PHILOSOPHICAL TRANSACTIONS B

rstb.royalsocietypublishing.org

Research

Cite this article: Humphrey N. 2018 The lure of death: suicide and human evolution. *Phil. Trans. R. Soc. B* **373**: 20170269.
http://dx.doi.org/10.1098/rstb.2017.0269

Accepted: 25 December 2017

One contribution of 18 to a theme issue 'Evolutionary thanatology: impacts of the dead on the living in humans and other animals'.

Subject Areas:
evolution, behaviour, cognition

Keywords:
suicide, human evolution, consciousness

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The lure of death: suicide and human evolution

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At some point in evolutionary history, human beings came to understand, as no non-human animals do, that death brings to an end a person's bodily and mental presence in the world. A potentially devastating consequence was that individuals, seeking to escape physical or mental pain, might choose to kill themselves.

This article is part of the theme issue 'Evolutionary thanatology: impacts of the dead on the living in humans and other animals'.

1. Introduction

A late Roman ivory casket, in the British Museum, shows in sculpted relief two contrasting examples of humans who knowingly brought death on themselves (figure 1): Jesus, who had no desire to stop living, but who believed his death would benefit all mankind; Judas, who had no thought of benefiting others, but who wanted to end his own intolerable guilt.

Suicide used to be called self-murder, *felo de se*. In an evolutionary context, the term murder is not inappropriate. Human beings have always been murderers, killers of other living beings. First, of course, killers of animal prey for meat, but also killers of other men and women. While not every ancient human would have had first-hand experience of assassination, everyone would have known and talked about it. Then, at some point, the idea must have dawned. Here's how the psychiatrist, Erwin Stengel has put it: 'At some stage of evolution man must have discovered that he can kill not only animals and fellow-men but also himself. It can be assumed that life has never since been the same to him' [1, p. 37].

The purpose of this paper is to consider just how radically life changed. I argue that the human mind must have had to evolve to a critical level of sophistication before anyone could arrive at the idea that 'I can kill myself'. However, from then on, suicide would never have been far from people's thoughts. When times were hard, some individuals would have been bound to see death as an attractive option. Yet killing themselves would usually—if not always—have been a maladaptive act. I explore how this played out historically, and what remedies, if any, were available.

2. 'I can kill myself'

It's simple to say, it's a discovery made by every growing human, but the thought of killing oneself will usually have complex layers. Clearly, it has to begin with imagining the act: you have to have a picture of how it can be done. Stengel implies that early humans acquired this from observing how animals and fellow-humans could be killed. But this hardly seems probable. The fact is most of the ways you might observe to be effective for killing another—be it with teeth or claws or fists or clubs—would not be feasible ways for you to kill yourself. Instead, for most of human history (until the advent of modern murder weapons such as guns), a more likely model for suicide will have been accidental death: falling from a cliff, drowning in a lake and bleeding to death from a cut. By imagining yourself in the victim's place, you would see that what happened to him or her by accident could happen to you by your own intent. You might still want confirmation that it can really be done. But, for

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Figure 1. Panel from an ivory casket: the Crucifixion of Christ. Late Roman, AD 420–430. Copyright © The Trustees of the British Museum. All rights reserved. (Online version in colour.)

this, you might not have to look far. In a typical human community, where suicide is already prevalent, you will have heard tell of others who have successfully killed themselves. Humans as a species are notoriously imitative. Perhaps, every suicide is at some level a 'copy-cat suicide' (which I'll return to later in the paper.)

But, now, to go deeper: when you think 'I can kill myself', who is this 'self' and what do you imagine will result from 'killing' it? Again, Stengel implies that early humans would have understood the inevitable consequences of self-killing from observing the killing of others. Bodily death, however caused, has effects that anyone can see and take on board. There's the obvious bodily decay. But the most salient change is in the dead person's role as an actor in the physical or social world. They will not be coming back. This is a fact of death that non-human animals with complex social lives can also understand up to a point. Frans de Waal describes how, when a group of chimpanzees in the Arnhem Zoo were shown a video film of the alpha-male, Nickie, who had died by drowning 2 years earlier, his erstwhile rivals panicked as if they had seen a ghost [2, p. 214]. By applying this to your own case, you would realize that you yourself once dead will no longer participate directly in the lives of others.

