Hit the mute button: why everyone is trying to silence the outside world

Uber is trialing a feature that allows customers to stop their drivers from talking. But there's growing evidence that cutting ourselves off like this isn't healthy

The mute button was invented in 1956 by Robert Adler, an Austrian-born engineer working for the Zenith Radio Corporation in Chicago. It was one of the four buttons on his Space Command 400, the first commercially viable TV remote control. The other three buttons – on/off, channel up and channel down – might have seemed more vital, but Adler's boss, Eugene F McDonald, a former naval intelligence officer who was nicknamed "The Commander", had insisted on mute.
"He hated commercials," Adler recalled in 1987. McDonald feared these constant intrusions would kill the new medium of TV. So Zenith boasted that the mute button would allow viewers to "shut off the sound of long, annoying commercials".
Still, McDonald couldn't have predicted the pop-up ad, petrol pumps trying to sell you nachos or the ravages of the distraction economy. It is only now, in an age of incessant interruption, that we are beginning to grasp muting's full potential – not only when it comes to our gadgets, but in real life, too.

Last month, the taxi company Uber began trialling a suite of new features for users of its Exec service – including a button you can activate if you want to mute your driver. "Quiet preferred" is the euphemism Uber is using (you can also toggle it to "happy to chat" – lucky driver). But it appears to bring the dream of being able to choose who and what we listen to a step closer.

"From a driver's perspective, it's quite rude," an Uber driver from east London tells me. "And offensive, to be honest. It's like saying: 'Shut up.' It says a lot about Uber." Uber claims it is responding to concerns from customers that drivers will give them low star ratings if they don't want to chat; drivers meanwhile often fear entering into conversations with passengers for the same reason.
But let's be honest: who among us hasn't fantasised about being able to mute an annoying colleague, a screaming toddler or an over-friendly waiter? Mute promises a snake-free garden, a world where you can curate your content and silence dissent. And it is proving irresistible online.
Twitter introduced a mute function in 2014 and it has proved to be the social network's most popular feature, a sort of automatic talk-to-the-hand. Instead of "blocking" someone objectionable (which they will know about) you can now discreetly "mute" them (which they won't know about). Part of the appeal is the thought of trolls screaming and @-ing and wondering why you're not replying. Twitter followed it up with a subject-based mute feature in 2017: so, if you don't want to hear about Love Island, or Terfs, or the Champions League final, or Dominic Raab, for ever if need be, you don't have to. If you want a glimpse of happy Twitter, type "mute button" into the search box: "Just wanna thank my 'mute' button for never giving up on me <3"; "Mute button is top 10 most powerful things in the universe"; "I thank @instagram for creating their mute posts and story buttons" etc.
Instagram added its own mute function last year, inspired by what it called "complex social dynamics". Now you can avoid your friend's nauseating Ibiza selfies and tasting menu stories without fear of causing offence. "I'm happy for my friends who are achieving great things, but Instagram makes it too easy to start getting bitter about why that's not me," one muter explained. "I'm looking forward to living in a self-imposed creative bubble for a little while."
The clinical psychologist Paul Gilbert, author of Living Like Crazy, sees such responses in Jungian terms. "We're becoming more persona-dominated," he says. "We all put on an act about how people want to see and hear us. We do it all the time on social media." For him, the Uber shush feature is a welcome chance for us to rest those personas for a few minutes. "Human beings evolved in small hunter-gatherer groups where everyone knew one another," he says. "We aren't necessarily adapted to be interacting with strangers all the time. People find it incredibly tiring. At least in a taxi, you have an opportunity to sit and be quiet."
Well, yes, that is true. But what I find disturbing about the Uber silence feature is precisely that it cuts off any possibility of human connection. It is a way of automating a function that we might once have negotiated in human language. The Uber driver points out that it's not hard for him to gauge who might be up for a chat and who isn't. "You say: 'What's your name? Where are you going?' And the way they respond is a fairly clear indication of whether they want to talk or not. Most people have their earphones on anyway. I usually have my Bluetooth earphone in too."
A lot of the time, he is plugged into Telegram, the Russian-designed messaging app that functions a bit like an aural WhatsApp. "There are groups with about 200 drivers on Telegram – they'll report what's happening in real time. If you see an accident, you can report it to the group." Otherwise, it's

“audiobooks, lectures, radio, podcasts, educational stuff. If I want to know something about anything, I’ll download it when I’m home and listen to that.”
But you could see that this retreat into our own discrete sound worlds is its own form of muting. Looking around the office in which I am typing these words, at least half of my co-workers are wearing earphones or headphones, and the younger they are, the more likely they are to be plugged in – or out.

The wider trend is known as the “privatisation of auditory space”, says Dr Tom Rice, a lecturer in sonic anthropology at Exeter University. “It’s often said in sound studies that we don’t have earlids. We don’t have any control over what drips into our ears and collects in them. Earphones are the closest we have to that.”
It is generally accepted that our audio environment is becoming more cluttered – even at home, since our microwaves and washing machines are now more likely to bleep at us (and, in some cases, talk to us). But most people do not mute the world because they find it overwhelming or confusing. “It’s also that they consider it boring,” says Rice. “People will often think that the sounds that they’re exposed to aren’t worth listening to.” The dawn chorus, after all, is famously not what it was, and general human patter is being drowned out by pneumatic drills, lorries and Ed Sheeran’s Galway Girl blasting out of the supermarket public address system.
“When we conduct surveys about modern life and ask people what the biggest irritants of modern life are, ‘unwanted music or sound’ is usually in the top five,” says Dr Daniel Levitin, a neuroscientist at McGill University in Montreal and author of The Organised Mind. This has a lot to do with the way our hearing system works. “Compare it with vision. When you look at an object, it appears to be out there in the world. But sounds, for most of us, feel like they’re emanating from within our heads. It makes them more intimate and more intrusive.
“In the best case, you can say headphones are a way to gain control of your environment,” he adds. It was striking, when Spotify users shared their most-played songs at the end of 2019, how many of the titles included “waves” or “rain noise”, suggesting that many listeners simply wanted to block distractions. “But the worst case,” Levitin says, “is that young people are listening to music and thinking that they can increase their concentration and performance that way. There are thousands of studies that show that listening to music is incredibly bad for your concentration. It’s just more enjoyable.”
Meanwhile, our capacity to tune out whatever we want is increasingly catching up with our desire to do just that. “Hearables” are now touted the new “wearables” in Silicon Valley. Amazon, Apple and Google are all working on in-ear technology. The start-up Doppler Labs has developed products that promise to cancel out background noise, amplify the voices of particular speakers and even provide live, real-time, Babel fish-like translation. We often imagine a virtual-reality future will involve some sort of interface over our eyes, but it might just as easily work through our ears. Soon we might literally be able to mute people we don’t want to hear.
But who knows what else will be silenced? “The argument is that this is damaging to the quality of public space and to the social fabric – we all just become atomised individuals,” says Rice. If we are listening to podcasts or music or white noise all the time, we are removing ourselves from society and the chance to interact, help, experience delight.
“I personally don’t have much against earphones and I think they can be fantastically useful and enriching of one’s auditory life,” says Rice. “But I do think it’s possible to get value out of your sound environment by paying attention to it.” One way is by focusing on your sound diet. “Can you isolate five sounds in your everyday environment that you value and enjoy and that enrich your life? The way the sink at work gurgles when you turn off the tap, a fragment of birdsong, wind in the trees, footsteps echoing under a bridge … As well as drawing our attention to specific sounds, an exercise such as this encourages us to think about our sound environment more generally, and about which sounds we want more – and less – of in our lives.”

The Newbie Guide: How to Deal with Stress at College

In 2013, the American Psychology Association published the concerning results of a survey. Seventy percent of directors believed that the number of students with psychological problems on campus had increased in the past year. Anxiety was a major concern among college students. Should we be surprised? College students are put under so much stress that it's only natural for them to feel the consequences.

Stress is part of us. We even need it sometimes. If someone attacks you, stress is what makes you react. But, it's not natural for us to feel stressed 24/7. It's extremely important for every student to understand how to deal with stress.

Now, let's get one thing out of the way: there's no way to eliminate stress from your life. The only thing we can do is reduce it to minimal levels, so we can continue living our lives without being under constant pressure. When the whirlpool of stress takes you in, it's a force you can hardly fight. That's the effect we want to avoid.

Since college education is testing your limits every single day, it's important to develop *immunity against stress*. If you try hard enough, you'll get to the point when you recognize the moment that stresses you out, but you're strong enough to resist the whirlpool. This might be the most important lesson you learn in life.

We'll give you 10 practical tips that help you to find your way on how to deal with stress at college.

Plan Everything!

Some people say planning stressed them out. I have one thing to ask: have they ever tried planning? Robert Epstein, psychologist and self-help author, conducted a survey that showed planning was an effective technique for preventing stress. "Fighting stress before it even starts, planning things rather than letting them happen," – that's how Epstein sees the benefits of planning.

Start from mapping your steps on "How to deal with stress" path.

When you take few minutes of your day to plan how you'll spend it, you'll feel ready for the challenges. Let's see: what responsibilities do you have in a day?

Lectures till 2 p.m.
Lunch and 30 minutes of rest
Write homework till 6 p.m.
30 minutes of rest
Study till 9 p.m.
Spend some time with friends
Go to bed before midnight.

If you have such a plan, you know it fits your capacity. If you don't you'll be stressed out from the very morning. "Oh my God! I have so many lectures. I'll be too tired when I'm done with them. When will I write homework? There's no way I'll find time for studying. What about the GoT night we were planning?" You see how lack of planning makes your head a complete mess? When you have a plan, you understand how to deal with the stress and that there's enough time for everything.

Plus, you'll never forget about a deadline or a test date.

Make Priorities

Okay, sometimes you won't be able to fit *everything* in that schedule. You want to explore campus, join two clubs, meet new friends, become part of Greek life, and publish something in the campus newspaper? We'll have to admit that's a bit too much.

When you notice you're pushing yourself beyond your limits, it's time to step back. What are your priorities? Studying, attending lectures, writing the mandatory projects, and a moderate social life. If you attempt to achieve anything beyond what your capacity allows, you'll have to sacrifice some of your priorities.. That means you'll be feeling guilty, and that can mean only one thing: *stress*.

Always Find Space for Social Time

When you realize you have to sacrifice some of the things you like for the sake of studying, your social life is the first aspect to suffer the consequences. Sometimes that's necessary. You'll skip a party because you have to work on that English paper. Working on term papers and studying for a whole month without seeing anyone, however, is a problem.

You need an outlet. Otherwise, you'll accumulate more stress than you're able to cope with. Go dancing, meet new people, have walks… just be around people you like. They help you heal.
Just make sure to avoid alcohol and illegal substances. That's not the right way on how to deal with stress. Plus, it's not effective at all.

Get Help When You Don't know How to Deal With Stress

Most college students are going through similar levels of stress. There are those who break under the pressure, there are those who sacrifice their social life to succeed in education, there are those who focus on social life and stop caring about education, and then there are those who know how to outsource and manage to do everything.
If you're struggling with an important research paper, maybe a friend can help and you'll return the favor? Okay, it's not easy to find a friend willing to write you a paper. Maybe you can ask the professor to clarify the assignment? Maybe you can hire a writer to help? Help is available; you should only know where to find it.
Jonathan Brown, a writer from BestEssays, explains: "We have dozens of students coming to us for academic writing help daily. It's not about being lazy. It's not always about lacking writing skills. It's mostly about not having time. These students realized they can achieve much better results when they outsource part of their work, and they are doing that pretty successfully."
Instead of being stressed about your schedule being too full, think: can you get help with some of the tasks?

Get a Massage

Yes, it's a serious and practical tip. When you have a busy week, get a massage over the weekend. Being tense reflects on your muscles. Do you notice how your posture is bended forward and your muscles feel stiff when you're constantly worrying about something? That's how stress affects your body. When you address those effects, you might reduce the psychological tension, too.

Learn How to Breathe

Breathing is such a natural process for us that we don't even pay attention to it. When you start paying attention, however, you'll notice how your breathing changes when you're feeling stressed. When you're relaxed, when you know how to deal with stress, you tend to breathe slowly and deeply. When stressed, however, your breath becomes short and shallow. At some moments, you might even catch yourself not breathing.
Try some breathing exercises and you'll instantly notice a difference. When you're able to control your breath, you're practically changing your body's reaction to stress.

Focus on Yourself

At college, you're either taking lectures, studying, or hanging out with friends. That's okay, but you're constantly surrounded by other people. When will you have some *me* time? It's not about being selfish. It's about respecting yourself.
Reserve at least 20 minutes of your day to focus on yourself. Get deep into your thoughts and feelings. Recognize the moments that caused stress and anxiety. When you figure out what the reasons, you'll be more aware of your reactions.

Exercise!

Yes, there's enough time for that. If you're unable to do it over the week, you can find time during the weekend.
Why do you need physical activity in your life? It pumps up your endorphins. Those are the neurotransmitters that make you feel good.
Pick a type of exercise you feel good about and stay committed to it. You need to turn it into a habit.

Talk to Someone You Trust

Sometimes you just need someone to listen to you. It's not okay to keep everything inside. Do you have a friend you trust? Share your worries and you'll find support. Your family is there for you, too.
If you feel like your problems are too big and you don't want to make the people around feel bad, talk to a counselor. They might recommend a psychotherapist, who will help you get through the times of difficulty and become strong enough to move forward.

