



Chapter 11

Shall We Adapt? Evolutionary Ethics and Climate Change

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1 INTRODUCTION¹

Of the many scientific issues relevant to society today, one issue that is increasingly regarded as particularly urgent is anthropogenic climate change. There is robust scientific evidence that the earth's average surface temperature has warmed over the last century and that this is primarily due to anthropogenic emissions of greenhouse gases – specifically CO₂ – into the atmosphere (IPCC, 2013, p. 17ff). Almost all of the world's countries have underwritten the 2015 Paris Agreement, which expresses the intention of limiting global warming to 1.5–2 °C above pre-industrial levels by the year 2100, by radically reducing global emissions of greenhouse gasses. Several scientists and policymakers are sceptical about the feasibility of this target, however, and recent analyses of the world's progress towards achieving the Paris goals give little reason for optimism (e.g. UNEP, 2019).

While the causal mechanisms of climate change, as well as the likely consequences of global warming, are questions of science rather than philosophy, climate change gives rise to a variety of concerns that are of great interest to academic philosophers. To name just a few, consider the following:

Philosophy of science: The models that climate scientists use to forecast future states of the earth's climate (such as so-called general circulation models – GCMs) are incredibly complex and take input from a range of evidential sources. How do these models relate to reality? What uncertainties do they involve?

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Philosophy of economics: Economists incorporate GCMs in so-called integrated assessment models (IAMs), which are used to calculate the expected costs and benefits of different policies in the face of global warming. What are the normative assumptions underlying IAMs? For instance, what discount rates do they employ, and are these morally justifiable?

Scientific epistemology: It is of great importance to examine the epistemic credentials of scientific claims regarding climate change, especially given the substantial amount of societal distrust towards climate science. For instance, what is the value of expert consensus among climate scientists, and what is the value of dissent?

Moral epistemology: Societal controversy also pertains to the ethics of climate change and makes questions of moral epistemology particularly acute. How should moral deliberation about climate change proceed? Are there moral experts involved in such deliberation, and if so, what is the nature of their expertise?

Global justice: The atmospheric capacity to absorb CO₂ might be regarded as a scarce resource, the global distribution of which is a matter of justice. On average, the countries of the Global North have historically contributed the most to global warming and are currently most invested in a CO₂ intensive lifestyle, whereas the countries of the Global South are likely to suffer the worst consequences of global warming, at least in the short term. In the face of these inequalities, what would be a fair policy regarding future CO₂ reductions?

Intergenerational justice: Additionally, since CO₂ remains in the atmosphere for long periods of time, the warming effects of CO₂ emissions are cumulative, and their distribution is a matter of future-oriented intergenerational justice. What responsibilities do we have towards future generations? How should we accommodate the interests of future people in moral decision-making?

Risk ethics: Current levels of global CO₂ emissions pose clear risks for the well-being of future generations and jeopardize the continued existence of several entities and artefacts that the present generation takes to be of value. But over the long term, the dynamics and impacts of climate change are also riddled with uncertainties. What decision-procedure should we follow in the face of these uncertainties? For instance, should we endorse a version of the precautionary principle, and if so, how should this principle be spelled out?

Environmental and animal ethics: Climate change also raises concerns about the moral significance of the non-human world. Why, if at all, does biodiversity matter? Are all extinctions equally bad? How should we evaluate the interests of human individuals versus the interests of non-human animals?

This list contains a sample of philosophical topics and questions that can be addressed in the context of climate change. My aim is not to provide a full inventory of such topics, nor to defend the societal relevance of philosophical work in this area; I take it that for readers of this chapter, such relevance is obvious from the questions posed. Moreover, there is an excellent body of existing philosophical literature, which treats many of these topics – such as

the philosophy of climate science (e.g. Winsberg, 2018), climate ethics (e.g. Gardiner, 2011), climate justice (e.g. Meyer & Sanklecha, 2017) and climate scepticism (e.g. Oreskes & Conway, 2010) – in great detail.

Instead, in this chapter, I aim to make a different contribution, by exploring a topic in climate ethics that has not received much prior treatment: the intersection between *climate change* and *evolutionary ethics* (to be defined in the next section). I will discuss three ways in which these topics are connected and will argue for the relevance of examining these connections, both for academic philosophy and for society at large.