But we must go deeper still. For there is, of course, another meaning of 'self', and hence, the probability that self-killing will have a still more significant result. When your body dies, what happens to your mind? Once you are no longer an actor in the public realm, can you no longer be a thinker or feeler in the private one? This is not of course something you or anyone else can discover from direct observation. But it is perhaps something you can deduce from circumstantial evidence. As a human, with a 'theory of mind,' you expect to be able to infer another person's mental state from their outward behaviour. When, now, you observe that an individual's body no longer behaves in any way at all—it neither acts spontaneously nor reacts to your probes—you have very good reason to suppose there is no longer anyone at home inside. True, absence of evidence is not entirely reliable as evidence of absence. But, in fact, you yourself have had plenty of direct experience of your own mind going absent at a time of pseudo-death. When you fall asleep, and your body becomes motionless and unresponsive, you know for a fact that your mind temporarily vanishes. You may remember how as a child you cried yourself to sleep and found blessed relief in the ensuing oblivion.

Thus, kill yourself, and the result will be that in every important respect you will have removed yourself from the world. Like the parrot in the famous Monty Python sketch, once dead, you will have ceased to be; you will be an ex-human being.

3. The path to suicide

So, to return to Stengel, 'at some stage of evolution', humans made this momentous discovery. I hesitate to put a date on it. But given the cognitive skills required—counterfactual reasoning, mental simulation, time travel and theory of mind—I'd say no one would have been able to make the discovery until *ca* 100 000 years ago. Soon after that, however, just about everyone was able to make it. And since then 'life has never been the same'.

The question is what the practical impact would have been. There seems no reason to doubt that the thought of self-killing would soon enough have been translated into action. Some of those who discovered they could kill themselves would have chosen to kill themselves. Suicide leaves no trace in the archaeological record. But modern day statistics presumably throw light on past history [3,4]. Today no fewer than 1.4% of all deaths worldwide are attributed to suicide, making it the world's leading cause of violent death. Across the world more people—some 800 000 yr^{-1}—die from suicide than all wars and homicides combined. Many more make the attempt. In total, 2.7% of the world's population have tried to take their own lives. Even more plan it. Fourteen per cent, of report, have had suicidal ideation at some stage.

These figures are enough to make any demographer sit up and wonder. How could self-destructive behaviour on this scale have been persisting at such a high frequency? What does this suggest about the effects—good or bad—of suicide on human fitness? Common sense would say that self-killing must be the ultimately disadvantageous act, a sure path to genetic oblivion. But maybe this is wrong. Could suicide be biologically adaptive after all?

As I implied at the outset, there would seem to be two broad classes of suicide, distinguished by their motivation: those concerned with benefiting other humans and those concerned with benefiting primarily the one who dies. We can call these, as Émile Durkheim did (but without necessarily buying into his theoretical framework), 'altruistic' and 'egoistic' suicide. I want to suggest they can be distinguished at another level: they correspond to the two different conceptions people have of what their death will immediately achieve.

When someone kills themself in order to remove their bodily person from the world, it would seem quite plausible that they believe the knock-on effects will improve things for others. Jesus dies on the cross in the hope that by this public sacrifice he can bring about the salvation of all mankind. Or, for a more straightforward example, Captain Oates stumbles out from his cabin to die in the snow in the hope that, by relieving other members of Scott's polar expedition from the burden of supporting him, he can give them a better chance of survival.

This is altruistic suicide. Could it be biologically adaptive? It clearly could be if it does, in fact, benefit the subject's kin or social group. In one of the earliest statements of the principle of kin selection, Haldane is reported to have said 'I would gladly give up my life for two brothers or eight

cousins' [5, p. 496]. Humans do not, like social insects, have a propensity for specific acts of suicide hardwired into their brains. But humans are nonetheless genetically primed with feelings of love and obligation for family and friends. Many theorists accept that this could partly explain why humans are willing to sacrifice themselves for the common good—in times of famine, or plague or war. It might also help explain cases of apparent 'suicidal generosity', as when individuals choose to die—or even submit to being ritually killed—when they have become too old and decrepit to carry on. By relinquishing their bodies in such circumstances, they could certainly be adding to their inclusive fitness. So, there might indeed be positive selection for psychological traits that abet the decision [6].