Sleep!

Let's list few consequences of insufficient sleep:

- Reduced cognitive performance
- Impaired attention and working memory
- Increased risk for developing diabetes, heart disease, and high blood pressure

You're getting less healthy, less efficient in studying, and more and more stressed when you don't sleep enough. Adults need around 7-8 hours of sleep for their brain and body to regenerate. Make sure to get that sleep even when you have too much on your schedule.

You can do this

There's no point in making peace with stress through college. If you don't fight it, it can bring you to a moment when you don't even recognize yourself. Stress is part of our lives, but it's also something we can manage. Hopefully, you'll get stronger when you start following the tips above. Here are the action steps:

- Make plans and priorities, but find time for friends
- Outsource when you need to
- Get some *me* time, which includes exercise and massage
- Learn how to control the breath
- Talk to someone you trust
- Get enough sleep

Seems like a lot of work, but it's easier than you think

Nature at work

From managing woodland to nurturing office plants, nature can boost wellbeing and productivity

What's it really like to work outdoors, where your office is the natural landscape and your commute is a walk through open countryside? It's a question many who spend their nine to five indoors have pondered, particularly on a bright, sunny day when the outside world most strongly beckons through the window. But is it just a case of the grass being greener on the other side?

Time in nature is usually time well spent – it can boost mental and physical wellbeing; clear the mind and bring about a renewed focus; and be a source of inspiration and creativity. Indeed, research by the Fields in Trust charity estimates the UK's parks and green spaces provide the nation with £34billion-worth of health and wellbeing benefits. It seems probable that those whose jobs keep them in the natural world are likely to make greater use of those benefits than their indoor counterparts. Furthermore, evidence suggests that many of those who toil indoors spend too little time benefitting from varied environmental stimulation; the sunlight's delivery of vitamin D; and lowered levels of the stress hormone cortisol – all of which are believed to follow from getting closer to nature.

In a 2018 report, Ambius, a company which specialises in landscaping and workspace plants, outlined the limited amount of time UK office workers spend outdoors each day. A study of 1,000 employees reveals almost 40 per cent spend at most 15 minutes outside during their working day, with an additional 22 per cent having a maximum of 30 minutes outside. For many office workers, lunch at the desk is a daily reality as are increased hours of inactivity.

As people spend more time working indoors, the yearning to get outside can become more pronounced. After all, the natural world draws you to it all the time – gazing out at open spaces through a window, looking up at the sky, keeping potted plants nearby, all of these things can help to ease a stressed mind. For those who work outdoors, of course, the attachment to the natural world is deep and clear.

The great outdoors

Justin Seedhouse, 45, is a National Trust head ranger. He's responsible for the Bideford Bay and Hartland area of north Devon, overseeing a team of rangers and volunteers and managing several different types of habitat: woodland, parkland, grassland and coastline. Having spent much of his adult life in outdoor jobs, Justin knows what it's really like when the worlds of work and nature overlap.

'I've always had a love of the outdoors,' he explains. 'I joined the Royal Navy after school, which I enjoyed, but it wasn't really for me. In 1989 an opportunity came up to do a two-year training scheme with the National Trust in West Penwith, Cornwall. It was brilliant. I went there and lived in a caravan and a tent, and a holiday cottage in the winter, and learned so much about the natural landscape. I gained vocational qualifications during the scheme, then carried on to study countryside management at college. I started doing contract work outdoors, everything from hedge laying to dry-stone walling. In 1994, I got a seasonal ranger job with the National Trust, the next year I was offered a permanent position, then in 1998 I became a head ranger. I've been with the Trust since.'

Justin spends much of his time meeting landowners and tenants, developing plans that help to ensure the land and

properties are carefully and conscientiously managed and maintained. There's lots of practical work – everything from creating paths and repairing gates to scrub management and monitoring wildlife. When *Breathe* asks Justin what he most enjoys about working outdoors, he says two things: variety, and having a real emotional connection with the natural world.

'There's no typical day,' he continues. 'There's variety in everything – the type of work, the landscape, what wildlife we'll see, and the weather of course. It's great for our volunteers, who get to experience and learn many different things. You see lots of wonderful sights – the peregrines along the coast never cease to amaze me. I saw a leatherback turtle once at Peppercombe beach, a pretty rare sight, and I've seen dolphins and porpoises.

'There are a number of habitats in this area, which makes it special and interesting for the people who live and work here as well as those who visit. That's one of the things I love most about the work we do – we recognise what makes places feel special. You hope people will appreciate what you do because you care so much – it's all about emotional connections.'

Breath of fresh air

Variety, fresh air, movement, stimulation – being outdoors can stir the senses. It's why many people, indoor workers included, experience a lifting of mood, a shifting of thoughts, when they take a stroll during a lunch break or sit outside for a short while to clear the mind. When you take yourself out of your physical confines, it's as if thoughts feel less constricted, too. Looking at the sky or gazing across a landscape can help to give a sense of perspective and allow for more free thinking and inspiration. These benefits may be more readily available to those whose roles are outdoors, but they are still working – that means there will likely be strains and stresses, both mental and physical, just as there can be for indoor jobs.

'You have to be practical, adaptable and optimistic because so much doesn't go to plan,' says Justin. 'We've got lots of things we have to do, but we're reliant on the weather. A fixed daily plan doesn't work – a spell of bad weather, a flood, trees blowing down, they can all throw off your day or even your week. You have to be responsive. We can plan seasonally, and prioritise, but it often comes down to what's thrown at us each day. Sometimes people can struggle with not having that daily plan. But if ever it gets frustrating, you just have to look around you at the amazing landscape and acknowledge how special it is.'

Many indoor workspaces now utilise some of the natural world's special characteristics, bringing benefits for both employees and employers. A study in 2014 found that the simple act of having plants in the office can lead to increased workplace satisfaction, overall happiness and a 15 per cent increase in productivity. Underpinning this is a notion called biophilia – that humans have an innate need to be connected with nature and function best when it is satisfied. Some companies are now incorporating biophilic design into workspaces with improved natural lighting, more natural textures and colours, and the introduction of more plants and greenery.

Working in nature won't suit or be possible for everyone, but nature and work do not have to be seen as separate worlds. They can – and do – overlap and interact. Be it plants in the office; sitting in a park at lunchtime; taking a few moments to look out at the sky; or trying to get more fresh air breaks during the day, nature has the power to inspire and uplift. It can also encourage feelings of calm and boost productivity and creativity. 'The natural world is so special and gives us so much,' says Justin. 'It's a gift.'

There are many opportunities to work, and volunteer, in nature. Justin started out on a training scheme with the National Trust. There's more on how to volunteer with the National Trust at nationaltrust.org.uk.

Words: **Dean Agius**

Serenity and the city

Bustling conurbations don't have to leave you feeling frazzled. Losing yourself in a crowd can be the ultimate getaway

New York, the city that never sleeps. A city of 8.5 million people – plus more than 60 million tourists each year. Like many of these visitors, I'd gone in search of bright lights and big sights. I certainly wasn't anticipating a peaceful retreat. Yet somehow, after elbowing my way out of the subway on my first day, that's exactly what I found.

Oddly enough, it was work that led me to the realisation that cities aren't all hustle and bustle. They can be places of rest, too. Emerging that sunny October morning in Manhattan, I battled on through the crowds – and the heavy fug of jet lag – looking for somewhere that I could send an important email (not a fire-it-off-on-your-phone kind of message). I walked past a few cafés – all full, all irritatingly loud – before chancing upon New York Public Library on 5th Avenue. My expectations weren't high. I sighed as I saw the queue at the security desk, then the groups of chit-chatty tourists congregating on the stairs to admire the building's Beaux-Arts beauty. Then I reached the Rose Main Reading Room, all grand wooden desks and low-hanging lamps. It was just the spot to get down to business. I got out my laptop, logged onto the free wifi and dutifully tapped out my email.

But I stayed much longer. Not to carry on working, but to take it all in – the respectful hush of the room; the unspoken solidarity; the dreamy frescos on the ceiling; the walls lined with old books, and the smell of those tomes. There was also the tempting fantasy that I was an undergraduate again – this time an American student, at Harvard or Yale probably, in one of those college films. *Good Will Hunting*, *Legally Blonde*...

Following my imaginative adventures at the library, I started to see the city – and my trip – differently. I allowed myself to get lost in the crowds and I stopped to look closer. I sought out cramped backstreet bookshops; vast, intimidating museums; and the small, quiet spaces in between. There was a corporate courtyard with a mesmerising water feature, the bounty of a cared-for community garden and a street full of flower sellers wilting in the after-lunch slump.

With this slow, mindful type of travel taking over, I realised I was also seeking out different activities – restorative yoga classes, meditation walks and creative writing workshops. I even took in a comedy show, where I revelled in being a passive member of the audience, happily disguised by the darkness. Of course, I could have done many of these things outside of the city, but this packed scene offered them all up conveniently in one place. That's one of the unique perks of an urban retreat.

Digital detox

Let's begin at check-in. Many hotels and spas in urban areas are now encouraging guests to unwind after a long day of travel, work or sightseeing by braving a digital detox. Mandarin Oriental, for instance, which has hotels in cities around the world, including New York and Hong Kong, operates a Digital Wellness programme at its spas. Guests hand over their phone at the reception desk to ensure their text-necks can be fully de-knotted, and their tense limbs soothed in beep-free bliss.

Hedon Spa & Hotel in the city of Pärnu, Estonia, offers totally silent spa sessions. It's a trend taking off in urban spas

'You take delight not in a city's seven or 70 wonders, but in the answer it gives to a question of yours'

ITALO CALVINO

worldwide, as predicted at last year's Global Wellness Summit in its report, *8 Wellness Trends for 2017 – and Beyond*. And there are mindful eating restaurants on the way, too.

Cities are also hubs for yoga and meditation, so whatever helps you unplug – silent yin, candlelit flow or kundalini – you're more likely to find it in a city than in the countryside. Vancouver in Canada is renowned for its yoga offerings, hosting an ever-evolving programme of classes, top teachers and meditation sessions. You can sometimes take advantage of being an out-of-towner with a free trial, too. And, in truth, you may need those mindfulness skills on the busy bus ride home.

After hours

A good way to experience the more serene side to city life is either to get up early or go out late. Aim to see it off-peak, at times when most people will be sleeping, working or doing the opposite of what you're doing.

Wherever you are in the world, it's always a treat to watch the sun rise. If you can, see the city wake up from above. Even in a metropolis as frenetic and traffic-mad as LA, there's a quiet time. The Griffith Observatory may not be open at first light, but you can still find a vantage point. Go on a short walk up one of Beverly Hills' illustrious peaks or pack a breakfast smoothie and take a hike in the San Fernando Valley – those golden California panoramas will be yours alone (give or take a few super-fit power walkers).

Anonymity is bliss

Night-time also offers new perspectives on a city. Many museums and galleries have evening openings, and some stay open all night on occasion. In London, Tate Modern is open every Friday and Saturday until 10pm, while the National Portrait Gallery runs popular Friday Lates, with drop-in drawing classes and live DJs. Alternatively, awaken your curiosity at one of the Silent Nights at Dennis Severs' House. Located at 18 Folgate Street in Spitalfields, its candlelit rooms have been reimagined to document the lives and changing fortunes of a family of Huguenot silk-weavers. Each room, with its distinct sights, sounds and smells, gives the impression that a mysterious person has just left the space. Immersed in this 18th-century world, you'll be oblivious to the trendy toing and froing outside.

An escape to the city doesn't necessarily need to be about finding a quiet corner where there aren't many people. Another appeal is its anonymity. When no one knows your name, who you are or where you come from, you're free to be, well, whoever you want to be. There are no questions to field from (mostly) well-meaning loved ones and no expectations about what you should be wearing, eating, doing or even thinking.

Choose a city – the bigger, the better – and embrace the masses. Try Paris. Skip along the Champs-Élysées. Dance your way up the Eiffel Tower and daydream your way around Notre-Dame. Who cares if people stare? After all, you never have to see them again.

Then there's Tokyo – one of the largest cities in the world. Here, unless you speak Japanese, your anonymity is likely to be even further enhanced. Do things no one would expect of you back home: eat giant heaps of sushi for breakfast, watch sumo at the Ryōgoku Kokugikan arena, go wild on the rides at Tokyo Disneyland.

Escape the countryside

If all this has you curious, and you'd like to give it a whirl, choose a city close to home for your first experience. Book a hotel for a night or two (many offer great savings on Sunday-night stays) or just make it a day trip. You don't have to travel far to dip into the restorative benefits of a city escape.

You could reignite your spark with an evening at the theatre, whether it's a thought-provoking play or a laughter-inducing farce. Then stimulate your palate at an amazing restaurant – eating alone will focus your senses on the textures and tastes on your plate – and maybe top it all off with a stay at a plush hotel. If possible, choose somewhere special with a bed that's much larger and more luxurious than you have at home – it will feel like a real retreat.

When escaping the countryside, it might be helpful to remember the beginner's meditation mantra: whatever comes, let it be. You can choose to focus on it, or you can just let it pass.

Get the most out of your time in the city

- Since you'll never totally silence the city, you can at least mute your smartphone. Avoid annoying distractions by keeping your phone on airplane mode as much as possible.
- Even in a city you know well, there are often areas you've never visited and whole communities with cuisines and traditions that might be unfamiliar. Veer off from your own beaten track and be open to something different.
- Pack a swimsuit and head to a lido or rooftop pool in your chosen city. The feeling of floating on water, gazing up at the sky, is practically synonymous with peace and tranquility.

