

The problem is not runaway climate change. The problem is us.

Chris Abel

Chris Abel reflects on the inadequacy of human behaviour in response to the urgent threats of climate change. Rejecting standard explanations, he examines the reasons why the majority of humankind seems either unable or unwilling to comprehend the depth of the problems involved, or the scale of behavioural change required.

Despite overwhelming evidence to the contrary, the Enlightenment belief in the fundamental rationality of human behaviour continues to influence responses to the looming threat of ecocide, encouraging denial and hindering effective action. The reasons for our stubborn resistance to changing self-destructive ways of life, however, are many and complex, and go well beyond cognitive dissonance or any common political and economic explanations. Nor is the answer to be found in human history alone. The driving forces underlying that resistance, I suggest, originate far back in evolutionary time to the impulses governing all sentient creatures.

Relational approach

Unpicking these forces requires an understanding of the most basic evolutionary processes at all scales, from the microscopic to the broadest historical perspective. Running through all this is my theory of the ‘self-field’¹ as a purposeful system of extended cognition, common to both human and non-human animal life. I also draw upon field theory, and the work of Kurt Lewin² and Pierre Bourdieu,³ in particular, together with theories of self-organising systems, in constructing a *metatheoretical* framework encompassing the many aspects of an extended self.

Given the still-common tendency among university teachers and researchers, as in other professions, towards specialisation in subject matters, that is a tall order. Ever since my first explorations as an architecture student into self-organising systems and cybernetics, however, my

approach has been driven by the belief that such an important subject as architecture cannot ever be fully understood from any single discipline. I also found early inspiration in the philosophy of ‘internal relations’ advanced by Bertell Ollman⁴ and, according to Ollman, propagated by Karl Marx. The philosopher and student of internal relations, Ollman explains, like Marx, accepts the interconnectedness of *everything* from the outset. Accordingly, specific interrelations, whether economic and political or of some other kind, are selected for whatever they will reveal about the whole society. In this worldview, there are no separate ‘things’, only relations.

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Lewin’s psychological field theory, which he formulated in Germany in the 1930s before settling in the US, in turn stresses the need to understand the whole person and the environmental context in which they are living, in relational terms. Influenced as a young professor of psychology by the Gestalt school of thought, Lewin rejected what he described as an outdated Aristotelian logic that treated all phenomena in isolable terms. In its place, Lewin advocates what he describes as an emergent, ‘Galileian mode’ of thought in physics and other disciplines, based upon ‘serial concepts’ that allow the possibility of continuous variation of phenomena through

time. For Lewin, the psychological field of an individual, or 'life space' as he called it, is comprised of the *total combined interactions* of individual and environment, an all-embracing perspective that also contains the views of each individual about both their future and their past.

A relational approach in turn refocuses attention on the reasons *why* the great majority of people in fact commonly pursue compartmentalised occupations and lifestyles – ways of life that can colour their entire outlook and relationships with others. Clearly, as Bourdieu argues, aside from any occupational rewards associated with specific social functions, belonging to a particular group bestows a powerful sense of personal and social *identity* upon its members. Furthermore, as I shall argue, group identities of this kind are driven as much by *primitive instinct* as by any current social imperative. Individual traits aside, humans are basically *tribal* beings by nature and habit, and are just as beholden to a particular band of fellow humans for their well-being and prosperity as our more primitive ancestors were.

Group mindedness

Acknowledging the power of group mindedness, however, neither gives us the full picture nor explains the willingness of so many to surrender themselves to a particular belief to the point that they become insensitive to any other reality. As a young man growing up in England in the postwar years, I vividly recall the recorded films of Hitler's wide-eyed audiences, hypnotised by and ready to die for their leader, which they tragically proceeded to do in vast numbers. As extreme as that historical case might seem to those still clinging to a more rational picture of humankind, other, more perceptive analysts of human behavior recognised the phenomenon and its potentially negative effects long ago. According to the sociologist Irvin Goffman,⁵ for example, every person is highly conscious of the impression that others sharing the same social 'stage' have of them, whether public or relatively private, and acts according to how those others expect them to perform. Significantly, specific social groups, or 'performance teams' as Goffman calls them, may also learn to conform with certain moral or behavioural standards required of

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their function. Moreover, the larger the team, he suggests, the more the team's perception of reality may become *distorted*, to the point where reality itself may become reduced to a 'party line'.