What, however, when someone kills themselves in order to remove their *own mind* from the world? Then, it is in no way plausible that they are thinking of benefiting others. The much more likely motive must be that they believe they themselves will be better off as a result. Thus, Judas Iscariot hangs himself because he cannot live with his internal sense of shame. An Indian chieftain's daughter jumps to her death from a cliff rather than marry a man she does not love. A businessman drowns himself when his company fails.

This is egoistic suicide. And it's in many ways the opposite of altruistic. Far from wanting to help others, these self-killers are thinking primarily of personal escape. They either don't care about the effect on others, or sometimes even intend some kind of vengeance. And, whether they intend it or not, the effects on family and friends are often devastating.

Now, from an evolutionary viewpoint, here's the problem. Across the world the great majority of suicides are egoistical. Anthropologist Charles MacDonald, reviewing the motives for suicide, concludes: 'A cross-cultural comparison shows that grief over, and conflict between closely related people, together with sheer physical pain and discomfort, cause or promote suicide more often than any other circumstances' [7, p. 427]. 'The victims simply want to go. They don't mean to change things . . . The suicide wants to stop hurting' [8, p. 221]. Edwin Schneidman, from a clinician's perspective, observes that the common goal of suicide is cessation of consciousness. He writes: 'the idea of cessation—that you can be free of all your problems, get out of this mess, cancel your debts, release yourself from this anguish, stop this disease is the turning point in the suicide drama' [9, p. 13].

Could this type of suicide possibly be adaptive? Surely no amount of special pleading could make it so. Many of those who do it are young. Across the world, it is the second most common cause of death in teenagers. If these young people had not died by their own hand, they would almost certainly have got over the hurt and gone on to make a success of their lives. At a stroke, they have ruined their own fitness and that of related individuals too. At the level of biology, egoistic suicide is clearly a mistake, a path to genetic extinction.

4. Self-euthanasia

So, what's going on? How can it be that so many continue to die this way? The authors I've just quoted point to the obvious explanation. Yes, it is indeed a biological mistake. But it is precisely because humans rise above biology that they can make this mistake. For, at a rational psychological level, it is not a mistake at all. Humans like all animals have an instinctive drive to escape from pain, emotional as much as bodily. When they experience 'psychache', as Schniedman calls it [10], when they feel sad, jealous, unloved or inadequate; they will do whatever it takes to make these feelings go away. But for humans, unlike animals, the question of how to escape has been left open to reason. Given their insight that killing themselves will put an end to their suffering, suicide can seem to provide a perfectly rational solution: a reliable method of *self-euthanasia*. Nothing hurts less than being dead.

Moreover, when other possible escape routes would involve time and effort, suicide can seem to provide a solution that is quick and easy too. It may, as I noted above, require intelligence to think of it, but its realization can be simplicity itself. It requires no special expertise to leap from a cliff, to drink poison or to slit one's wrists. In parts of Asia, people are known to 'hang' themselves simply by kneeling and leaning into the rope [8, p. 208].

Susan Sontag has written 'How thin the line between the will to live and the will to die. How about a hole . . . a really deep hole, which you put in a public place, for general use. In Manhattan, say, at the corner of Seventieth and Fifth. A sign beside the hole reads: 4 PM–8PM/MON WED & FRI/SUICIDE PERMITTED. Just that. A sign. Why, surely people would jump who had hardly thought of it before' [11, p. 116]. And indeed, real suicides are often unplanned and impulsive. A survey of 306 Chinese patients who had been hospitalized following a suicide attempt found that 35% had contemplated suicide for less than 10 min and 54% for less than 2 h [12].