Words: Hannah Stuart-Leach

'If one cannot enjoy reading a book over and over again, there is no use in reading it at all'

OSCAR WILDE

Word by word

Reading is one of the most wonderful ways to shut out the incessant calls of the digital age. Just make sure it's the right type of book – one that inspires you to slow down and savour each word

In a world of clickbait headlines and scrolling news, the mere act of sitting down with a book can feel like a way of slowing everything down. You may be surrounded by so many distractions that you get a real sense of achievement after remaining still for half an hour to read a book, ignoring not just the beep of your phone but the constant demands on your time to keep doing more and more. As Carl Honoré says in his 2004 bestseller *In Praise of Slow*: 'The act of sitting down and surrendering to a piece of writing defies the cult of speed.'

All the same, you are likely surrounded by temptations – ever more so in the digital age – to put down that book and attend to a more immediate, fast-lived pleasure. The lure of modern technology is so strong that the distracted brain has to be almost physically prevented from leaving the rich world of the imagination. It's the reason for the age of the page-turner – buying hook-a-minute novels to assuage that urge for the quick fix. A lot of reading material now matches this demand for speed: short chapters, cliffhanger endings and triple twists.

I love these books. And I read (and write) commercial fiction. Addictive, hook-driven narratives have often saved me from scrolling mindlessly through my phone. I will read any genre and if it keeps me avidly turning the pages then I'm happy. I'm not the only one. Crime fiction, often a byword for the page-turner, is now the most popular fiction genre in the UK, according to data from Nielsen BookScan.

Recently, however, I've wanted to take my decision to slow down a stage further. Because I'm a fast reader, any text can be skim-read but sometimes that ability means I miss out. I've often found myself at the end of a chapter with no real idea of what I've just taken in.

Although there are benefits in simply sitting down and reading, there are sometimes greater rewards to be reaped by taking one's time, travelling back over the paragraph once, twice, three times, in order for a book's true magic to be released.

Personal delights

Discovering which books are best for slow reading is an act of reflection and self-awareness, and can be a delight in itself.

Everyone has their own unique tastes and experiences. You may well have books that make you want to drop down a gear, to absorb each bit of prose. A text that I might be unable to get to grips with will be just the ticket to slow someone else's busy brain, as they linger awhile on the author's use of language or ideas.

For Olivia, an administrator living in Paris, any nature writing – whether fiction or non-fiction – decelerates her brain. 'I read incredibly quickly,' she says. 'But as soon as I come to a passage that has anything to do with nature or the land, I find myself slowing down to absorb what I'm reading. It puts me in the place – it's a really sensual experience. Even as I'm reading, I become calmer – as if I'm actually there.' She names *Germinal* by Émile Zola, for his evocative descriptions of being inside the Earth, as a book she deliberately read as slowly as possible.

On the other hand Cat, a musician from Brighton, has an affinity for in-depth psychological or social commentary. 'I'm dyslexic, so I read slowly anyway,' she says. 'But I love any writers that make me pause in the act of reading, to consider the idea they're trying to convey.' She names DH Lawrence, Dostoevsky and Freud as her particular slow-reading go-tos.

As for me, I will slow down for any novel that involves an outsider attracted to a glittering world, only to discover it is fundamentally flawed. There's an illustrious collection of this sort of fiction: *Brideshead Revisited*, *The Secret History*, *The Line of Beauty*, *The Great Gatsby*.

You'll have your own slow-reading sweet spot – those novels, non-fiction, poems or stories that settle your busy brain. Discovering what makes your reading clock tick more slowly, however, doesn't necessarily mean you find it any easier to do.

'We don't need a list of rights and wrongs, tables of dos and don'ts: we need books, time and silence'

PHILIP PULLMAN

The gear-shift

When I'm stressed and strung out, it's difficult enough to put down my phone and pick up a book. Read slowly? Forget it – I just haven't the brain space to focus.

Over the past decade, I've noticed the decline of slow reading in my own life, and I'm not the only one. A recent study by the Arts Council England found that print sales for literary fiction, often layered with slow reading delights, are on the decline.

It's because many people have speed-driven lives that steer them away from reading material that makes them slow down. I'm finding ways to resist the tide and I've discovered how to gear-shift my reading while retaining those fast books that are often the only way to save my stressed-out brain.

The answer is simple. I always have two books on the go, one quick and one slow. One will be a novel I can't put down – a commercial, fast-paced number packed with twists – while the other will force me to take the slower route.

See me on a train and you'll find me hooked on a page-turner. In any public space, with all the surrounding noise and distraction, I find it impossible to focus for long enough to slow my jumpy brain. Yet catch me at home and you'll discover me absorbed in the world of my current slow book. Even if I only spend half an hour a week on slow reading, that's 30 minutes of wealth I rarely accessed before. And although it's not much, sometimes half an hour is exactly what I need. If I spend too long, I often forget to go slow and begin to speed-read once more.

New opportunities

What about when you're established in the slow-reading habit, and wish to extend your range? There are so many books that benefit from taking them slowly. In fiction, pick any novel that's classified as literary. These are usually typeset with a smaller font, defy any particular genre and often appear on the longlist for awards.

In addition, any book that stretches the brain also demands that you slow down to comprehend the content within. I'm interested in health and neuroscience but because I'm not a naturally science-minded person, books in this genre force me to read each piece several times, slowly, to absorb its full meaning and context.

Older books also tend to require a slower pace than modern twist-a-minute page-turners. And of course, for true slow reading, go to the pre-typewritten age, and those 19th-century doorstop novels that demand so much of one's time. Even Charles Dickens, the commercial fiction writer of his day, requires his books to be read at a tortoise-like pace compared to any 21st century hook-driven narrative.

In committing yourself to slow reading, you now have the opportunity to indulge in some of the classic tales that you may have never got around to reading – but always wanted to. My own list includes *Emma* by Jane Austen and *Madame Bovary* by Gustave Flaubert.

Whatever your slow reading of choice, you'll adore discovering the true pearl: a beautiful piece of writing that deserves every drop of your time. When I find one of these, I realise how subversive slow reading can be: an act of rebellion against the world's constant demand for things of speed.

Words: **Stephanie Lam**
You can follow more of Stephanie's thoughts @StephanieLam1

HOW TO SLOW READ

- Identify which genre/authors/types of writing are the ones that make you want to slow down. When you're back in the habit, you can experiment more, by aiming for classics or other books you've always wanted to read.
- Set aside at least half an hour a week for slow reading. Choose a time and place where you won't be interrupted.
- Turn your phone down and put it in a bag or a drawer.
- It may take a few minutes to settle, but persist.
- If you find yourself racing ahead, return to the previous page and read it again, more slowly.
- Don't forget to continue with your page-turners, if you feel you need them, during your non-slow reading time.

Books to get you in the slow-reading mood

The Great Gatsby by F Scott Fitzgerald
The Secret History by Donna Tartt
The Line of Beauty by Alan Hollinghurst
The Sea, The Sea by Iris Murdoch
Lolita by Vladimir Nabokov
Middlemarch by George Eliot
Bleak House by Charles Dickens
Mrs Dalloway by Virginia Woolf

One of the oldest cultivated crops and a favourite of fussy kids, peas are probably a staple in your freezer. And now is the time to opt for fresh – be that from a greengrocer or your own garden (peas are very easy to grow). Cheap and versatile, their sweet flavour and pleasing pop make peas the ultimate summer veg.

But don't take our word for it – peas have an impressive nutritional profile. Actually seeds from the legume family, peas are a starchy vegetable thanks to their complex carb content. They're low in calories and contain just about every vitamin and mineral you need. Peas are one of the best plant-based protein sources, which together with a high fibre content, helps to slow digestion and promote a feeling of fullness. Despite being sweet, peas support healthy blood sugar thanks to a low glycaemic index, and are rich in vitamin K, which may protect against cancer.

HOW TO USE THEM

Steam for 1-2 minutes or boil for 2-3, using the minimum amount of water needed. Don't add salt – they'll toughen up. Alternatively, eat fresh from the pod. Whizz into soups or pesto, scatter over salads, or add colour to risottos and pasta dishes.

WORKS WELL WITH

Other garden shoots – think mint, dill, parsley and sage. Mash with broad beans atop bruschetta or combine with chopped herbs, olive oil and lemon, and stir through grains. Their mild flavour means they complement spices and smoky flavours, so curries are an easy win, or top pea soups, dips and purées with almonds tossed in salt and paprika.

WHAT'S COOKING?

Summer pea, mint and avocado soup

Recipe taken from There's a Vegan In The House (DK, £14.99) – out now

Serves 2

50g quinoa
2 avocados
500g frozen peas
20g chopped mint, plus extra to garnish
1 litre unsweetened almond milk

1 Rinse the quinoa under running water, drain and place in a lidded saucepan. Cover with 250ml water and bring to the boil.

2 Reduce the heat to a simmer, cover and cook for 15-20 mins, or until almost all the liquid has been absorbed and the quinoa is fluffy. Remove from the heat, drain any remaining water, and set aside to cool.

3 Scoop out the flesh from the avocados and place in a food processor. Add the peas, mint and half the milk, and pulse until smooth. Then add the remaining milk and pulse until fully blended.

4 Divide the pea soup equally between four soup bowls. Top with equal quantities of the cooled quinoa. Garnish with the chopped mint and serve immediately.

Beds that go bump in the night

ALAN MURDIE goes in search of the world's most haunted items of furniture

Recently staff at a branch of the not-for-profit organisation Habitat for Humanity in the USA faced an unusual problem. One of their thrift stores, based at Rowan County, North Carolina, received a donation of heavy wooden furniture, donated with the aim of helping families worldwide create better homes for themselves. The problem with this particular donation, a chest of drawers and a canopy bed, was the donor telling them the pieces were haunted. The owner revealed that from the time of purchase, some years before, he and his wife had suffered "continuous nightmares" at their home. Additionally, after installing the furniture items, "the dogs wouldn't quit barking" and finally, on the seventh night in their home, he reported having "a lot of trouble waking his wife up."

Such statements would hardly be sufficient for concluding that a ghost must be on the loose, but these admissions placed the charitably inclined staff at Habitat for Humanity Rowan County Restore in an ethical dilemma. In media interviews Store Operations Director Elizabeth Brady stated that in 13 years, "this is the very first donation I'm aware of that's had that claim. We don't say we believe in ghosts or don't, but I have trouble selling this to someone not disclosing that. I would want to know as a customer."

As their business pursues the humanitarian goal of raising money for those in need, they were obliged to accept this donation for subsequent re-sale at the best price possible. But at the same time, as a Christian-orientated organisation, if the tall-boy and bed really were haunted, they didn't want to expose potential purchasers to spiritual hazards. Selling goods that might trigger ghostly manifestations would hardly be consistent with their goal of making a positive contribution to the lives of others.

In a notoriously litigious society such as the USA, that might well be a factor to be considered, albeit as a potentially novel ground in consumer rights and product liability. Accordingly, the items were exposed for sale with a warning notice pasted on them advising prospective customers: *"Please note, previous owner reports that the highboy is haunted. He reports continuous nightmares for he and his wife while it was in their room. He also reports the dogs would not stop barking at it."* Inevitably, this attracted a lot of publicity, Ms Brady adding: "Actually, a lot of people are interested because it's haunted supposedly".

HABITAT FOR HUMANITY

LEFT: The reportedly haunted bed and chest on sale for $1,000 at a Habitat for Humanity store in Rowan County, North Carolina.

Before long both pieces were successfully sold to two regular customers intrigued enough to pay the full price of $1,000. One of the purchasers, Ricky Scott, stated: "I don't really care they think it's haunted... We actually live really close to Gravity Hill, which they say is haunted here in Rowan County... Let's hope it's a nice ghost." Time will tell, Mr Scott. (*www.foxnews.com/real-estate/thrift-store-warns-buyers-of-haunted-furniture-for-sale-reports-of-continuous-nightmares)*

While we have no reason to doubt the genuineness and the sincerity of the donor of the furniture to Habitat for Humanity, there is no way of ultimately proving what caused the nightmares or his dog to bark. To imply some psychometric influence whereby individual objects carry psychic impressions has appeal as a hypothesis, but thorough experiments with haunted objects have yet to be carried out. Unless better attested reports are obtained or specimens made available for testing, all will remain in the realm of speculation as to whether the reported phenomena originate purely within the mind of witnesses or attach more generally to the premises in which the items are situated.

Touching an antique or genuinely historic object can often convey a vivid mental image and stimulate the imagination, but in this case the items date only from the 1950s, a comparatively recent vintage among occasional specimens of haunted furniture which have been publicised since the end of World War II.

Such haunted furniture stories are curiously appropriate for our modern age. At one time, supernatural horrors and terrors lurked in dark woods and forests. Now, with so many of our primæval forests felled and our urban population disconnected from woodlands, ghost stories emerge from the mass-produced final products of the sawmill and industrialised carpentry.

Haunted items of furniture represent a cult of supernatural relics, geared for consumer culture, providing intriguing stories for mass media dominated by advertising. The idea that furniture can be haunted rests upon the still popular belief that not only houses but also particular objects can become possessed or imbued by spirits or psychic forces. Chairs, especially rocking chairs and beds, feature particularly in such accounts.