Similarly, Bourdieu – elaborating upon his field theory of the 'habitus' as a social space of lifestyles equivalent to the physical space of everyday experience – argues that each social field possesses its own systemic rituals and rewards by which, not only is the identity of the field perpetuated, but also that of the field's agents themselves. Social functions, Bourdieu maintains, are 'social fictions', the purpose of which is to create an ordered society. In accepting whatever specific role they are assigned in their field, each agent thus acquires a place in the world, with a name, title and social image along with it, inviting them to follow the rules and join in the 'game'.

Lastly, the 'field view' of self-organisation proffered by Brian Goodwin,⁶ an embryologist, affords a radically new perspective on the subject. According to this view, self-organisation is the combined outcome of *both* conservative and dynamic processes. It is generally assumed that so-called higher levels of organised life arise out of entities that were in some sense previously *less* organised. But Goodwin's theory upturns that assumption. Rather, all forms of life, from single-celled organisms to individual species, do not evolve from *less* organised entities to *more* organised wholes; they *begin from their very inception* as self-organising entities which, whether under pressure of change from internal (i.e., corporeal) or external sources, can undergo transformations preserving that state.

Double closure

The work of so-called 'second order' cyberneticians provides further vital support for Goodwin's theory. Rejecting systems theorists' conventional description of all systems as either 'open' or 'closed', Bruce Clark and Mark Hanson argue that the boundaries of evolving systems are far more

complex and flexible than that, involving what they call 'double closure'.⁷ Given the potentially overwhelming number of linkages between organism and environment, there is a constant need for all organisms to *control and reduce* those linkages to only those accepted as essential to their growth and survival, thus reducing environmental complexity to levels the organism can comfortably handle. All else is deemed non-essential information, and can therefore be ignored.

Addressing modern human behaviour, Mathieu Hilgers and Eric Manger also write that, much like the semi-autonomous function of double closure, progressive organisational closure in the human social realm of the kind Bourdieu describes serves to reduce or adapt the possible interpretations of the world in which a field evolves, to those which best accord with the field's *own* purposes and criteria.⁸ The more autonomous the field, the more it creates its own specialised language, forms of representation, and practices, and the more the perception of realities gets bent to the field's own logic.

In sum, I suggest that cognitive dissonance,⁹ by which people instinctively reject opinions that make them feel psychologically uncomfortable, is no less than just another name for the *symptoms* of double closure and its timeless evolutionary functions. Doubtless, it will be claimed that self-conscious humans cannot possibly be likened to instinct driven animals, let alone more primitive forms of life. However, it may be asked, just how much of that famous self-consciousness is ever actually exercised? As Michael Polanyi explains, we are all heavily reliant upon *tacit* rather than explicit knowledge in our everyday lives, and are generally running on autopilot for most of the time.¹⁰ Moreover, Francisco Varela and others¹¹ assert that self-conscious

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reflection and verbal reasoning actually play little if any part in our daily lives. Only when customary patterns of life are severely shaken by unexpected social encounters or other 'breakdowns' in routine behaviour, they suggest, does reflective thought and decision-making come into play, modifying or replacing deficient behaviours and skills.

Over and above any direct implications for understanding human behaviour alone, the idea that similar systems of double closure may have governed the evolution of *all* forms of animal life, challenges still-common anthropocentric assumptions that only self-conscious humans can be possessed of a true sense of self. However, there is nothing in Clark and Hanson's description of double-closure as a semi-autonomous system that requires full self-consciousness. Merely sufficient self-awareness such as that needed by all animals to distinguish between their own species, and any others sharing the same environment, friendly or otherwise. More like the serial concepts described by Lewin, the concept of double-closure suggests an instinctive and continuous system of self-controlled responses of a species to changing circumstances.

Self-agency

There is also now a substantial body of research in support of the theory that at least a basic sense of self is common to *all* forms of animal life, the differences between which are more accurately described as *relations of degree* rather than absolute differences. While the term 'self-agency' is normally applied to studies of human schizophrenia and other diagnosed malfunctions, evidence has been found of neural properties enabling other, more primitive animal species to distinguish self from non-self. The noisy cricket, Anil Ananthaswamy explains,¹² whose sound levels can reach 100dB, has a simple but highly effective method of distinguishing its individual signals from that of countless others in a swarm, which would otherwise be drowned out. Each and every cricket in the chorus generates its own sound pulses as it flaps its wings, for which the firing of just a single neuron is responsible. Sounds generated by other crickets are thus identified as

external or non-self, and so of possible further interest to the individual creature.