Schneidman's term psychache may suggest major distress. But the precipitating causes for impulsive suicide can actually be astonishingly trivial. A recent review in *Science* about suicide in otherwise normal people opens with this example: 'A young mother and loyal wife, Mrs Y showed none of the standard risk factors for suicide. Villagers said she exuded happiness and voiced few complaints. But when a neighbor publicly accused Mrs Y of stealing eggs from her henhouse, the shame was unbearable. Mrs Y rushed home and downed a bottle of pesticide' [12]. In 2016, Jacintha Saldhana, a nurse in charge of the Duchess of Cambridge in a London hospital, hanged herself, a day after accepting a hoax telephone call from a radio station. In the new world of social media, it is all too common for a schoolgirl to overdose on sleeping pills because she is being bullied on Facebook.

So, people kill themselves 'when they want to go': sometimes after careful reflection, sometimes on the spur of the moment, sometimes for profound reasons and sometimes for shallow ones. Hamlet asks 'who would bear the whips and scorns of time, the oppressor's wrong, the proud man's contumely, the pangs of despised love, the law's delay, the insolence of office, and the spurns that patient merit of the unworthy takes, when he himself could his quietus make with a bare bodkin?' The answer is, evidently, by no means everyone.

The trouble is everyone has moments of despair. It is a grand, if tragic, truth about the human condition that—just because humans have so much higher ambition than other animals—hurting is bound to be a part of life. The poet Cesare Pavese said it explicitly, 'everyone has a good reason for suicide' [13, p. 99]. The philosopher Wittgenstein once told a friend that 'all his life there had hardly been a day in which he had not thought suicide a possibility' [14, p. 155]. More typically, among today's American high school students, 60% say they have considered killing themselves and 14% have thought

about it seriously in the last year [15]. George Santayana spoke for too many, when he wrote: 'That life is worth living is the most necessary of assumptions and, were it not assumed, the most impossible of conclusions' [16].

5. Fear of death?

We have to stop to consider. Humans have *evolved* to this point: a point where a significant number live near the threshold of a self-generated catastrophe. Surely, this cannot be where evolution has rested? If the threat is as great as I've suggested, would not natural selection have come up with ways of countering it? Why have humans not evolved to have better innate defences against suicide built into their minds?

There is, of course, one level of defence we might expect to have been there from the beginning. This is a natural *fear of death*. Geoffrey Miller has written: 'There is no way to escape the hardwired fears and reactions that motivate humans to avoid death. Suffocate me, and I'll struggle. Shoot me, and I'll scream. The brain stem and amygdala will always do their job of struggling to preserve one's life at any cost' ([17]). Ernest Becker has famously said 'the fear of death haunts the human animal like nothing else' ([18, p. xvii]). If, as these authors imply, the fear of death is an evolutionarily ancient animal fear, then presumably it would always have provided an important last-ditch barrier to human suicide. In fact, its existence ought to mean that the thought 'I can kill myself' must usually be something of an empty boast.

I have to say I am sceptical. And not just because people do, in fact, kill themselves, sometimes almost casually. I think there is actually precious little other evidence that humans have a naturally evolved fear of death. I don't disagree, of course, with Miller that humans have hardwired fears that motivate them to avoid situations that could put them at risk of dying—pain, anoxia and so on. They do instinctively recoil from pain and thus will certainly do what they can to avoid a painful death. That's why, for example, many people when terminally ill will choose—if only they are allowed to—to be 'put to sleep' rather than to endure the agonies of cancer. For the same reason, those intent on suicide will take precautions to prevent instinctive fears thwarting their attempt. A case in point is David Kelly, the scientist who exposed the British Government's lies about Iraq's weapons of mass destruction. He took 29 tablets of the painkiller co-proxamol before he slit his wrists.

So, no question, people often fear *dying in pain*. As Woody Allen said, they don't want to be there when it happens. However, if and when death is inevitable, but likely to come easily, all the evidence suggests that people generally take it remarkably calmly. The German photographer, Walter Schels, has made photos of people in the terminal stages of illness, shortly before they died, and the day after. The 26 sitters for these portraits were asked how they felt about dying. They had mixed emotions: sadness, relief and resignation. But not one of them showed fear. Annoyance was more like it. One of them, Klara, remarked: 'I'd only just bought myself a new fridge-freezer. If I'd only known' [19, p. 106].