In 2009, claims of a haunted chair provided for the President of Ghana prompted the appointment of a parliamentary committee to investigate (see *A Brief Guide to the Supernatural* (2012) by Leo Ruickbie; www.modernghana.com/news/200463/parliament-investigates-haunted-chair-saga.html.

In 2015 the *Daily Mail* cited a number of examples of what it branded "The world's most haunted pieces of furniture" (25 April 2015), including a "conjure chest", a "cursed portrait" and a "chair of death" with a summary of their alleged grim histories. Appearing on their list were the notorious 'Crying Boy' picture "spotted at scene of house fires" [**FT46:22-23, 47:36, 69:17, 234:32-38**]; "haunted bunk beds of Wisconsin [that] terrorised a whole family in 1987" and a claim that four people died after sitting upon a 'cursed' 200-year-old wooden seat from Philadelphia.

A sprinkling of such stories can be found in the psychic newspapers over many years, e.g. "Dead owner haunts couple who buy her chest of drawers" (*Psychic News,* 30 Dec 1972). Local papers, adept at magnifying the significance of parochial dramas and tales, also enjoy them. In 2013 the *Warrington Guardian* recalled how "the old cottage of Firth Place on Froghall Lane was home to an old lady named Jenny Lightfoot, who spent her days rocking to and fro in her rocking chair... After her death, the rocking chair was sold to a pawn broker for half-a-crown, but was quickly given away after passers-by noticed the chair rocking silently on its own... For generations, the rocking chair has been passed from home to home with many afraid of the consequences should they throw the chair away." (*Warrington Guardian,* 31 Oct 2013).

The problem with so many of these stories is that they are so obviously synthetic, like many of the items themselves. Rarely do such tales rise much above the level of 'The Nurse's Return' recounted in Elliot O'Donnell's collection of spine-chillers, *The Midnight Hearse And Other Ghosts* (1965). Briefly told, the story avers that a certain unnamed army general and his wife were once haunted by increasingly disturbing visions of a faceless nurse in a grey uniform. Consulting a doctor knowledgeable of psychical research, he diagnosed the cause as their innocent purchase of an antique writing desk with an unfortunate history. The desk belonged to a nurse who had committed suicide after accusations of mistreating mental patients. When the couple disposed of the desk the haunting ceased. No details are provided other than it supposedly occurred in Fleetwood, Lancashire, "a few summers ago", but since it draws upon a collection of O'Donnell's writings composed over 60 years, it could have dated back as far as the Edwardian era, though in all likelihood it never occurred at all.

Similarly, two generations have been misled by the tales spun about the most famous piece of haunted furniture in Great Britain in the last 75 years, a cursed pub chair known as the 'Busby Stoop' in Yorkshire. This malicious seat received national coverage in a 1970s broadcast of the BBC TV news and current affairs programme *Nationwide*, known for its sometimes-irreverent approach to news reporting (it also publicised the cursed bottles in a pub in Alnwick, Northumberland). The chair is now displayed in Thirsk Museum in Yorkshire.

In 1702 Thomas Busby was found guilty of the murder of his father-in-law and forgery, and sentenced to be hanged and gibbeted outside the Busby Stoop Inn where he was a regular drinker, and which still stands today south of Thornton-le-Moor at the crossroads between the A61 and A167.

LEFT: The 'Busby Stoop', Britain's most famous piece of haunted furniture. **BELOW:** Yorkshire's Thirsk Museum, where the chair now resides.

Before his execution, Busby was permitted one last drink in his favourite chair in the inn. After swallowing his last drop of ale, he pronounced a curse over the chair as he left for the final drop from the scaffold, declaring all who sat in it thereafter were doomed to suffer and die.

In the years afterwards, the chair was said to have claimed up to 60 victims. In the mid-1970s landlord Anthony Earnshaw told four stories of reckless individuals known to him who mocked the curse and died very soon after occupying the seat. The first two were an army sergeant and a teenage bricklayer, after which the chair was locked away. This failed to prevent two more deaths. A personal friend of Earnshaw aged 42 died unexpectedly after sitting in it, as did a fellow member of his local Masonic lodge, both men having recklessly chosen to disregard all warnings and snatch an opportunity to sit on it when Earnshaw showed it to them. Fearful of more fatalities, in 1978 Earnshaw presented the chair to Thirsk Museum on the proviso that it should be hung from the ceiling so no one could sit on it again (*Morning Advertiser,* January 1987). As the Museum confirms, "The Busby Stoop chair has not been sat on since".

When museum experts carried out an examination in 2016, they concluded it was actually manufactured after the 1840s, at least 138 years too late for Thomas Busby ever to have sat, quaffed or cursed in it, if dating was accurate (*Northern Echo,* 2 Jan 2018).

This was not surprising. Ian Wilson, author of *In Search of Ghosts* (1995), observed its reputation was "in tatters" after needing to make only one telephone call locally to the current landlord of the Busby Stoop pub, establishing that the story was wholly unknown prior to World War II. Furthermore, none of the names of the alleged victims were available or could be checked in local records.

The problem was having so seemingly solid a witness as the Yorkshire landlord endorse the story with a claimed first-hand association. Another example of what seems like another invented joke sustained for years was the tale of a haunted rocking chair contained in a second volume of a memoir, *Further Particulars* (1987) by CH Rolph (1901-1994), recalling his varied life as a City of London police officer turned author and criminal justice reformer. Rolph set down the story in all seriousness, and never otherwise concerned himself with paranormal matters (despite working on penal reform campaigns with Arthur

TIM GREEN / CREATIVE COMMONS

Koestler, whose 1983 bequest founded the Koestler Chair of Parapsychology at Edinburgh University). Thus, it constituted his one and only ghost story, which he believed to be true. He originally received it in 1919 from a Maida Vale clerk named Bert Trotman, who described encountering a haunted rocking chair when trying to solve the mystery of an abandoned hotel at Bramford, Suffolk, in the late 19th or early 20th century.

A murder had supposedly been committed in the hotel, with the body of the victim found tied to a rocking chair, some 20 years before. Trotman went up to Suffolk with another man named Mayhew to spend the night at the creaking and overgrown building, lured by the promise of £100 reward if they did so. They took Mayhew's pet bulldog with them. During their vigil, their lamps failed and the dog went berserk in the dark. When the lamps were relit, the animal was found to be dead. In the middle of the room was a large Windsor rocking chair, moving of its own volition. The terrified men fled, but once outside realised they ought to go back to collect the dead dog. Summoning their courage, they returned to collect the dog and were aghast to see the chair rocking even more violently. They fled again, "Their second exit, more resolute even than the first one, took up less of their time."

Trotman told Rolph this story in 1919. Over 20 years later in 1941, Rolph met Mayhew, who confirmed it in every detail, other than "that the dog was a Boston terrier and not a bulldog". For Rolph, this left an "uneasy acknowledgement for the occult, and an uneasy and ineradicable distaste of rocking chairs".

However, the tale contains a number of improbabilities, not least in that Bramford was not some isolated hamlet but a thriving village three miles from Ipswich. In particular, the village underwent a major haunted house scare in 1887 with a poltergeist outbreak covered in the *East Anglian Daily Times* (8 Dec 1888), which attracted a lot of contemporary attention, yet the haunted hotel story seems completely absent from news records. It seems improbable that such a notoriously haunted property would have gone unmentioned, especially if a reward of £100 was offered, given the depressed level of agricultural wages at the time. Of course, it is possible that further research may turn up further details, but I am inclined to think it was a case of two friends winding up the young CH Rolph with their rocking chair ghost tale, and keeping the joke running for two decades, by which time Rolph had reached the rank of police inspector. False allegations, wasting police time and the sharing of barmy stories with police officers to get attention is nothing new, continuing to this day as freedom of information requests regularly demonstrate.

Ian Wilson is one of handful of ghost hunters who has pursued claims of haunted furniture and relics with any degree of diligence. The idea of the dead returning to take a seat on chairs is a widespread one; in September 1999 at the Spiritualist centre at the Castle Hasdeu temple at Campina, Romania, I saw examples of 'spirit chairs' specially manufactured at the end of the 19th century for materialised spirits, provided on the basis that having travelled across the boundary between life and death they had come a long way and were in need of rest!

However, with stories of spontaneous ghost experiences, it seems the idea is that post-mortem former occupants remain tethered to their chairs like a goat to a post. After Dennis Bardens broadcast the case of a reputedly haunted chair for BBC radio on 21 December 1949, he looked into the case of another haunted chair bought at an auction by a Mrs Barbara Barnes of Barton on Humber, which came with the ghost of an old man. The silent form appeared periodically seated in it whenever it stood in her kitchen. Her daughter Barbara had also seen the ghost. Bardens found her story plausible. When he sat in the chair, he felt nothing untoward, although he admitted he might not like to spend a night in it.

Another writer who was particularly interested in chair-based hauntings was Alasdair Alpin MacGregor, providing a chapter entirely devoted to them in his book *Phantom Footsteps* (1959). His most recent was the story of a phantom, seen in a house in Pembrokeshire at Christmas 1956 by a retired Indian Army Colonel named George Rind. MacGregor also believed ghosts could be photographed in chairs. Although a competent photographer himself, and rather proud of his reputation as such, he seems to have been prepared to suspend caution when it came to psychic photographs, to the extent of declaring: "I harbour not a vestige of doubt that the camera may record on a negative a human or other presence unseen by the actual photographer." He reproduced a fine example in his book, allegedly obtained at a property in Sunbury on Thames.

Harry Price was famously pictured in a haunted bed in a museum in Chiswick with philosopher CEM Joad. Numerically speaking, stories of haunted chairs and all other pieces of furniture are far exceeded by stories of haunted beds; statistically speaking, there is a higher chance of seeing a ghost while you are in bed than at any other time. Stories involving beds and poltergeist infestations are legion, but these tend to be short-lived and person-centred, along with accounts of people who feel bedclothes stripped from them during the night or suffer attentions from 'bedroom invaders'. Psychoanalyst and psychical researcher Nandor Fodor gave haunted bed stories a predictably Freudian interpretation in *The Haunted Mind* (1959).

I stayed in a reputedly haunted bed at the Crown Inn, Bildeston, Suffolk, in June 1997 and in a room at the Saffron Hotel, Saffron Walden, Essex, with an allegedly haunted chair in it in 2009. I witnessed nothing on either occasion.

MARY EVANS PICTURE LIBRARY

KARL SHUKER hails a palæontological discovery that may shed light on a monstrous cryptid

A FOSSIL NANDI BEAR?

One day in 2013, while conducting postgraduate research at Kenya's Nairobi Museum, palæontologist Matthew Borths from Ohio University opened a cabinet drawer and made a truly incredible discovery: an enormous fossil lower jawbone bearing some teeth, plus some individual teeth, a heel bone, and some distal toe bones. Borths learned that they had been collected in 1978-1980 during excavations at an early Miocene fossil bed named Meswa Bridge, in western Kenya, but had never been formally examined, lying forgotten and unstudied ever since. Moreover, he discovered that another Ohio University palæontological researcher, Nancy Stevens, had also seen them in that same drawer when she too had been conducting research at Nairobi Museum. After Borths contacted her, they researched the remains and revealed that they belonged to a hitherto undescribed but quite enormous species of primitive mammalian carnivore known as a hyænodont.

The hyænodont lineage's most recent fossils are around five million years old (those of the giant new species were some 22 million years old), after which they apparently became extinct. Using three different methods to estimate size, Borths and Stevens obtained estimated total body masses for this very belatedly recognised species of 280kg (617lb), 1,308kg (2,884lb), and 1,554kg (3,426lb), plus a total length estimated at up to 2.5m (8ft) and a height of up to 0.75m (2ft 6in). If the creature had attained the upper estimates of mass, length, and height, it would have been at least as big as the polar bear, today's largest terrestrial mammalian carnivore. In a 17 April 2019 *Journal of Paleontology* paper, they formally named this giant hyænodont *Simbakubwa kutokaafrika*, which is Swahili for 'big lion from Africa'. For although entirely unrelated to it, this huge beast would definitely have been an apex predator in its time, just like the lion is today.

All in all, an exceedingly interesting palæontological find – but what bearing does it have upon cryptozoology? Let's rephrase that question as: don't you just love totally random coincidences? Kisumu County in western Kenya contains Meswa Bridge, the site where the long-overlooked remains of a monstrously huge fossil mammalian carnivore were discovered; and Kisumu County just so happens to be situated immediately below western Kenya's Nandi County, which contains the dense, once-contiguous Nandi Forest where a monstrously huge mystery mammalian carnivore dubbed the Nandi bear has been reported many times.

But what is, or was, the Nandi bear? (Alleged sightings during the past 70 years have been far fewer than back in the early 20th century, leading to speculation that even if it were real, it may now have died out.) In fact, this ferocious, greatly feared cryptid has been described in so many different ways by eyewitnesses down through the years that some cryptozoologists, including Dr Bernard Heuvelmans and myself, have opined that the Nandi bear is almost certainly a non-existent composite. That is to say, it has been 'created' via the erroneous lumping together by native traditions and Western investigators alike of sightings of several very different animals, known and unknown, which may include such disparate species as hyaenas, baboons, large male ratels, aardvarks, and possibly even one or more prehistoric survivors, like the giant short-faced hyaena *Pachycrocuta brevirostris*, the African bear *Agriotheriium africanum*, the giant baboon *Dinopithecus ingens*, and/or maybe one of those bizarre claw-footed ungulates known as chalicotheres. All of these were still in existence in Africa as recently as the Pleistocene (2.5 million to 11.7 thousand years ago), as confirmed by fossil finds.