Similarly, searching for the neurological foundations of the 'feeling self', Antonio Damasio argues that, not only humans, but *any* creature capable of the most primordial feelings must also be possessed of a self, if only to make sense of the emotions, i.e., fear, it is feeling.¹³ Linking the emergence of self and self-consciousness together, he proposes a three-stage, graduated process of evolution of the animal self: from its primitive origins in a 'proto self'; through a 'core self' common to all creatures, to the 'autobiographical self' characteristic of human self-consciousness, involving the ability to make connections between past and present memories.¹⁴

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Adopting Damasio's evolutionary schema of a three-stage self, Jaak Panksepp and Georg Northoff also argue the case for a core self, common to all animal life.¹⁵ However, rejecting Damasio's linked presumption of a parallel emergence of self and consciousness, the authors present a more complex picture of the neurological evolution of a 'trans-species core self'. While their concept of a core self generates emotional responses of the sort common to all mammalian species, they argue it evolved *independently* of conscious awareness, based upon an *implicit* rather than explicit awareness of a self. Furthermore, they suggest that, instead of successive levels of neurological development being displaced through time by the next, each functioning level remains firmly in place in its allotted space in the brain, maintaining its own form of order. Much like the upper two floors of a three-storey building, each of which is dependent for its stability upon the structure of the floor below, both the core self and the upper reaches of human consciousness thus remain firmly rooted in the nervous systems of the proto self, ensuring that we are never wholly free of that primitive heritage. These, the authors explain, originate in the oldest,

subcortical region located at the rear of the brain linked directly to the spinal cord, the vital function of which is to regulate the central nervous system and channel both motor and sensory systems from the rest of the brain through the body.

Neither is associative memory exclusive to supposedly advanced, self-conscious humans, as Damasio claims. Experiments carried out on the ability of butterflies to recall odours they experienced prior to their metamorphosis from pupa to butterfly, confirm that they do indeed retain traces of such memories.¹⁶ Far from being a unique attribute of humankind, such evidence suggests that associative memory is a *basic feature* of animal life, enabling a creature, for example, to associate sounds with possible hidden dangers.

Extended selves

In addition to the multiple and now well documented forms of animal tool manufacture and use, there is also now growing evidence of other, non-human animal variations of extended selves. Laboratory experiments with rats and other mammals exploring their local environment have revealed combined sets of specialised neurons called 'place cells' and 'grid cells'.¹⁷ Located in the hippocampus region of the brain where memories are formed, combined together with the brain's powers of memory, they provide a dynamic, map-like neural representation of the space in which the animal moves. Significantly, they enable the animal to memorise notable previous locations or objects in its environment, so that it can *return* to those spots if it wants to. Furthermore, it is speculated that, taken all together, the combination of memory and specialised brain cells creates the potential for locating *experienced events* at selected points within the animal's space, creating the foundations for higher levels of cognition and spatial behaviour.

As with the synchronised flapping of the cricket's wings and the retention of associative memory by the butterfly, such evidence suggests that, contrary to the still-common belief in the uniqueness of the human self, a basic sense of self, even at the lowest possible level, is *fundamental* to all animal life, and not just the human animal. Moreover, the

continued presence and influence of the most primitive neurological structures of the proto self in the modern human brain supports second order cyberneticians' theory of an instinctive system of double closure common to *all* organisms, keeping attention firmly focused only on those environmental phenomena that are most important to their survival.

Darwin himself was sceptical of claims that his own species was uniquely talented and above any possible comparison with others.¹⁸ While conceding that there was an immense difference between the mind of the 'lowest man' and that of the 'highest animal', he notably qualified the difference as being one of degree, rather than of kind. That does not in itself, as Darwin implies, deny that humans are possessed of special gifts, just as other animal species are. Indeed, if there is any way that, beyond question, humans do distinguish themselves from all other species, it is in the crucial ability, over and above any verbal powers of language, to record their personal and collective histories *externally* in a manner that can be shared with others and passed on to future generations. As Maryanne Wolf argues, it is the *written word*, rather than the less durable spoken word, that enables humankind to escape the communicative limitations of other species.¹⁹ 'Deep reading' as she calls it, enables the book reader to enter the minds and other worlds of the author's characters – a personal act of empathy with those different minds and worlds. Crucially, she maintains, it also nourishes the open-mindedness, and critical faculties, upon which modern democratic culture depends.