Ah, some theorists say, but the lack of overt fear is due to some form of *denial*. When humans contemplate death, they do become scared momentarily, but then according to 'Terror Management Theory' they immediately suppress it [20]. Or they deny the truth of the facts that would otherwise cause them to be scared [21]. But I believe there is a more straightforward explanation. This is that fear of death simply does not exist, as an evolved adaptation, either in humans or in any other animals.

How could that be? Why wouldn't such a useful fear have evolved, especially once humans discovered death's fuller meaning? I suggest the answer is that the ancient fear system was simply blind-sided by the discovery. There had never before been occasion to respond to any such nebulous concept as the 'idea of death', and now it presented special difficulties. How was natural selection to get to grips with a hypothetical state of *not being*? True, there are lesser states of notness that humans have had no trouble adapting to. They can and do have a natural fear of not being fed, not being warm, not being loved. But not being at all, not existing? This was just too elusive a concept.

I look at it this way. It's a general principle of evolution that any behaviour that can be *learned* by an individual through extended practice can be adopted by selection and become innate. So, for example, people can readily learn to fear not being fed, by experiencing famine a few times. They can learn to fear not being loved, by experiencing abandonment. And so on. What's more, they can learn such fears vicariously, by sharing what others have been through. In these cases, selection could quite well have followed in learning's path. But death is different. No one could learn to fear death through practice: 'Hey, I've just visited the other side. I'm not going *there again*!' Nor will there be anyone else whose experience they could draw on.

This said, we should not assume that human suicide was destined to remain unopposed. If nature was unable to arrange things so that people instinctively feared dying by their own hands, then perhaps human culture could step in to arrange it. Or, as a completely different strategy, perhaps the threat of suicide could be answered by developing a new-found appetite for staying alive. I'll consider in a moment how culture may indeed have weighed in to supplement biology.

6. The suicide meme

But first, let's take a further look at the size of the problem our ancestors faced, for we have not yet revealed the full scale of it. At the critical juncture in prehistory, when the understanding of self-killing first surfaced, just how vulnerable would early humans have been? As far as I know, no palaeo-anthropologist has ever thought to ask. But I'd say we should assume the worst. To start with at least, people would have had no kind of immunity to suicidal thoughts. In which case it's realistic to imagine a scenario where suicide would have spread like measles in an unprotected population. And, indeed, measles is an alarmingly apposite analogy, because, as contemporary evidence shows, even today the suicide 'meme' is highly infectious. It jumps all too easily from one mind to another.

As Durkheim noted: 'Suicide is very contagious . . . There is the well-known story of the fifteen patients who hung themselves in swift succession in 1772 from the same hook in a dark passage of the hospital' [22, p. 97]. I suggested earlier that almost all suicides may be copy-cats. But suicide contagion is something more: copying with positive feedback. It has been dubbed the 'Werther effect' after the hero of Goethe's novel, *The sorrows of young Werther*, who kills

himself after falling hopelessly in love with a married woman [23]. Following its publication in 1774, there were hundreds of imitative deaths across Germany.

Recent research has confirmed just how strong the effect is [24]. Every time a celebrity suicide is given exposure in newspaper or TV, the copy-cats follow. It is estimated that Marilyn Monroe's death, in August 1962, was responsible for 200 extra suicides within a month. After a popular South Korean actress hung herself in 2008, suicides jumped 66% that month, with young hanging victims accounting for most of the increase [12].

But 66%, that's nothing. There are still parts of the world today where rates of suicide are 10 times the average elsewhere, apparently as the result of local chain reactions. MacDonald's research, among the generally contented people on the island of Palawan in the Philippines, found evidence of waves of suicide spreading through small villages. In a recent study, Jollant & MacDonald undertook a psychological autopsy of the individual victims to try to uncover predisposing factors [25]. It turned out that much the most significant risk factor was having had a close relative die from suicide. MacDonald comments: 'The child grows up accustomed to the idea. He/she sees or hears about elders, uncles, aunts, older cousins, and friends' parents killing themselves . . . Thus suicide becomes an accepted model of behaviour, an option open to the individual' [8, p. 264]. Note how the thought 'I can kill myself' can then take on an added meaning: 'I can', not only in the sense that it is practicable, but that it is permissible.

