from building to building, had spider senses. The reason I like Spider-Man a lot, if you look at other superheroes that were really big when I was growing up, so Batman and Superman – let's go with Superman first. Great as he is, for me was too overpowered. Batman didn't have any powers but had a lot of money. Spider-Man was more relatable. He was a kid, just like me or anyone who was reading the comics, who went to school, who had friends and had the struggles of life to deal with. But then, secretly, was also a superhero that would save the day, save the world, or save his city. And I think that was what was inspiring. We like to see a man who struggles a bit and then comes back and really hits it home. And I think Spider-Man kind of embodies that experience as a superhero, as a teenager. I believe Spider-Man stands for determination and the will to want to do good. He was called 'Your friendly neighbourhood Spider-Man', somebody who could swing from building to building, but still climb a tree just to help your cat down. One of the main lines in the movie, which people still say nowadays, without it necessarily referring to Spider-Man was 'With great power comes great responsibility.' I think a lot of us feel that there are people out there that may do wrong, or there's no one that's really out there to do good or to . . . to look out for each other. And I think someone like Spider-Man, if he really existed, would be that person that everyone would look at and say, 'Well, you know what, if he can go through everything and do good, then I can do it myself.' Reading comics, especially comics with Spider-Man, as a child, it gave me a form of escapism. I'm not saying I had a bad childhood. I didn't. I had a great one. But having a character, you can sit there and go, 'I would love to be' gives you, as a child, something to aspire to. I know I'm not going to turn into a superhero. I knew back then being a superhero was really, really farfetched. But kids can have fantasies, kids can have dreams. And I believe in a world where there's a lot of serious things that go on. It's great to inspire children to believe that they can either be greater than what they already are, or to be like people that have such a positive influence on other people, whether the people are fictional or factual. And I really do think, for me, getting into superheroes or getting into Spider-Man comics gave me just another . . . another form of expression for me to be myself in a way that I would want to be as well. Nowadays, comics are cool. Back then, it wasn't as cool. It wasn't as widely accepted. People would go, 'Oh, you're a bit of a geek for reading comics', look at us now. For those who don't know what Spider-Man does to release his web, he kind of goes like that [*makes action*]. And if you didn't see that, rewind [*makes action again*] There that looks . . . ah, it looks cheesy, but I feel, I feel Spidey-ish. I've got to do the sound effect? [*makes sounds*] Oh, you want me to do that? They want me to do sound effects of a web shooting out of my wrists. First things first, no one can shoot web out of their wrists. Nah, man! Why would you make me do that? There we go, that will do!

595. *&%$#*!!! - Is swearing actually good for us?

Scientist Emma Byrne argues that swearing helps us bond with others, improves our mental health, and makes us less prone to violence.

Published on 6 November 2017

EMMA BYRNE: So-called bad language is actually good for us. Forget poetry. Swearing is the part of our language with the greatest impact on our emotions. When we hear it or use it, our heart rates rise, our adrenaline begins to flow. As a result, swearing still attracts a lot of disapproval. But science shows that most of our preconceptions about so-called bad language are dead wrong. Far from being alienating, swearing probably helped us work together more effectively as we became a more social species. Chimpanzees and children alike replaced biting and hitting with swearing about bodily functions as soon as they're potty trained. Swearing helps us withstand pain, exert more strength and exercise more mental resilience. But it also makes us less rather than more prone to violence. And swearing isn't a sign of a reduced vocabulary. Repeated studies show that people who use a wide range of swearwords also use a wide range of other words. And even when swearing's being used in a way that makes us feel uncomfortable. It's important to pay attention to what's being said. Fear of the emotions that lead to swearing does real harm, to people with brain damage, to people with Tourette's Syndrome, to people with severe illnesses or chronic stress, who sometimes have no choice over the words that they use. Yes, swearing is strong language, but unless it's specifically used to abuse, I don't think we can call it *bad* language. It's one of the most powerful linguistic tools that humanity has, and it deserves our respect.

596. 'Addiction is a response to emotional pain'

Addiction specialist and author Gabor Mate says dealing with past trauma may be the key to breaking addiction.

Animated by Easy Animal studio, 11 November 2019

Made in collaboration with BBC News

GABOR MATE *Author:* My mantra on addiction is not why the addiction, but why the pain? If you want to look at what causes addiction, you have to look at the benefit of addiction. What did it do for you?