Reshaping the brain

However, Wolf was dismayed to realise that, while she was busy extolling the personal and cultural virtues of reading a good book, the Internet had transformed the whole system of global communication, threatening the entire literate culture about which she had written so enthusiastically and replacing it with a digitally based culture. Still more worrying, drawing upon research into neural plasticity, she suggests that, just as the flexibility of the human brain has facilitated the learning

of different languages, changes in the manner in which people now communicate with each other and acquire their knowledge of the world may already be reshaping the brain in possibly irreversible ways.

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There is much evidence across the whole spectrum of Internet activity, from shortened attention spans, addictive online gaming, and narcistic obsessions with personal self-images to individual and corporate misuse of social media, to substantiate Wolf's fears. Far from providing the anticipated new levels of open self-government free of control by other powers, the outcome, as Jose van Dijck explains, has been a *concentration* of power and influence, as corporations quickly learnt to exploit the new social media for their own purposes.²⁰ Dijck argues that Facebook in particular, which promotes the individual self as the centre of an extensive network of online friends, offers a classic example of the growth and power of social media in shaping human relationships. As those networks have grown, so the very *meaning* of friendship has been transformed, from being based upon personal relationships to being associated with the number of so-called 'friends' that can be counted online. In turn, the social means by which the individual self is normally validated by others have changed, from personal involvement in concrete, place-related social activities to a mixed bag of online exchanges and social engagements 'on the ground'. The introduction by Facebook in 2011 of the 'timeline', their mandatory system of organising participants' previously random collections of photos and other personal memoranda into *sequences* according to the date each item was added, Dijck writes, marked a further, major development in those records. Creating a virtual *narrative* of each user's life, the timeline provided a wealth of personal data to Facebook to use for

whatever purpose its directors chose.

Political manipulations

Unsurprisingly, this is just what happened. The exposure in 2015 by the UK's *Guardian* newspaper and other leading papers of the exploitation of millions of Facebook users by Cambridge Analytica, the London-based data processing company, for commercial and political purposes, laid bare the dangers of an under-regulated Internet. As recounted by whistleblower Christopher Wylie,²¹ the company's chief data processing expert, additional psychological research was employed enabling the company to access, and put to the company's own use, comprehensive data on the formerly private lives of Facebook users. Chief among the company's political campaigns, for which it was secretly financed by wealthy political interests, was an ambitious programme in the run-up to the US Presidential elections in 2016, to 'cannibalise' the Republican party and 'remould' American political culture. In addition, a similar campaign was conducted in the UK in the same year with the explicit purpose of influencing the outcome of the Brexit referendum. In both cases, sophisticated data processing and psychological methods developed by Wylie and his team were employed to persuade voters to support candidates sharing the company's backers' preferred ends. Successful methods in the US primary elections included attracting voters holding extremist, right-wing views with fake online messages propagating similar views, followed up by invitations to join groups of like-minded individuals that they could personally identify with.

At a time therefore, when the critical faculties nourished by the literate culture that Wolf eulogised were never more needed, they were coming under attack by political powers of a very different colour. It is not known to what extent Cambridge Analytica's secretive operations may have influenced voters in either campaign, but the company was well aware that, in today's tightly run elections, the outcome could depend on a relatively small proportion of voters, as indeed was the case with the Brexit referendum. Significantly, by encouraging

selected voters to join the company's carefully managed groups of other voters with similar views, Wiley and his team tapped into a far deeper reserve of instinctive behaviour of which neither he nor his psychologist consultants could have dreamed of. Like Goffman's conformist 'performance teams' creating their own realities, or Bourdieu's increasingly specialised 'fields' of activity, targeted voters found ready support and confirmation of their political positions in Analytica's groups.