Should a surviving hyænodontid (not necessarily *Simbakubwa* itself, but potentially a modern-day reclusive descendant, one whose morphology and gait may have changed somewhat during the 22 million years of evolution occurring from *Simbakubwa*'s time into modern times) now also be added to this list? Who can say? Everything about the Nandi bear is highly speculative, but my cryptozoological antennæ definitely began twitching when I saw how unexpectedly close to one another were the fossil bed where *Simbakubwa*'s remains were found and the Nandi Forest where the Nandi bear was traditionally reported. Just for the record, I have modified my opinion recently as to the most likely identity of the Nandi bear, thanks to a remarkable and exceedingly exciting but previously obscure report that I only lately obtained, and which I am now actively investigating. More news if and when I have it.

www.tandfonline.com/doi/full/10.1080/02724634.2019.1570222; www.nationalgeographic.com/science/2019/04/new-species-ancient-carnivore-was-bigger-than-polar-bear-hyaenodonts/; www.sciencedaily.com/releases/2019/04/190418080758.htm; www.thevintagenews.com/2019/04/22/fossil-in-a-drawer/.

MORE MOON MYSTERIES

NASA'S 'MISSING' MOON TAPES

NASA has a poor reputation for conservation of historic data. Last summer a batch of 'missing' tapes from the 1969 Moon landings were re-examined in order to determine whether the surface had warmed up since the Apollo missions. During Apollo 15 and 17 in 1971 and 1972, measurements were taken of the Moon's surface temperature. The data were stored on magnetic tape, but much of it was not properly archived and presumed lost. Starting in 2010, a team of academics spent eight years tracking down the tapes and performing data recovery on the decaying storage material in order to retrieve the information. The conclusion was that the astronauts themselves had disturbed the surface layer of the Moon, exposing the darker undersoil that absorbed more light from the Sun, so heating up the surface.

A further example of NASA's seeming carelessness with data tapes came in 2015. A batch of 325 magnetic tapes labelled as belonging to NASA was discovered in the basement of a dead man in Pennsylvania, along with two giant analogue computers. A scrap metal dealer clearing the house reported the find. According to the labels, at least some of the tapes related to earlier Pioneer missions, while others were data from weather satellites. NASA specialists spent five months analysing the tapes and attempting data recovery, before destroying the originals. It is unclear what data was recovered and whether it was of any significance, with NASA dismissing the tapes as merely back-up copies "of no intrinsic or informational value to the agency". How they, along with the computers, ended up in a Pennsylvania basement remains a mystery.

Worst of all for NASA was the 2006 admission that the agency had wiped the original tapes from the Apollo mission of July 1969. A search was mounted so the footage could be used in a new television programme, but it was discovered that the Apollo tapes were among the 200,000 magnetic storage tapes wiped and re-used by NASA, due to the then expensive nature of the tape (the same excuse was used for the junking of many British television programmes of the 1960s). Copies of the material were retrieved from the archives of CBS Television, while kinescopes (Super 8 film recordings from Australia) of the television coverage was located in NASA's Johnson Space Center vaults. Lowry Digital, better known for restoring old Hollywood movies, was contracted to restore the available Apollo footage. This sparked a conspiracy theory that Hollywood continued to be involved in the falsifying of the Moon landing right into the 21st century. "The conspiracy theorists are going to believe what they are going to believe," noted Lowry Digital Chief Operating Officer Mike Inchalik.

MUSIC TO AN ASTRONAUT'S EARS

The crew of Apollo 10 – Gene Cernan, Tom Stafford, and John Young – heard what they dubbed 'Moon music' while travelling across the far side. For about an hour, the astronauts were out of contact with Earth, but instead they heard 'unearthly' sounds. Transcript of the astronauts' conversation remained classified in the NASA archives until 2008. "The music sounds 'outer-spacey', doesn't it," says one astronaut. "You hear that? That whistling sound? Well, that sure is weird music." After about an hour, the 'music' stopped. Prior to reconnecting with Mission Control at Houston, the astronauts discussed whether to mention the weird sounds they'd picked up over their radio. An audio recording of the flight reveals astronaut John Young asking: "Shall we tell them about it?" Gene Cernan then replies: "I don't know. We ought to think about it." The 'space music' remained a mystery until the Cassini spacecraft picked up similar sounds from Saturn. The sounds, picked up as radio waves, were caused by charged particles moving through Saturn's magnetic atmosphere – but the Moon lacks both atmosphere and magnetic field. The eventual explanation was put down to cross-interference from the Apollo spacecraft's own radio systems. While Stafford and Cernan were in the Lunar Module, Young remained in the Command Module; both vehicles had their own active radio systems. The issue was never publicly discussed by the astronauts.

SPACESHIP MOON

The Hollow Earth theory is well-known, but what about the Hollow Moon? In 1970, two Russian scientists, Michael Vasin and Alexander Shcherbakov of the Soviet Academy of Sciences, published a paper titled "Is the Moon the Creation of Alien Intelligence?", which suggested that "The Moon is an artificial satellite put into orbit around the Earth by intelligent beings". Based on measurements of the depth of visible craters, they concluded the shell was only two-and-a-half miles (4km) thick and the interior was hollow. NASA scientists were reported as claiming that the Moon "rang like a bell" for hours after the deliberate crashing of Apollo 12's ascent stage, suggesting it might be hollow. Seismometers installed on the Moon by astronauts recorded 'moonquakes' between 1972 and 1977. The Moon's lesser density than Earth has been put forward as evidence both that it is hollow and as a cause of the moonquakes.

Essentially, in modern pop cultural terms, the Moon is the Death Star from the *Star Wars* films. The theory is that this spaceship Moon contains ancient extraterrestrials whose job it is to monitor the Earth and note the technological progress of humanity. It might also provide an explanation as to why the US abandoned the Moon missions in 1972 – were they warned away by its alien inhabitants?

The first mention of a hollow Moon actually comes in science fiction with HG Wells's 1901 novel *The First Men in the Moon*, so it is hardly a new idea. Others ran with it, including Edgar Rice Burroughs (in 1926's *The Moon Maid*), Isaac Asimov (in 1986's *Foundation and Earth*), and David Weber (in 2003's *Empire from the Ashes*, which postulates the Moon is an alien spaceship put into Earth orbit 50,000 years ago). Additionally, the hollow Moon is a favourite topic of former goalkeeper turned conspiracy guru David Icke, who believes that it is from there that reptilian aliens monitor and influence human thought. In an infamous episode of *Doctor Who* starring Peter Capaldi, the Moon was revealed to be a giant egg which then hatched into a huge 'space dragon'.

SPACE FRONTIERS / GETTY IMAGES

Am I normal?

Can't concentrate for more than 10 seconds? Forget people's names as soon as you are introduced? Can't stop thinking about sex?

Congratulations – you have a human mind. Our brains are peerlessly creative, but also home to wildly veering trains of thought, strange obsessions, irrational emotions and delusional beliefs.

So what counts as a "normal" mind? Is there even such a thing? Put it another way: are you thinking what I'm thinking?

IS MY MEMORY NORMAL?

I'M NOT a person for a pub quiz team. I can dredge up obscure details from conversations long ago, but I can never remember the heights of the mountains I have climbed or the names of pop bands.

My colleague Richard is the opposite. He's great at remembering facts, but all at sea when it comes to details of his past personal experiences. Should he or I be worried?

Memory is actually mostly about forgetting: all brains discard most of the sensory data they receive. "Tomorrow you'll remember reasonably well a conversation you had today," says neurobiologist James McGaugh of the University of California, Irvine. "Within a week, a lot of that information will have been lost." Within a year, the conversation might be gone entirely.

Direct sensory memories only last a few moments. Some go on to make short-term memories, such as the phone number you just dialled. Exact figures are hard to pin down, but an average brain can probably keep around four things in mind at once, for up to 30 seconds.

Only really important or meaningful information makes it into long-term memory, such as a conversation that contained a personal insult. "We have selectively strong memories for events that are emotionally arousing," says McGaugh. Long-term memories divide into two main types. Semantic memories record facts, such as the concept of a train. Episodic ones are about events we have experienced, such as a particular train journey.

We probably all know someone who has an encyclopaedic factual memory, but extraordinary episodic memories are a more recent discovery. "These people remember events from years ago the way you and I remember events from last week," says McGaugh. There's also the opposite condition, in which people struggle to recall even recent events they have experienced. "They know the event happened, but they can't mentally travel back, even one week," says Daniela Palombo, who researches autobiographical memory at Boston University in Massachusetts.

Most of us fall between these two extremes. True to the stereotype, women tend to have better episodic memories. With semantic memory, men tend to remember spatial information better, whereas women generally perform better at verbal tasks, such as recalling word lists. Personality type seems to be a factor, too: people open to new experiences tend to have better autobiographical memory.

Ageing affects the recall of personal experiences more than that of facts, as does depression. But if by our 40s ›

DARREN HOPES

we notice we can't remember new names, it's not that our brains are overloaded – our memory capacity is practically unlimited. Rather, gradual changes in brain structure, such as a reduction in the density of dendrites that help to form connections between neurons, make the creation and retrieval of memories less efficient.

But until you start finding it difficult to carry out a simple task you have done many times before, or follow the flow of a conversation, you shouldn't be overly concerned if your memory seems to move in mysterious ways. Ultimately, memory is a personal thing, says psychologist Charles Fernyhough of Durham University in the UK. "People remember things that are important to them. We all have different interests and this changes what our mind processes," he says. "My wife is interested in flowers. When we visit a garden, I just see a jumble of colours, whereas she will remember all sorts of detail."

Memories are systems with multiple parts that change over time, so it is unsurprising that there is a lot of variation. "There are strong individual differences," says McGaugh. "It's a characteristic of human memory that we don't all remember the same kind of things." **Alison George**

IS MY ATTENTION SPAN NORMAL?

For the past few minutes, I have been trying to control the weather with my mind. Thanks to an EEG headband reading my brain's electrical activity, I need only direct my thoughts to a calmer place and the rain will stop, the sun will come out and the birds will sing – at least on my smartphone. But the harder I try, the harder it pours.

The device I am using, called Muse, promises to tame the wandering mind, and so reduce stress and boost focus. Our wandering minds tend to make most of us feel guilty. "We have anecdotal evidence that most people think they mind-wander more than average," says Jonathan Schooler of the University of California, Santa Barbara.

Schooler has attempted to assess "normal" levels of mind-wandering in the lab by, for example, getting people to read extracts of Leo Tolstoy's *War and Peace* and interrupting them to ask their thoughts at random intervals. Such studies reveal we spend anywhere between 15 and 50 per cent of the time with our head in the clouds.

Such a lack of focus might seem terribly inefficient, but probably isn't. "It's unproductive in the context of whatever you are doing currently," says Schooler. "However, it is potentially productive in the context of whatever it is you're thinking about. You might be reading a book and thinking about planning a party, and it's totally compromising your ability to read the book, but you're making progress on the party." There is good evidence that a wandering mind is an evolved trait that helps us to think about and plan for the future – something that also fosters a uniquely human creativity.

Even so, might there be too much of a good thing? One common worry is that our concentration is dwindling as technology provides more distractions. A recent report published by Microsoft claimed that the average Canadian attention span was down from 12 seconds in 2000 to 8 seconds in 2013 – one second less than a goldfish.

J. Bruce Morton at Western University in London, Canada, is sceptical. For one thing, there's no standard measure of an attention span, he says. "What people want to hear is, how long can you concentrate for? And what should a child's attention span be? But those are not concepts that are normally used amongst scientists studying the topic."

Measuring perhaps the closest thing – the ability to stay focused on one task, known as selective attention – involves looking at attention shifts on the millisecond scale, such as asking people to state the colour of shapes as they pop up on a screen while ignoring distractions that pop up at the same time. Such experiments show a lot of variation in selective attention. It's low in kids, perhaps because the developing brain has yet to master control over areas that process incoming sensory information. It then improves until the age of 20, when it plateaus until middle age, before diminishing once again.

But there's no evidence technology is making us worse at concentrating, says Morton. Instead, it has just become so well-designed and intuitive that it takes advantage of our innate ability to think of several things at the same time.

If you are still worried, there are things you can do. Stay off the booze – alcohol reduces our awareness of mind-wandering, says Schooler. "When you consume alcohol, you mind-wander more and notice it less." Technologies that promote thought control, like the weather-controlling app, could also help. "People who practice mindfulness mind-wander notably less," says Schooler. **Catherine de Lange**

Read about more oddities of the wandering mind at bit.ly/NSmindwander

ARE MY EMOTIONS NORMAL?

Ever started the day positively and full of determination, only to have someone whip the carpet from beneath your feet with an angry comment? Find yourself easily overwhelmed by hunger, sirens, strong smells or bright lights? Were you a shy or withdrawn child? If you answered yes to some or all of these questions, you may be a "highly sensitive person".

Or do you tend to stay cool, calm and collected, not let other people's emotions influence you and have a strong sense of your own worth? If so, you may chart on the psychopathy scale established in the 1970s by Canadian psychologist Robert Hare.

Highly sensitive, or psychopathic – those are labels that most of us would rather not acquire. But psychologists have devised many scales to assess the human emotional range, and we are unlikely to get an average score on all of them. According to psychologist Elaine Aron of Stony Brook University in New York, for example, the "highly sensitive" tag accounts for about one in five of us.