CAPTION: Gabor Mate is a leading addiction expert and author.

GM: People say, typically gave me pain relief, escape from stress, it gave me a sense of connection, a sense of belonging. The addiction met some essential human need that otherwise wasn't met in that person's life. So all of these states of lacking connection or being isolated, of having pain, of having too much stress in your life. These are traits of emotional pain. And when you look at populations of addicts, what you find is that the more adversity in childhood, exponentially, the greater the risk of addiction, which doesn't mean that every person traumatised will become an addict. But it does mean that every addict was traumatised. In my opinion, addiction

is manifested in any behaviour that a person finds temporary pleasure or relief in, but suffers negative consequences as a result of it and does not give up or cannot give up despite those negative consequences. Tobacco or alcohol, substances of all kinds. It could also be related to sex, gambling, shopping, eating, work. Virtually any area of human activity can become addictive depending on the person's relationship to it. I had two major addictions in my life. One was to work and I also had an addiction to shopping, in my case for classical music CVD. One day I spent $8,000 on compact discs. It doesn't matter how many sets of a particular composer's symphonies you already have, you have to get the next one and the next one. In the grip of the shopping fever, I once left a patient in labour and actually went downtown to get the disc and I missed the delivery. That's how impactful it was. Now, you may think that's laughable. How can you compare your addiction to those of your heroin addicted patients? My own addicted patients, when I told them about my addictions, they didn't laugh or they shook their heads and said, 'Yeah, doc, we get it, you're just like the rest of us.' Well, the point is that we're all just like the rest of us. The greatest myths around addiction number one, that is genetic. It does run in families. But why does it run in families? If I'm an alcoholic and if I yell and scream at my kids and then they grow up to soothe themselves with alcohol, did I pass that on to them genetically or is that a behaviour they developed because I recreated the same conditions that I grew up in? Now, there might be genetic predisposition, but a predisposition is not the same as a predetermination. The other myth around addiction is that it's a choice that people make. And the whole legal system is based on the idea that people are choosing to be addicts, let's punish them for it so as to deter others. Addiction is not a choice anybody makes. It's a response to emotional pain. The other myth that addiction is restricted to the substance user or to the few losers in our society is rife. It's rife and rampant through our culture. You would think that with the utter failure of most treatment modalities when it comes to addiction, we would wake up and ask ourselves, 'Do we really understand this condition?' But that doesn't seem to happen. We're not looking at its real nature as a response to human suffering, because we're not helping people work through and resolve their traumas. So we keep saying, 'What's wrong with you?' Instead of asking, 'What happened to you?'

597. 'Britain is in denial about race'

White people need to speak about institutional racism - not deny its existence, argues author Reni Eddo-Lodge.

Published on 1 June 2017

RENI EDDO-LODGE: Britain is in denial about race. A black boy is three times as likely to be excluded from school than the rest of his classmates. Job hunters with white-sounding names are called to interview far more often than those with African or Asian-sounding names. And black people receive harsher criminal sentences for the possession of drugs, even though they use drugs at a much lower rate than their white counterparts. Education, employment and the criminal justice system. These stats look like the worst of the United States' problem with racism. But they aren't about the US they're about the UK. Britain is in a state of denial. We pretend that we

are colour-blind. But the stats prove we are anything but. And instead of confronting the country's tortured relationship with race and racism, we numb ourselves with posh period dramas and import our black history from the US. We cheer on the legacy of Empire with no real examination for what it meant for white dominance across the globe. And we pretend that racism only affects people of colour. But racism has a political purpose. In marginalising some it bolsters others. So until white people come to terms with Britain's racist legacy, we won't move forward. White people need to speak out about institutional racism. No denying its existence. A country's willingness to challenge racism is an indication of its progress. Insisting that you haven't got a racist bone in your body is not enough to address injustice. It's your actions, not your beliefs, that prove your commitment to change?

598. 'I saved a man from death row'

Ever wondered what it's like to be a top lawyer? Here's an insight (and a few tips) from Shauneen Lambe.

Made by BBC Studios, 30 November 2018

SHAUNEEN LAMBE: Believing that the world is progressive, it's moving forward, helps me continue when I want to give up.

CAPTION: Shauneen Lambe is one of the UK's leading human rights lawyers. She is the founder of Just For Kids Law, which represents young people in the legal system.

CAPTION: Habits of the highly successful, with Shauneen Lambe.