What can have happened on Palawan to get the chain reaction started? MacDonald believes that suicide was at a 'normal' level until early last century some kind of disaster struck—a cholera epidemic, a slave raid—that wrecked the villagers' lives. This caused a surge in suicides, and the wave has been propagating ever since.

So, to ask it again, how prevalent might suicide have been among our ancestors? Suppose it's true that they first became at risk *ca* 100 000 years ago. To begin with, the incidence might have remained relatively low. However, once humans left Africa, living conditions were set to become increasingly harsh. In the icy climate of central Europe 50 000 years ago, with people battling the elements and in murderous competition with their neighbours, there would have been plenty of occasion for short-term despair. If then the rate of suicide reached a critical level, it could have become epidemic. Who knows, but that suicide threatened the very survival of whole populations. There have been several genetic bottlenecks in human history, suggesting that populations crashed almost to nothing. These have been attributed to factors such as internecine strife, volcanic winter or disease. But, perhaps, the real cause was this worm inside the human mind.

7. Cultural barriers

Still, here we all are today. Against the odds, our ancestors as a species evidently managed to pull through. Given that natural anti-suicide defences were absent or slow to evolve, what else could have brought the epidemic under control? Presumably, the best hope of developing timely and transferable defences must have been human culture. Here, I have to say, the picture is complicated and not well researched. But at least some of the more recent cultural barriers to suicide are in plain view [26].

In historical times, religious authorities have repeatedly issued anathemas against suicide. Mediaeval Christianity decreed it to be a mortal sin. Self-murderers would not be given decent burial, but rather be buried at a crossroads with a stake through the heart. In all modern states, until recently, suicide and attempted suicide have been considered to be crimes under the common law. The successful perpetrator's possessions could be confiscated, and the unsuccessful one imprisoned. In some places, the party supposed to have provoked the suicide—by spurning a love-suit, say—could also face a penalty. In the UK, attempted suicide was not decriminalized until 1961. In the 10 years pre-1961 nearly 6000 people were prosecuted, of whom 5400 were found guilty, and imprisoned or fined. It was common practice in the 1950s to have a policeman sitting at the bedside of an unconscious patient in A and E, waiting to interview them.

There have also been attempts to limit the spread of the suicide meme by limiting exposure to it. In Europe, after the effect of Goethe's book became apparent, it was soon banned in several countries. In Germany, it was even forbidden to dress like Young Werther in blue coat and yellow trousers. In most countries today, there are strict guidelines for the Press intended to play down the reporting of suicide—to keep it off the front page and avoid sensational headlines.

These are deliberate measures, with suicide directly in their sight. But there are also cultural practices that can work to deter suicide without targeting it so deliberately. One obvious and important way is by instilling beliefs that are incompatible with the premise that can make suicide so appealing to someone who wants to escape: namely, the belief—the hope—that death will bring about mental oblivion. The world over, humans have invented systems of religious belief that explicitly promulgate the idea of the *mind continuing after death*. What's more, the Abrahamic religions, in particular, make a point of threatening that the afterlife for sinners, and suicides especially, will be an unpleasant one.

Now, even though humans may not be set up by nature to fear the nothingness of death, they can quite easily be set up by culture to fear the somethingness of an afterlife. The threat of hell fire can certainly set the amygdala ringing. But it needn't be so specific as fire. It could be just the threat of strangeness, the unknown. Think of Hamlet, contemplating suicide:

> But that the dread of something after death,
> The undiscover'd country from whose bourn
> No traveller returns, puzzles the will
> And makes us rather bear those ills we have
> Than fly to others that we know not of.

I'm not suggesting that the idea of a horrible afterlife was ever invented specifically to deter suicide. But if, as is surely the case, it has consistently worked to this effect, this is presumably a reason why it has taken such a hold. Some humans undoubtedly owe their lives to it.

It's evident how culture has found ways to weigh in against suicide on several levels. The measures are by and large negative ones. They are clearly not wholly effective. But there's no question they can and do work as a deterrent. The fact that suicide rates are lower in Muslim countries, for example, presumably has something to do with Muslim teachings about hell. As the exception that proves the rule, the villagers of Palawan are reported to have largely lost any faith in an afterlife [8].