> "Tend to stay cool, calm and collected? You may well chart on the psychopathy scale"

Early indications are that a messy mix of thousands of genes determines something like our sensitivity to the environment, says Michael Pluess of Queen Mary University of London – and that's just one factor that determines our emotional make-up. In the past decade, psychologists have identified dozens of genetic variants more common in highly sensitive people that, for example, regulate key hormones such as serotonin, dopamine and oxytocin. Pluess has found that many of these genes increase activity in the amygdala, a brain region involved in processing emotions.

It's not all bad news, however. Although highly sensitive people can often be overwhelmed by negatives, Pluess has found they are also more tuned to subtle positives, are deeper thinkers and are often more creative. Higher sensitivity to external cues may also make them better at adapting to new environments, an evolutionarily advantageous trait. As a general rule, sensitive people also tend to score ›

higher on empathy tests, says Sarah Garfinkel of the University of Sussex in the UK.

Conversely, individuals lacking in empathy or remorse may be desirable when group interests need to be put ahead of individual ones. "These are the people who will fire large numbers of people for the good of the corporation," says Garfinkel.

The fact that evolution hasn't selected for any particular combination of genes suggests a mix of people with different character traits is a healthy situation. And while clear outliers do exist – the extreme psychopathy that leads to cold-blooded killing, for example – our emotional reactions are generally kept from running riot by the circuits that connect the prefrontal cortex, the brain's thinking area, to the amygdala. "That means that in a healthy brain, you can, to some extent, control your emotional reactions with reasoned thought," says Garfinkel. **Catherine Brahic**

Want to know if you are a highly sensitive person? For a more comprehensive list of traits, have a look at Elaine Aron's questionnaires at www.hsperson.com/test/

FIVE MODES OF THOUGHT

Since the 1970s, Russell Hurlburt of the University of Nevada, Las Vegas, has been beeping people six times a day to write down their thoughts, and following that up with interviews. His work suggests five basic modes of thinking:

INNER SPEAKING Hearing words in your own voice
INNER SEEING Seeing a visual image in your mind's eye
FEELING Any strong emotion
SENSORY AWARENESS A sensory signal that overwhelms all else. Can be imagined, e.g. thinking of something soft
UNSYMBOLISED THINKING A concept unattached to any mental words or images

Often, these thought modes are mixed up, as in this example:

"Emma is cleaning up her kitchen... she had picked up a glass from her counter and had noticed two vases of mostly dead flowers... she's putting the glass upside down into the dishwasher; the seeing the glass and surrounding glasses and the trying to get it to fit are part of her experience... she innerly hears the crunchiness of dead flowers (as if she has picked up some fallen rose petals) [(Imagined) sensory awareness]... *Simultaneously she innerly sees the two vases of flowers and the countertop with the dead petals* [Inner seeing]. *This imaginary seeing is in color and detail... She has a sense that the cleaning up of the flowers can wait; the sense of can wait is somehow present without words or symbols* [unsymbolised thinking]"

In this example, is Emma thinking about clearing up the kitchen? Dead flowers? Or nothing in particular? The complexity of such thought processes, and their variation between people, leads Hurlburt to argue that it is almost impossible to assess the content of thoughts, let alone decide their "normality".

If you accept that these were Emma's thoughts when the beeper went off and want to categorise them, says Hurlburt, "then you have to throw your hands up and say 'I can't do it'". When science captures thinking it tends to be more big-picture thinking, he says – and that type is fairly rare. "The Emma example is closer to what people actually do, and I don't think science has fully grasped that." Caroline Williams

ARE MY BELIEFS NORMAL?

Alice laughed. "There's no use trying," she said: "one *can't* believe impossible things."

"I daresay you haven't had much practice," said the Queen. "When I was your age, I always did it for half-an-hour a day. Why, sometimes I've believed as many as six impossible things before breakfast."

In Lewis Carroll's day, believing impossible things would have been seen as a sign of mental imbalance. Today, we know that it is quite normal. Six before breakfast is probably about par for the course.

Belief is like a personal guidebook to reality: it tells us not just what is factually correct but also right and good. It fundamentally informs our behaviour. It would be nice to think these guidebooks are reliable and dispassionate, but it has become clear that they are not. Beliefs are largely a product of our fallible psychology, gut feeling, the company we keep and biological differences such as how easily we scare (*New Scientist*, 4 April, p 28).



HARRY GRUYAERT/MAGNUM PHOTOS

It couldn't be any other way: if we had to form our beliefs using direct experience and verification, we would struggle to get to grips with even the basics of physical reality.

That isn't to say anything goes. Well-adjusted adults usually have a fairly stable, internally consistent belief system largely anchored in reality. That still leaves room for contradictions, magical thinking, the supernatural, the paranormal and all manner of other impossible things – not just before breakfast but all day, every day.

Research by Peter Halligan and colleagues at the University of Cardiff, UK, has found that most people hold at least one "delusion-like" belief. These are mild versions of beliefs that could get you diagnosed with a mental illness – that your family have been abducted and replaced by impostors, for example. Most of us seem untroubled by them.

So "normal" belief is a big tent. It is normal to believe unswervingly that God exists. It is also normal to believe unswervingly that (s)he doesn't. Ditto all the political, social and economic beliefs that we endlessly debate.

It's hard to argue even that beliefs a given society might deem unacceptable – racism, for example, or apostasy – aren't "normal" beliefs. Unless you are genuinely deluded, you are probably normal. But then again, delusions feel like real beliefs, so the only way to check that yours are "normal" is to consult a psychiatrist. And believe what they say. **Graham Lawton**

Pleasures of the flesh often pop up unprompted in our thoughts

ARE THE VOICES IN MY HEAD NORMAL?

For Socrates, it came as a warning when he was about to make a mistake. For Sigmund Freud, it was a loved one accompanying him when he travelled alone. Hearing voices has a long history.

And as those distinguished gents perhaps attest, it isn't always a sign of madness: our everyday thoughts often sound pretty voice-like. In 2011, Charles Fernyhough and Simon McCarthy-Jones of Durham University, UK, found that 60 per cent of us experience "inner speech" with a back-and-forth conversational quality.

So where does inner speech end and hearing "outside" voices begin? One answer is that an inner voice "sort of feels like you", says Fernyhough, so you feel more control over it – but given how involuntary many thought processes seem to be, that is rather unsatisfying. "The question is at the heart of the puzzle of hearing voices, and why we haven't got better at understanding it," says Fernyhough.

On the back of their biggest study so far, he and his colleagues estimate that between 5 and 15 per cent of us hear outside voices, even if only fleetingly or occasionally. About 1 per cent of people with no diagnosis of mental illness hear more persistent, recurring voices. Around the same proportion of the population is diagnosed with schizophrenia, challenging the assumption that the two are related.

So far, there seems to be little difference between the brains of those who haven't been diagnosed with mental illness, but do hear voices, and those who don't hear voices. It's probably best to ask yourself one question before getting worked up about the voices in your head, says Fernyhough: are they bothering you?

Voices aren't the only expression of our inner thoughts – our minds tell us stories, too. This "confabulation" is a symptom of some memory disorders, whereby people have false recollections. But the rest of us do it too. Experiments show, for instance, that when people are forced to make a random decision they later invent a narrative to explain it.

One theory is that this helps us make sense of a world that bombards us with information, and gives conscious rationale to decisions we make for unconscious reasons. Robert Trivers, an evolutionary biologist at Rutgers University in New Jersey, thinks our lies are more self-serving: by lying to ourselves, we lie better to others too.

This may explain the phenomenon known as positivity bias, whereby people overestimate their virtues. "We put ourselves in the top half of positive distributions," says Trivers. "Eighty per cent of US high school students believe they are in the top half for leadership ability." With these boosting voices, you probably shouldn't be too worried about what you hear – just don't believe everything they tell you, either. **Catherine de Lange**

Hearing voices is not necessarily a sign of madness



ALEXANDRA GARDNER/SCIENCE PHOTO LIBRARY

ARE MY OBSESSIONS NORMAL?

No one knows where the "men think about sex every 7 seconds" rumour comes from, but it's almost certainly untrue. In 2012, Terri Fisher of Ohio State University in Columbus armed three groups of students with clickers and asked them to click whenever they thought about either sex, food or sleep.

The result: men thought about sex 19 times a day, while women did around 10 times. Food thoughts numbered 18 for men and 14 for women, and sleep 10 for men and 9 for women (*Journal of Sex Research*, vol 49, p 69).

So if those numbers square with your tallies, consider yourself normal (at least benchmarked to students in Ohio). Pleasurable things such as eating, sleep, sex, alcohol, socialising and shopping dominate our common spontaneous thoughts, according to another study by Wilhelm Hofmann, now at the University of Cologne – again of students, this time in Germany.

Darker topics are more problematic. Unless directly confronted by death – a close encounter with a truck or a suspicious lump – most of us almost never think of it. "Terror management theory", developed in the 1980s, even suggests fear of death's inevitability explains our obsession with immediate and pleasurable concerns.

Not everyone is convinced that existential angst underlies quite so much of the human experience. But we do know that around 15 per cent of people have "death anxiety", a morbid obsession that is almost certainly a "non-optimal state of affairs", says psychologist Sheldon Solomon, who co-developed terror management theory. Some research suggests it may underlie conditions such as obsessive compulsive disorder and many phobias including agoraphobia.

But in general, it seems humanity is united in its humdrum obsessions. Russell Hurlburt of the University of Nevada, Las Vegas, has sampled individual trains of thought since the 1970s (see "Five modes of thought", left). "I find very few big thoughts in the sampling studies I do," he says. "I have sampled with some scientists and I don't find very many big thoughts there either." **Caroline Williams**

Damned if you do...

They give us green energy but destroy precious river ecosystems. What can we do about dams, asks **Terri Cook**

BETWEEN the still waters of Lake Gruyère, held back by the Rossens dam, and the pretty town of Fribourg, the Sarine river winds lazily through western Switzerland. It's a picture of bucolic tranquility. One day last September, though, it was anything but. Suddenly, great torrents of white water came rushing from the base of the dam. With spectators crowding vantage points and a drone capturing footage from above, it looked for all the world like a catastrophic engineering failure. In fact, it was quite the reverse.

This stretch of the Sarine hadn't run free since it was dammed for hydropower more than half a century ago, restricting its capricious flows to a predictable near-trickle. It is a story repeated around the world, with nearly half of the planet's major river systems choked by dams. They bring important benefits, not least renewable energy, but come with a high ecological cost. Where people once marvelled at these triumphs of engineering, many have come to see dams as an environmental liability. But what if all that concrete could be part of the solution?

That's what the scientists behind the artificial flood released on the Sarine are attempting to find out. They want to unleash regular designer deluges, carefully calibrated to restore the river's natural rhythms. The idea is to give us the best of both worlds: to keep our dams without destroying the ecosystems they exploit. The results are just beginning to dribble in, but they offer hope that dammed rivers may not be damned forever.

We have built a staggering number of dams: on average, a dam 15 metres tall or higher has been constructed each day for the last 130 years. Europe now has about 7000, the US roughly 9200. Counting smaller structures, the total rises to more than 800,000 worldwide.

This dam-building bonanza has delivered on its promise to provide clean energy, a boon as we to try to break our addiction to fossil fuels, plus fresh water for drinking and irrigation. The Hoover dam in the US (pictured right), for example, generates about 4 billion kilowatt-hours of electricity per year – enough to serve 1.3 million people – and can store up to 9.2 trillion gallons of water. But none of this is much good for rivers, or the ecosystems they support.

Dams have helped make riverine ecosystems some of the most vulnerable on the planet. These habitats are losing species much faster than their terrestrial or marine counterparts, and their bellwethers – freshwater fish, including Europe's eight species of sturgeon and the European eel – are disappearing at alarming rates. Some 39 per cent of freshwater fish in North America are now considered imperilled, and the numbers are nearly as high across the countries of the European Union.