SL: Ryan Matthews had been 17 at the time that he got arrested and charged with first degree murder and faced the death penalty.

CAPTION: Ryan Matthews was innocent, but the jury in the US state of Louisiana found him guilty and sentenced him to death.

SL: On Mother's Day, we were sitting there in court with Ryan's mum when the jury returned the verdict of death on her child. I felt like I'd failed in the one task that I'd been given. It felt like the most hopeless moment.

CAPTION: Never give up.

SL: After Ryan was convicted of murder and sentenced to death. That's when we actually started to work on his case.

CAPTION: DNA evidence eventually proved another man was responsible. But it took years.

SL: Ryan spent five years on death row. This one here is Ryan when he was released from death row in 2004. The beauty of the story for me was that in 2008, his sister got married and asked me to come and be her bridesmaid at her wedding.

And Ryan was the . . . her husband's best man. And so we got to walk down the aisle of the church, the man that I'd first met, or the boy that I'd first met when he was sentenced to death. And I got to walk down the aisle of the church at his sister's wedding. I can tell you the story in a couple of minutes, but that whole thing took nine years, 1999 to 2008 to the wedding. And there were so many points in that that I wanted to give up. And the thing that motivated me back was always being in touch with Ryan and his family. And so the people in all of this are the things that bring me back when I want to give up.

CAPTION: Choose your role models carefully.

SL: One of the most important things I've learnt, and this is continued over my life is . . . is choose your role models carefully.

CAPTION: Lawyer Clive Stafford Smith has worked on hundreds of death penalty cases and as a student, Shauneen was determined to work with him.

SL: I faxed the office, it was before there was e-mail, in New Orleans and sent my CV, which had probably nothing on it, and said, 'I want to work with Clive Stafford Smith.' And then was really surprised that no one got back to me. And I think my parents said, 'Well, maybe you should phone.' And that felt uncomfortable. I was young, I guess and I didn't feel confident, but I did phone up and my CV had been put on the top of some filing cabinet somewhere. And the office manager dug it out and said, 'Yeah, sure, turn up, why don't you turn up in the summer?' Choosing my role model carefully was really important. I could become the kind of lawyer that I always wanted to be by learning from him. I've always been this . . . the small person taking on the big government. And that can often be a really scary thing. The reason why we have the story of David and Goliath is that the small guy can make the change.

CAPTION: Find your motto.

SL: So one of the things that has always really helped me is quotes or poems that inspire me, and every day there'll be something that will motivate me or focus me. And it just makes me feel connected to other people's struggles. One of the ones that we always use in our work with young people is the Martin Luther King quote, 'The arc of history is long, but it bends towards justice.'

599. 'We're not meant to be happy all the time'

Does the pursuit of happiness at all costs actually make us unhappy? Pianist James Rhodes thinks so.

Published on 16 January 2018

JAMES RHODES: We are not meant to be happy all of the time. The pursuit of happiness seems like such a noble one. And yet it's fundamentally flawed. Happiness is not something to pursue any more than sadness or anger, hope or love. It is simply a state of being which is fluid, occasionally fleeting, sometimes unfindable. Which is

why self-help books are little more than attacks on our fragility. We live in an age of unprecedented pace where our always-on mentality has created an unworkable and unsustainable environment. We are in trouble. And perfectly-curated Instagram selfies, unattainable physical perfection seen all over the media, Photoshopped to death. Anonymous social media outlets for our pent-up rage. They aren't helping. Mental illness needs to be reframed urgently. Even the phrase must change. Surely there is enough evidence by now to replace that phrase simply with 'the human condition.' We are all by times anxious, in low mood, peaceful, grieving, content. Occasionally, some of us may stray further down the continuum into depression, PTSD, suicidal ideation. But I can't help feeling that when we talk about life's rich tapestry, this is exactly what we mean, that life is filled with messy, challenging, difficult feelings and situations. And denying them, resisting them, apologising for them, pretending they don't exist is counterintuitive and counterproductive. Just because we are not happy doesn't mean that we are unhappy. There are times where I despise myself. I want to hurt myself, where I want to die. And there are times when I feel quite comfortable in the world. And all of those things are natural for me. Perhaps we can aim to celebrate our own individual messiness. And by doing so, unite us all in a more honest way.

Appendix

600. Why imposter syndrome can be a strength

What is imposter syndrome? What does imposter syndrome feel like? Here's how to tell if you have it imposter syndrome... and how to overcome it. In short, imposter syndrome explained!