Why address this specific topic in the context of the present volume? First, both evolutionary ethics and climate change are issues of great concern to Herman Philipse, to whom this volume is dedicated; addressing them in tandem seems apt for a publication in his honour.² Second, my discussion of them serves to illustrate a specific thesis regarding philosophy's societal relevance. I argue that academic philosophy is well positioned to fulfil a societal role that is particularly important in our age of popular science: to raise awareness of the ethical predicaments to which scientific findings give rise, and to highlight the normative assumptions implicit in the reasoning of scientists who speak out about societal issues. When it comes to evolutionary considerations in the face of climate change, popular science claims (e.g. 'our brains are wired to ignore climate change' – see the title of Marshall's (2014) book) are easy to find. So are claims voiced by scientists that are presented as matters of scientific fact, but in fact mask ethical assumptions, as I will illustrate in section 3. While unmasking such assumptions is by no means the only societal function of academic philosophy, doing so is an important task, and I will argue that philosophers are well trained to fulfil it.

The chapter proceeds as follows. Section 2 starts with a very broad characterization of evolutionary ethics and goes on to articulate a narrower way in which an 'evolutionary ethics approach' can be understood: as an approach to historical moral learning. I argue that in the context of climate change, this approach yields the insight that the long-term consequences of global warming place us in a situation of significant uncertainty, precisely because these long-term consequences are without historical precedent, and the conditions of historical moral learning break down. In section 3, I highlight one of the perils of looking at the phenomenon of climate change through an evolutionary lens: It can invite specific fallacies and

² Herman Philipse was the principal investigator of the NWO (Netherlands Organization for Scientific Research) project 'Evolutionary Ethics' (2014–2019), in which I conducted my PhD research. Additionally, over the last decade, he has given several courses and lectures on the topic of climate change. It has been a great pleasure to discuss these topics with Herman and to learn from him about both of them. Some of the views expressed in this chapter have taken inspiration from his ideas.

contribute to moral corruption. Taking the work of the Dutch geologist Salomon Kroonenberg as an example, I focus on one such fallacy, which I call ‘geological relativism’: the unwarranted trivialization of the ethical significance of climate change, due to selective attention for geological timescales. In section 4, I look at the relevance of evolutionary moral psychology for climate ethics. I argue that insights from psychology can contribute to the efficacy of climate action and that evolutionary considerations may provide an extra layer of understanding to these insights. However, an evolutionary perspective can also be counterproductive, if it is mistakenly taken to negate the plasticity of people’s moral attitudes and the institutional malleability of moral behaviour. That said, I submit that evolutionary limitations do tell us something important, especially at the institutional level: Our institutions have not evolved under the right pressures to deal adequately with the problem of climate change. In section 5, I conclude by highlighting two distinct societal contributions that academic philosophy can make, as gatekeepers of the public debate and communicators of interdisciplinary perspectives.

2 PRESSURES FROM THE PAST

To a first approximation, we may understand ‘evolutionary ethics’ as a catch-all term for inquiries in moral philosophy, which take evolutionary insights to be specifically relevant to their own approach or object of study. This is an ecumenical understanding; evolutionary ethics, thus understood, is compatible with various views in normative ethics and metaethics, and subsumes a range of ethical inquiries (for an overview, see Ruse & Richards, 2017)). Contemporary examples include descriptive inquiries into evolutionary moral psychology (e.g. Sinnott-Armstrong, 2008), so-called evolutionary debunking arguments (e.g. Wielenberg, 2017), as well as approaches that aspire to vindicate ethical claims on the basis of an evolutionary or historical genealogy (e.g. Kitcher, 2011).

In the present section, I restrict my discussion to the latter kind of approach in evolutionary ethics and assess its relevance for coming to terms with the predicaments of global warming.³ This is quite a specific strand of evolutionary ethics, which may not be familiar to all readers. I will first spend some paragraphs unpacking the general view – roughly, the view that moral knowledge comes about through evolutionary and historical processes. Thereafter,

³ I have engaged with other strands of evolutionary ethics elsewhere: In Hopster (2018, 2019), I evaluate the success of evolutionary debunking arguments against moral realism, whereas Hopster and Klenk (2019) scrutinize the evolutionary origins of moral objectivism.

I indicate how this view might be relevant in coming to terms with climate risks and uncertainty.

The view I have in mind gives substance to Dewey's observation that 'moral conceptions and processes grow naturally out of the very conditions of human life' (Dewey, 1932, p. 308). Let us assume, along the lines of pragmatists like Dewey and Kitcher, that the accumulation of moral knowledge is a historical process, and that accumulating moral knowledge amounts to moral progress.⁴ If so, then history itself can be regarded as a source of moral knowledge. In fact, it constitutes such a source in two distinct senses.