But does deterrence have to be the only strategy? Wouldn't we expect more positive methods to have evolved as well?

In place of punishment or censorship or threats, why not oppose a destructive mind virus with a redemptive one?

The English priest Chad Varah founded the Samaritans in 1954, a group dedicated to talking suicides down, simply with words of reassurance. The message 'There is hope', posted on the bridge or beside the railway track, may seem to verge on the banal. But, in fact, this is the one message that human society might long ago have discovered it can give with confidence. Research shows that in nine cases out of 10, the hurt isn't going to last. Daniel Gilbert, author of the book *Stumbling on Happiness*, advises: 'Few of us can accurately gauge how we will feel tomorrow or next week . . . We expect to feel devastated if our spouse leaves us or if we get passed over for a big promotion at work. But when things like that do happen, it's soon, "She never was right for me", or "I actually need more free time for my family". People. . . mistakenly expect such blows to be much more devastating than they turn out to be' [27].

The lesson is simple: 'Don't jump now, because it's not what your future self would choose'. Have humans had to wait for a Harvard psychologist to tell them this? Thankfully, not. The message is implicit—presumably for a good reason—in much of the hand-me-down wisdom of our folk cultures: the stories, songs, proverbs and so on, that are there to remind people if ever they doubt it that life is worth living after all.

8. Sensory consciousness

What does make life worth living? The poet Byron wrote 'The great object of life is sensation, to feel that we exist even though in pain' [28, p. 28]. I suggested earlier that, in the course of history, suicide might have been countered by some newly evolved appetite for staying alive. Humans collectively might have come up with some knock-down philosophical argument to chase away Santayana's scepticism. Maybe so, though we have yet to see it. But how much more promising, at the level of the individual, if natural selection acting on human genes could have found an answer internal to the self. Could mere—mere?—*sensory consciousness* have been refashioned in the course of human evolution just so as to make people pause before they seek oblivion?

'There's night and day, brother, both sweet things; sun, moon, and stars, brother, all sweet things; there's likewise the wind on the heath.' The words are from Lavengro, the autobiographical novel of the Victorian adventurer George Borrow. As Borrow tells it, he has been reading Goethe. He's toying with the idea of suicide. He gets into conversation with a Romany gypsy, Jasper, whom he has befriended on his travels. 'What is your opinion of death?' says Borrow, as he sits down beside him. 'Life is sweet, brother, who would wish to die?' 'I would wish to die', says Borrow. 'You talk like a fool', says Jasper. 'Wish to die indeed! There's the wind on the heath, brother; if I could only feel that, I would gladly live for ever' [29, p. 180].

It strikes a deeply human chord. We *get* it. But stop to consider just how unexpected this is. How come these sweet things—'the sun, moon and stars', 'the wind on the heath'—can be reasons not to kill ourselves? How come we humans are so awestruck by sensory experience [30]?

The phenomenal quality of consciousness is widely regarded as a mystery. I've argued in my book *Soul dust* [31] that its very mysteriousness is an adaptive feature. The seemingly magical qualities of sensation—the redness of red, the saltiness of salt and the paininess of pain—have been specifically designed by natural selection to impress us with their inexplicable out-of-the-world properties. Human consciousness on this level exists as a biological adaptation precisely to 'change the value we place on our own existence' [32].

I've been taken to task by critics for suggesting that any biologically evolved organism could need a reason to live over and above the imperatives of life itself. But human beings are not *any* organism. They are the first to have had to wonder whether it's all worthwhile. We've seen in this paper the dark side. If there's a bright side, it may be that humans have come to live—perforce—in a strikingly beautiful world.

Data accessibility. This article has no additional data.

Competing interests. I declare I do not have any competing interest.

Funding. I received no funding for this study.

Acknowledgements. While working on this paper, I was sent the draft of Clifford Alan Soper's PhD thesis 'Towards solving the evolutionary puzzle of suicide' [33]. He and I have been thinking along very similar lines, and he has adduced evidence that goes beyond what I've summarized here. Moreover, he has novel arguments about the evolution of anti-suicide defences—unrecognized as such—deep in the human psyche.

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