The price of civilisation

The Cambridge Analytica saga demonstrates all too clearly that, for all our supposedly rational political systems, modern humans remain just as vulnerable to the manipulation by others of the most basic and instinctive needs for confirmation of personal and group identities, as our species ever was. Nowhere is that vulnerability more dangerously manifest now, however, than in the response of the petroleum and other fossil fuel industries to climate change. Like the equally ruthless tobacco industry, fossil fuel industries were not only fully aware of the harmful outcomes of their activities but, it has been claimed, employed every possible means of deception – including outright distortions of scientific and medical evidence – to conceal the deadly cost from the rest of the world.²² It has been suggested for many years that Exxon were fully aware of the dangers of global heating from at least the 1970s, while other oil companies knew of the risks to the planet from as early as the 1950s. However, a new study published in *Science* not only confirms Exxon's complicity, but also shows how accurate the predictions of a heating planet by their own scientists were, down to an increase of 0.2 °C for every decade due to the combined emissions from the burning of fossil fuels.²³ Aware of the threat to its future survival should the bad news get out,

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however, Exxon embarked on a coordinated campaign of disinformation continuing up until the present day.

As serious as the role of Exxon and other oil companies has been in fuelling the ecological crisis, it would be a mistake, however, to heap all the blame on the fossil fuel industries. In *Pandora's Seed*, Spenser Wells lays the primary responsibility for the crisis firmly on the creation of human civilisation itself.²⁴ Beginning with the transformative shift from hunter-gatherer to the invention of agriculture and the production of stable food supplies, including domesticated animal farming, quickly followed by permanent human settlements and the growth of cities, humankind changed forever both our diets and ways of life. In doing so, our species has commandeered the natural resources of the entire planet, with catastrophic impacts on nature's flora and fauna, both on land and in the polluted oceans and rivers of the Earth, our indifference to which we are now paying the price.

Niche construction theorists argue that humans are not the only animal species to modify their environment in their own interests, creating semi-permanent, sheltered homes in which to raise their offspring, so improving their chances of survival.²⁵ However, generally confined as they are to relatively limited geographical areas, none has had remotely anything like the same impact on the Earth's ecosystems as our own species has. For all the brave efforts of climate change activists to wake up the world to the climate emergency, or the many creative efforts of individual architects and others indicative of more harmonious responses to nature,²⁶ climate change denial in one form or another remains rife. Driven by the same basic, self-centred instincts motivating the fossil fuel industries stoking a now fast heating planet, the great majority of humankind remains wedded, subconsciously or not, to their customary ways and values. Ignoring the growing warnings from climate scientists of impending disaster, both political leaders and professional environmentalists consistently underestimate the sheer *inertia* of an entrenched global economic system and populations of consumers reluctant to change their materialistic lifestyles. While

optimists point to the speedy response to the first wave of the COVID-19 pandemic, no sooner had vaccination programmes reduced the rate of infection than the streets quickly filled with polluting traffic again. Even if corporations and their customers were more willing to entertain the kinds of drastic economic and social changes needed to change course, lacking any effective international effort in place to make it happen, it would take many years to implement those changes. Instead, politicians postpone any measures that could permanently reduce automobile dependency or threaten other established industries, while environmentalists themselves, preferring not to face the possible failure of their own efforts, insist that 'it's not too late' to save the world.

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Existential challenges

However, runaway climate change and its mounting effects, as frequently visible now on television news worldwide, is all too real. Climate scientists have repeatedly warned us about the potential dangers of so-called 'tipping points', the progressive collapse of which would have cumulative and devastating impacts over the whole planet. Though formerly reluctant to make any firm predictions due to the lack of sufficient data, recent progress in detecting signs of concurrent trends in the impacts of climate change have encouraged scientists to speak out. In 2020, supported by over 11,000 signatories from around the globe, a group of concerned investigators, despairing of any effective action, concluded that, with few exceptions humankind had failed to resolve the crisis and had mostly conducted business as usual: 'The climate crisis has arrived and is accelerating faster than most scientists expected. It is more severe than anticipated, threatening natural ecosystems and the fate of humanity.'²⁷

No one can say for sure how long it will be before those tipping point dominoes push the planet past the point of no return, but there is already enough concrete evidence, from rapidly melting glaciers, rising sea levels, deadly record-breaking heatwaves and megafires, to suggest we may have already passed that point. Of one thing I am certain, however. With the world's attention diverted from the climate emergency by warfare, there is little chance of humankind surviving the existential challenges ahead unless we abandon our delusions of rationality and superiority over nature and other species – with whom we have far more in common than we care to admit – and do whatever we can to undo the harm we have done. As Bill McKibben writes:

*We have deprived nature of its independence, and that is fatal to its meaning. Nature's independence is its meaning; without it there is nothing but us.*²⁸

Notes

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Competing interests

The author declares none.

Author's biography

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