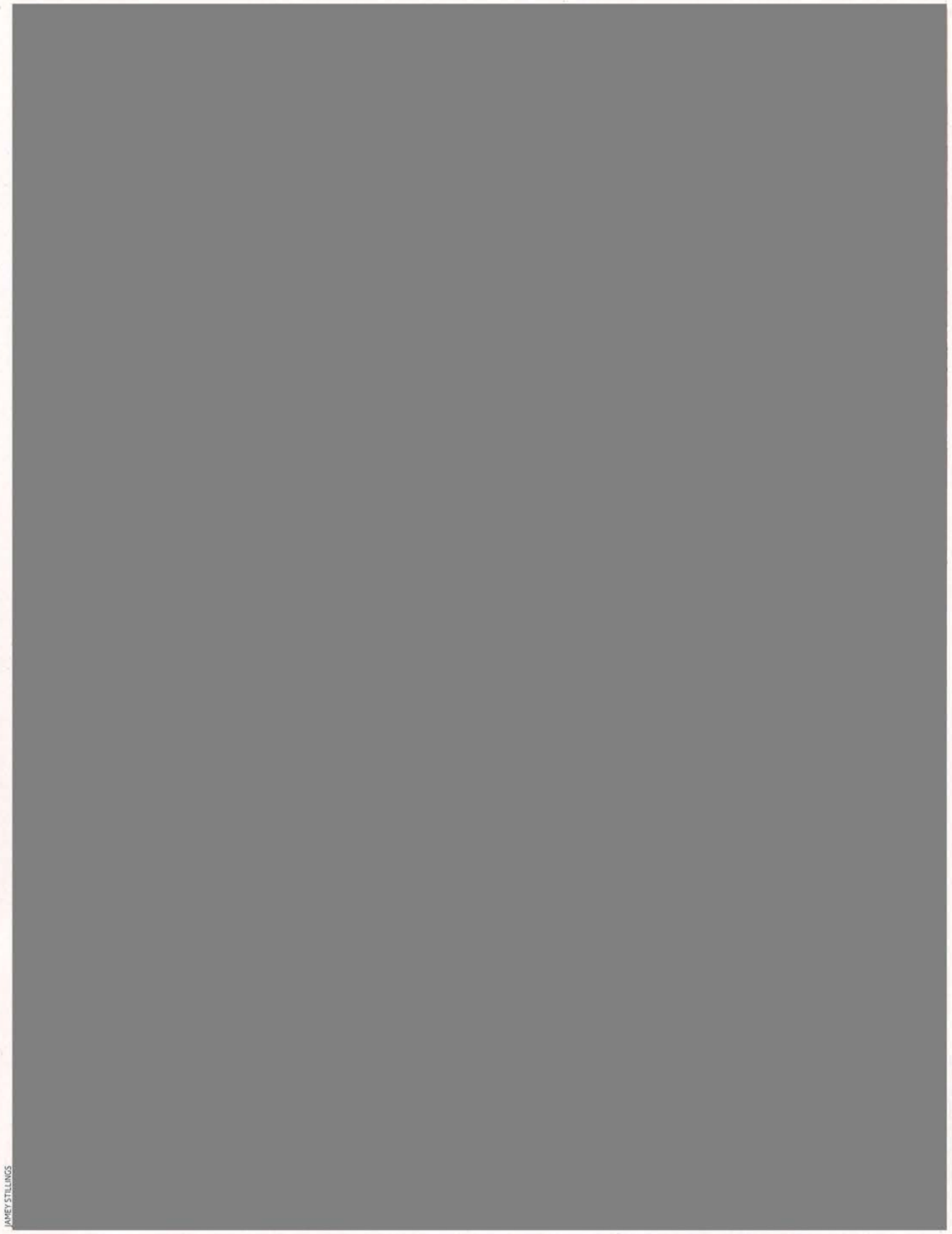
That isn't all down to dams, of course, but they are a big part of it. Most obviously, migratory fish can no longer make it up blocked rivers to reach their spawning grounds. There can be few more visceral reminders of the disruption dams cause than the sight of salmon paddling in vain against a looming concrete wall.

But the issues with dams go deeper. Every river has its own personality, defined primarily by the rhythms of its flows – the daily, seasonal and annual shifts in timing and volume as the river thunders or trickles from source to sea. Collectively, these rhythms shape the habitats created by rivers and in turn the flora and fauna that live in and around them, says Julian Olden, an ecologist at the University of Washington in Seattle.

Dams break this natural variability. Depending on the type of hydropower plant, reservoir water is released in a constant flow to produce a steady source of electricity, or at a rate that varies in response to peaks in demand. Either way, dams keep more than just water behind the wall: they trap sand and mud, too. Downstream, this can force the river to scour existing sediment from its bed and banks as it tries to regain its natural equilibrium, transforming the shape and roughness of the channel, and making life tough for fish trying to spawn on the riverbed. The blockage can also drastically reduce the delivery of the organic material and nutrients vital for sustaining the base of any river's food web.

It really is a case of "damned if you do," says Olden. As we have come to understand this dilemma, more and more people have asked whether the renewable energy and other benefits dams bring are really worth it, given the damage they do. Increasingly, in the West at least, the answer is no.

So what can we do? One solution is to ›



JAMEY STILLINGS

"The idea is to recreate the natural rhythms of rivers through controlled deluges"

remove the dams and let the rivers run free again. In the US alone, more than 1000 dams have been demolished in the past 70 years, with half removed in the last decade. Although most were small structures that had outlived their intended purpose, in some cases authorities have seen fit to demolish major dams, including two megastructures on the Elwha river in Washington state. Just days after the second came tumbling down in 2014, native fish, including chinook and coho salmon, ventured back upstream. But although studies show that rivers tend to respond quickly when dams are dismantled, it isn't often a viable option.

Concrete solution

One problem is that it can be extremely expensive. Taking down the Elwha dams cost $26.9 million, and the restoration project as a whole is expected to exceed $320 million. The US government was prepared to stump up only because it was a special case: the vast majority of the river lies within a national park, and the dam had failed a safety inspection, potentially leaving the Lower Elwha Klallam tribe downstream in harm's way. Add the fact that people still want the water and renewable power, and you can see why there is precious little political will to decommission most major dams.

Ecologists aren't giving up that easily. Instead they have come up with a clever solution: using the dams themselves as conservation tools. Their big idea is to recreate the natural rhythms of free-flowing rivers through controlled deluges – and it is already being put to the test.

The most spectacular example was the huge pulse of water released in 2014 from the Morelos dam, on the Colorado river at the border between the US and Mexico (see "Just add water", opposite). But like almost every other artificial flood release so far, it was a one-off. You can't possibly recreate the myriad differences in flow, temperature and sediment delivery of a free-flowing river with one release, says Olden.

To really figure out whether artificial floods can restore a river's habitat, we need repeated inundations. Here the challenges run deep. There must be enough water stored in the reservoir, for starters. Then you need to get permission from the dam's managers to conduct the releases at times that would make sense not economically, but ecologically, according to records of the river before it was dammed or observations of the natural rhythms of similar rivers. All of this explains why, despite ecologists and water managers managing to push through large artificial flooding experiments at more than 100 dams in 20 countries, the vast majority have been one-offs. "Long-term environmental flow programmes are a rare breed," says Olden.

Switzerland's Spöl river is the place where the idea of repeated floods was first put to the test. Its sparkling waters flow from the Swiss-Italian border through a deep limestone gorge before joining a tributary of the Danube. But despite its path through the Swiss National Park, the Spöl was dammed at two sites for hydropower in the 1960s – and when the dam gates closed, the ecosystem suffered.

Within a couple of decades, the absence of floods had allowed woody vegetation, including fir trees, to grow in the riverbed, says Chris Robinson, an ecologist at the Swiss Federal Institute of Aquatic Science and Technology. The channel was choked with fine-grained sediment eroded from the river's steep banks, degrading the spawning grounds of brown trout. The stable, low-flow environment also favoured creatures not normally present in free-flowing Alpine streams, especially a group of crustaceans called *Gammarus*. They basically overran the Spöl, says Robinson, making up a startling 90 per cent of the dammed river's fauna by the time ecologists started looking closely.

When Thomas Scheurer at the Swiss Academy of Sciences received a report detailing the sorry state of the river in 1990, he decided something had to be done. "It was obvious that floods could improve the situation, but we had no concept of how to handle it," says Scheurer, who oversees research within the national park.



RESEARCH GROUP FOR ECOHYDROLOGY - ZHAW

Swollen on purpose: the Sarine river in Switzerland last year

The first step was to engage with the Engadin Hydropower Company, which operates the dams, as well as scientists, park managers and federal and local officials. Without a legal framework or a way of paying for "lost" hydropower revenue, there was always going to be resistance. But after years of negotiations, Scheurer got the nod for regular inundations, which began in 2000.

Flushed out

Dam operators have since unleashed dozens of artificial floods on the Spöl. It took a while to fine-tune them for the optimal timing and volumes required to flush out the crustaceans without losing too much sediment, says Robinson, but the results are encouraging. Twice-yearly torrents seem to be enough to keep the crustacean population sufficiently low to allow native invertebrates such as mayflies and stoneflies to flourish, he says. And brown trout are once again thriving as their spawning grounds are no longer clogged with fine sediment.

The long-term programme on the Spöl has not only paid off in terms of the river's ecological restoration, says Scheurer; it has also encouraged others to pursue a similar course. The Swiss Federal Office for the Environment, for example, is planning to use artificial floods at 40 Swiss hydropower installations over the next 13 years. It's one of the ways it hopes to fulfil a promise enshrined in a recent revision to the country's Water Protection Act, to reduce the ecological impacts of hydropower plants by 2030.

Already the lessons are being applied to the Sarine, which is dammed in five places along its 128-kilometre length. In the section running down to Fribourg, it meanders through floodplains that no longer receive anywhere near as much water as they did before the dams , says Michael Döring, an ecologist at the Zurich University of Applied Sciences (ZHAW).

To mitigate this damage, Robinson, Döring and Diego Tonolla, also at ZHAW, designed a programme of carefully calibrated floods, working alongside hydropower producers, government officials and engineers. Its goals were tailored to the particular challenges along this segment of the Sarine, including the removal of algae and clogging sediment, reconnection with the floodplain, and a reduction in the species that have moved in to take advantage of the unnatural flows. It is still early days, but preliminary results indicate that the flood was large enough to address those problems and restore the river to something much closer to its natural state, says Döring.

Meanwhile, artificial floods are starting to make a splash around the world. The Spöl served as an important model for designing a long-term programme of floods released from Glen Canyon dam on the upper Colorado river, for instance, as well as artificial floods on Australia's Snowy river and various waterways in Japan. "From an international point of view, the Spöl has been a major impetus for artificial floods," Robinson says.

The rivers that benefit the most, however, might be those yet to be dammed. There are currently 3700 large dams planned or under construction across the globe, including particularly intensive schemes in South America and Asia. "Although the dam-building era is largely over in developed nations, dam construction is rampant in many developing regions," says Olden. Decision-makers there are aware of the dilemma dams pose. And although many cannot resist the boons that come with harnessing their rivers, now there is at least a viable strategy for mitigating the ecological costs. ■

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PETE MCBRIDE/NATIONAL GEOGRAPHIC CREATIVE

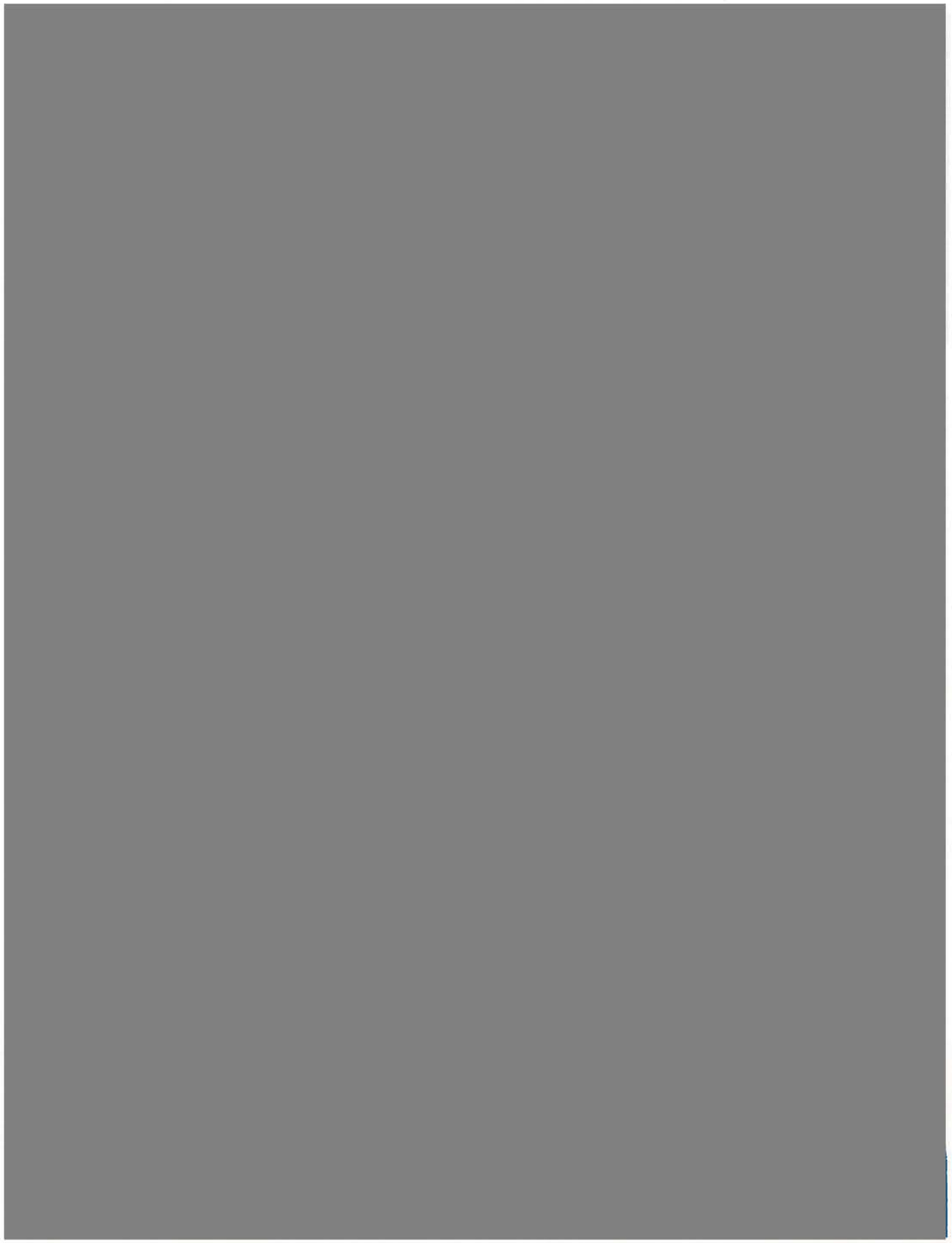
JUST ADD WATER

The lower portion of North America's Colorado river, which runs from the mountains of Colorado to the Gulf of California in Mexico, was once a thriving wetland teeming with life. As bobcats stalked their prey, clouds of birds soared above what the conservationist Aldo Leopold described as a "verdant wall of mesquite and willow". When a series of dams were built upstream in the mid-20th century, however, the delta (pictured above) withered and dried.