Made by We Are Tilt.

DR SANDI MANN *Psychologist:* I describe imposter syndrome as having three elements to it. The first is the belief that other people have an inflated view of your own abilities or skills, a far more inflated view than you have of yourself. The second factor is that you have this intense fear that you'll be found out and exposed as a fake, and the third element is that you constantly attribute your success, that you do recognise to other factors outside of your own abilities or talent. Imposter syndrome can feel like a dissonance or a disconnect, but if you have it a lot and you're constantly feeling that way, then the disconnect between what you see as yourself and your public view just grows bigger and you feel fake and you feel an impostor. Impostor syndrome is something that affects so many of us that actually to call it a syndrome is probably a little bit inaccurate because that suggests it's kind of a mental health condition or there's something wrong with us. But, you know, when it's 70 per cent of us, it's probably more likely to be something that is almost normal, really. You can't have imposter syndrome without being successful. You've got people like Tom Hanks who you'd think, 'Well, they've made it. They must be confident in their abilities.'

TOM HANKS: No matter who we are, no matter what we've done. There comes a point where you think, how did I get here and how am I going to be able to continue this? When are they going to discover that I am, in fact, a fraud and take everything away from me?

SM: And I think a little bit of self-doubt is very good for self-development. The imposter syndrome people are the ones double-checking their work, working really hard, trying to get everything right, never satisfied, always looking for more training opportunities and more learning opportunities. And those are all potentially good things. There are a number of factors from childhood that may contribute to imposter syndrome. When children are put on a pedestal, that's a very, very difficult premise to live up to. And that can help make you feel an impostor, because if you're not perfect, then you're not the golden child that they think you are. The term imposter syndrome was first coined in 1978 by Pauline Clance, Suzanne Imes in a paper that they entitled *Imposter Phenomenon in High Achieving Women*. So it was originally something that was thought to only affect women. When we talk about imposter syndrome in the workplace, I see that as the same for men and women. But I do see a lot of men who don't think they're man enough. Social media has a huge role to play in imposter syndrome. We can see everybody else's successful lives. The more we present our best selves to the world, the more other people will develop imposter syndrome because they're never going to measure up. I've had people who wanted to give up their jobs, their high flying jobs, because they fear so much being found out that they'd rather give it up and hand in their notice, even though, objectively, they're not fake and objectively they are successful. If you think that you're suffering from imposter syndrome, actually look objectively at your successes, write down the things that you are successful at, and then look at all the reasons why you might have achieved that success. Assign a percentage scores to how much you think that factor contributed to that achievement. You can mistakenly attribute all of it to luck, but when you put it down on paper, you'll realise how ridiculous that is. So it's a bit of a reality check and it makes you stop and acknowledge your successes. Imposters feel that they can't accept anything that's less than perfect. Learn to make mistakes and to accept failure. You don't have to be brilliant all the time. But you can be good enough.

601. BBC Ideas: Short films for curious minds (Trailer)

LEONARD MLODINOW PHYSICIST, AUTHOR: The times are changing far faster than they ever were before, and that requires a new kind of thinking, elastic thinking.

AURIE STYLA: [*mimes being Spider-Man*]

CAPTION: Short films for curious minds. We're curious about the little things.

SLIDE: What can ants teach us about management?

CAPTION: Why do we count the way we do?

JOSIE *Mathsy person:* So I guess we were just coming from going like, 'Well, this has been useful.'

CAPTION: And ask big questions.

NARRATOR: Could we survive without rulers, without the state?

NARRATOR 2: What is truth? Why do we believe the things we do? Whom do we believe and why?

CAPTION: Fresh perspectives on everything around you.

AMROU AL-KADHI: Reading about quantum physics has really helped me understand my queer identity.

TOBI OREDEIN: 'Nude' seems to me weird shades of pink and multiple shades of beige. And in my humble opinion, mainstream fashion brands still make women of colour feel invisible.

LEONARD MLODINOW PHYSICIST, AUTHOR: The more you're exposed to what other people think, the broader your own thinking will be.

AURIE STYLA: [*mimes being Spider-Man*] There you go, that will do.

GRAPHIC OF BLACK/WHITE HANDS EACH HOLDING GLASSES, CHINKING THEM TOGETHER WITH VOICE OVER SAYING 'CHEERS'.

CAPTION: BBC Ideas. Now on YouTube. Subscribe.