A few years ago, the dusty scar left behind was the subject of a spectacular environmental experiment. Following several years of cooperation to help Mexican farmers whose irrigation infrastructure was destroyed by an earthquake, the US and Mexico hashed out a landmark agreement, known as Minute 319, to release a large pulse of water in the hope it would bring the parched delta back to life. The deluge started in March 2014, and a total of 132 million cubic metres of water rushed from the Morelos dam, which straddles the international border.

The flood succeeded in rejuvenating native vegetation, smudging the delta green again. But the restoration didn't last. Within a year, the greenery began to recede, and according to one analysis the experiment was only "minimally successful" at establishing cottonwood and willow seedlings, its primary goal. There was also an unintended consequence: the release of methane and carbon dioxide from the newly moistened riverbed.

Researchers are still trying to figure out how much greenhouse gas was released, but they don't think the risks outweigh the benefits, however short-lived. But here's the rub: the Minute 319 flood was always planned as a one-off experiment. To stand a chance of restoring the delta permanently, you would have to mimic the seasonal floods that came before the dams (see main story).



Can we hack our outdated moral psychology to save the world? **Dan Jones** investigates

MORALITY 2.0

IN JUNE, a new voice backed up what many scientists have been saying for a while – that climate change is caused by human activity and we have a moral responsibility to tackle it. In a historic edict, Pope Francis warned that failing to act would have "grave consequences", the brunt of which would fall on the world's poorest people. His words came as a stark reminder that global climate change is among the most pressing moral dilemmas of the 21st century.

It joins a long list. He could have added spiralling inequality, persistent poverty, death from preventable diseases and nuclear proliferation to the ethical challenges that define our times. Some are newer than others, but all could plausibly be fixed. The fact we're struggling with all of them raises a troubling question: does our moral compass equip us to deal with the threats we face today?

For many of the pope's billion-strong flock and other believers, moral judgement is an operation of the mind beyond scientific explanation. In recent years, however, psychologists and neuroscientists have gone a long way towards understanding the machinery underlying our moral thinking and behaviour. In the process they are getting to grips with what really drives how we decide what is right or wrong. Their insights are not only revealing the limitations of our moral minds, but also suggesting how we might manipulate them – by employing psychological tricks, or even pills and brain zaps.

Human moral psychology evolved over tens of thousands of years as we became an ever more cooperative, social species. Early humans living in small bands were forced to hunt and forage collectively or starve. That requires cooperation, which fuelled the evolution of cognitive facilities underlying collective action – the ability to share goals, responsibilities and rewards.

"Morality is a device for solving the social challenges of everyday life, where the basic problem is to get otherwise selfish individuals to work together as a group and enjoy the benefits of cooperation," says Joshua Greene, a neuroscientist at Harvard University.

So how do we make these everyday decisions? One key insight came from New York University psychologist Jonathan Haidt, who revealed that moral judgements are frequently driven not by rational, reflective thought but by intuitions and gut feelings.

In one study he quizzed people about the morality of various acts, from cleaning a toilet with the US flag to having sex with a chicken bought from the supermarket. Participants often said these acts were immoral and clung to these judgements even when they couldn't provide good reasons for doing so. Frequently, they'd throw their hands up and say, "It's just wrong!" – a phenomenon Haidt calls "moral dumbfounding".

This moral intuition is often fuelled by emotional reactions. Most people are repulsed by the thought of a human engaging in coitus with a deceased chicken, and that alone is enough to condemn the act. When reasoning comes into play, it is frequently to rationalise these intuitive decisions after the event.

Yet we are not slaves to emotion. "We have gut reactions that guide our judgements and behaviour," says Greene, "but we can also stop and think, and reason explicitly about situations to try to make better decisions."

Greene has shown how this plays out in the brain by getting people to mull over dilemmas as they lie in an fMRI machine. A famous example considers whether it is morally permissible to push one person off a bridge on to railway tracks to stop a runaway train from hitting five people stuck just ahead, killing the person in the process. Most people feel a strong gut reaction to say no, which shows up as increased activity in brain regions

"WE TEND TO MAKE QUICK-FIRE MORAL JUDGEMENTS BASED ON EMOTION AND GUT REACTION"

that process social emotions. The upshot is that aversion to up-close-and-personal violence trumps the greater good.

But if you instead ask whether it's OK to flick a switch so that the runaway train is diverted from the track with the five people on it and towards another where it will hit and kill just one person, most people say yes. The moral maths is the same, but hitting a switch just doesn't feel as bad. Greene's studies indicate that responses to these kinds of dilemmas are dominated by colder, calculating processes grounded in the "rational" dorsolateral prefrontal cortex.

Greene likens our moral psychology to a digital camera. Intuitive moral sentiments are akin to the automatic settings, he says, while rational deliberation is analogous to manual mode, where you adjust everything by hand. "The automatic settings are good for the situations for which they've been programmed, making them efficient but not very flexible," says Greene. "Manual mode is flexible but not so efficient, as it takes time to punch in the settings."

In the same way that many of us rely on ›

RAYMOND BIESINGER



YAY MEDIA AS/ALAMY

Would linking flying with harming our kids make us more aware of climate change?

auto mode on our cameras because it is easier, we tend to make quick-fire moral judgements based on gut reactions. So here's the question: is auto-mode moral decision-making, which evolved to navigate small-scale social worlds, suited to handling issues that impact millions of distant strangers and future generations?

Greene thinks not. "These are very good at solving the problems of everyday life, but not global moral problems like environmental destruction or poverty in faraway places."

Take empathic concern, one of the key features of auto-mode morality. Roughly speaking, this is feeling the pain of others. It functions like a spotlight, throwing into stark relief the plight of whoever falls

"YOU MIGHT THINK EMPATHY IS AN UNALLOYED FORCE FOR GOOD. YOU WOULD BE WRONG"

under its beam, and moving us to action. So you might think empathic concern is an unalloyed force for good.

You would be wrong, says Paul Bloom, a psychologist at Yale University. "Empathy, being a spotlight, is very narrow," he says. It illuminates the suffering of a single person rather than the fate of millions, and it is more concerned with the here and now than the future. "It's because of empathy that we care more about, say, the plight of a little girl trapped in a well than we do about potentially billions of people suffering or dying from climate change," says Bloom. The visceral reactions towards recent photographs of a dead Syrian boy washed up on a Turkish beach provide another case in point.

Empathy's shortcomings are compounded by the fact that we end up pointing its beam on causes that happen to come into our field of view – typically the most newsworthy moral issues, rather than those where we can do the most good. The response to the 2004 Boxing Day tsunami, in which some charities received more donations than they could spend, is one example.

All this sounds a bit disheartening, but there is hope. "We can use manual mode to train automatic mode," says Fiery Cushman, who runs a moral psychology lab at Harvard University. "In the past 10 years, we've learned that there's an enormous role for learning in shaping our moral intuitions."

In a study out last year, for example, Cushman asked people how they would feel about performing a mercy killing on a terminally ill man by various methods, including giving him a poison pill, suffocating him and shooting him in the face. You might expect opposition to each method would be predicted solely by the amount of suffering it causes. But Cushman found that it was better predicted by participants' aversion to performing the action (*Emotion*, vol 14, p 573).

So it looks like we base our instinctive moral judgements not only on our emotional reaction to suffering, but also on how the physical acts that cause it make us feel. And here's where we might be able to change ourselves. We learn to assign moral value to actions through the brain's dopamine system and the basal ganglia, and Cushman suggests we might manipulate this process to shape our instinctive moral reactions.

One approach is to deliberately seek out particular experiences, he says. Imagine an aspiring vegetarian who is concerned about animal welfare. If bacon sandwiches are proving too much of a temptation, they might watch videos documenting the mistreatment of animals. "This could change their automatic attitudes, so when they see meat in front of them they find it disgusting rather than appetising," says Cushman. The same tactics might help people forge an aversion to actions that increase their carbon footprint, say, or add to the plight of the world's poorest people.

New age of reason

But the choices made by a select few are hardly going to be sufficient. When it comes to creating the large-scale moral change required to solve the planet's greatest problems, Kwame Anthony Appiah, a philosopher at New York University, argues that "the question isn't 'What should I do?', but 'What should we do?'". And although manual-mode thinking can help us set our sights on the causes "we" should pursue, reshaping moral thinking en masse takes more than deliberation and reasoning.

Appiah has studied the history of moral revolutions such as British abolitionism – the 19th-century movement to end the transatlantic slave trade. "The rational, moral and legal arguments for ending the slave trade were well known long before abolition," says Appiah. What tipped the argument over into becoming a movement was that broad swathes of society came to feel collectively ashamed of being engaged in the trade. That shift was driven by activist groups raising awareness of the dreadful human cost and making the anti-slavery cause part of British national identity.

In Birmingham, for example, local politicians and thousands of citizens signed anti-slavery petitions, to be delivered to the British government. "They wanted to be part of a city that had done something about this trade," says Appiah. "This civic pride was a big part of the abolitionist movement."

Appiah suggests campaigns that speak to our sense of collective identity – as members of a city, nation, religion or social movement – are likely to be most effective. So why not scale up and play on our shared identity as humans to tackle problems that affect us all? "The problem with the notion of humanity is that there's no outside group to compare against," says Appiah. "It would be a more useful notion if there were some aliens around."

Still, shame at immoral actions and pride in tackling moral problems could yet prove effective. Jennifer Jacquet, an environmental scientist from New York University, argues that we may need to recruit the power of shame to modify moral behaviour on social issues like climate change. "Aimed cautiously and well", shaming can be deployed for the greater good, she thinks.

Take BankTrack, a global network of NGOs that exposes banks involved with projects that threaten the environment and human rights. BankTrack has looked at banks lending to the coal industry, a major source of global carbon dioxide emissions, and compiled a list of the top "climate killers".

Its manifesto is simple: "By naming and shaming these banks, we hope to set the stage for a race to the top, where banks compete with each other to clean up their portfolios and stop financing investments which are pushing our climate over the brink."

However, harnessing the power of rational reflection, collective identity and shame may not be the only options for would-be moral revolutionaries. In their book *Unfit for the Future*, philosophers Ingmar Persson of the University of Gothenburg in Sweden and Julian Savulescu of the University of Oxford argue that our moral brains are so compromised that the only way we can avoid catastrophe is to enhance them through biomedical means.

In the past few years, researchers have shown it might actually be possible to alter moral thinking with drugs and brain stimulation. Molly Crockett of the University of Oxford has found that citalopram, a selective serotonin reuptake inhibitor used to treat depression, makes people more sensitive to the possibility of inflicting harm on others. Earlier this year, for instance, Crockett and colleagues found that participants who had taken citalopram were willing to pay twice as much money as controls to prevent a stranger from receiving an electric shock (*Current Biology*, vol 25, p 1852).

Biomedical enhancement may even work on complex social attitudes. Roberta Sellaro at the University of Leiden in the Netherlands has shown that delivering low-current electrical signals through the scalp to stimulate the medial prefrontal cortex, a brain area implicated in regulating social emotions, can reduce stereotyped attitudes towards members of different social groups.

"IT MIGHT ACTUALLY BE POSSIBLE TO ALTER MORAL THINKING WITH DRUGS AND BRAIN STIMULATION"

Barclays ended financing of mountaintop removal mining in 2015 after protests



DANIEL LEAL-OLIVAS/I-IMAGES

Don't expect to see morality pills on pharmacy shelves any time soon, though. These studies are far from conclusive and the effects demonstrated are subtle. Even so, the fact that such behavioural modification is possible raises the prospect that someone might use it.

Of course that raises moral questions in itself – who to treat, how, and at what age? But Persson and Savulescu argue that if the techniques can be shown to change our moral behaviour for the better (who or what defines "better" is another question), then there are no good ethical reasons not to use them. Take the issue of consent, which children could not provide. "The same is true of all upbringing and education, including moral instruction," says Persson.

Moral robots

But wouldn't biomedical moral enhancement undermine responsibility by turning us into moral robots? Persson and Savulescu argue that biomedical treatment poses no more threat to free will and moral responsibility than educational practices that push us towards the same behaviour.

Yet even if moral hacking with drugs and brain zaps could be deemed ethically sound, putting it into practice is another matter. "It's not as if there's a moral circuit in the brain that you simply want to ramp up," says Greene. "Moral decision-making draws on a number of major brain circuits, so you're not going to be able to enhance people's morality in a pinpointed way."

And assuming you could get people to make the "right" choices, how would you deliver artificial moral enhancement across entire populations? Would we add drugs to the water supply? Would we fortify kids' cereal with moral enhancers?

Even if we could overcome these obstacles, Bloom insists that artificial enhancement is not the way to go. "I think people approach it the wrong way, and work under the illusion that we'd be better people if we messed with our emotions in one way or another."

Bloom argues that when it comes to tackling moral problems such as climate change, which we have no reliable instinctive way of dealing with, the best way forward is to try to spend more time in manual mode.

"Moral issues are complicated and hard, and they involve serious trade-offs and deliberation. It would be better if people thought more about them." ■

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