First, the process of acquiring moral knowledge is a process of societal learning, that has taken place throughout human (pre-)history. Through trial and error, societies have learned what kinds of interactions are beneficial to human cooperation, what institutions are conducive to human flourishing and how problems of social life can be resolved. For instance, the traumatic experience of the two World Wars heightened societal awareness of the need to codify universal human rights and to create effective institutions of global governance, and led *inter alia* to the foundation of the United Nations (1945) and the Universal Declaration of Human Rights (1948). The Haitian slave revolt (1791–1804) undermined colonialist assumptions about the inferiority of slaves and substantially contributed to a growing recognition of the wrongness of slavery (Anderson, 2016). Going further back in time, the acts of free-riders and noncooperators gave rise to institutions of moralized punishment, which arguably played an important role in early stages of hominid moral evolution (Boyd, Gintis, Bowles, & Richerson, 2003). All of these are examples of societal and evolutionary pressures which steered moral adaptations that most people would nowadays regard as improvements – hence, instances of moral progress.

That we can discern historical episodes of moral progress is not to say that such progress has been linear, nor that the process of historical moral learning has been completed. Episodes of historical moral regress are plentiful, and the moral deficits of today's societies are apparent to many of us. Moreover, there is little reason to think that the process of moral learning could *ever* be completed: The question of what ends are worth pursuing is a matter of ongoing societal dialogue, the dynamics of which are steered by the accumulation of factual knowledge, changes in societies' technological capacities, as well the greater or lesser inclusion of different voices and interests in societal deliberation. But these and other caveats notwithstanding, a good case can be made that on the whole, when looking back at human history, thus far we see

4 I regard it as a common sense assumption that moral progress is possible (though by no means omnipresent), but I am aware that this assumption is not metaethically uncontroversial. Here I proceed on the assumption that the common sense assumption is correct. For plausible defences of moral progress, see Kitcher (2011); Buchanan and Powell (2018).

more signs of moral progress than moral regress. Societies have learned from historical experience, and over time, they have adopted institutions, codes and practices, which we now regard as changes for the better. Whether such changes are understood in terms of a moral realist framework (Huemer, 2016) or in an antirealist fashion (Hopster, 2019), what matters for present purposes that they are indeed progressive changes. Indeed, some codes and practices have been quite resilient, such as moral prohibitions on stealing, which have been used to deter noncooperators from prehistorical times up until the present. These constitute ‘fixed-points’ of moral discourse, which are associated with moral judgements (e.g. ‘stealing is bad’) that, because of their ability to withstand societal scrutiny, can be regarded as objective moral truths (cf. Hopster, 2017).

In sum, the first sense in which history has contributed to moral learning is that it has yielded moral institutions and moral insights that, on average, have been progressive. Let us call this the *experiential level* of historical moral learning. The second sense, which I will call the *intellectual level* of historical moral learning, is that knowledge about history can itself be considered as a reservoir of moral insight. For instance, historical case studies may teach general lessons about the risks of what can happen when demagogues come to power, when market economies are left unchecked, or when armed conflicts escalate. There are limits to such case studies: History never repeats itself in detail, and whether or not a given situation in the present is relevantly similar to a given situation in the past can often only be recognized with hindsight. Nonetheless, some kinds of historical processes may be sufficiently robust to warrant generalizations, such as processes that can be explained at population level (Sterelny, 2016), or the rise and fall of societies steered by climatological changes that occur over the *longue durée* of human history.

Now why think that *climate change* is relevant in the context of historical moral learning? First, consider the *experiential level*. The anticipated short-term impacts of global warming include, among other things, more days with hot extremes, heavy precipitation in some regions, droughts and precipitation deficits in others, more frequent forest fires, floods, net reductions in crop yields, water stress and species loss (IPCC, 2018). All of these are phenomena with which many human societies are intimately acquainted and have had troublesome experiences in the recent past. That extreme weather phenomena, and their associated impacts, will increase both in frequency and intensity is uncalled for, and this can be felt from historical experience. Consider the 2019 floods in Mozambique, *aqua alta* in Venice, and the Australian wildfires around the turn of 2020. These events may have served to heighten awareness among the general population of the short-term hazards that come along with climate change. Of course, their occurrence was not required to intellectually grasp the risks of global warming, but they may have affected

the felt urgency of the problem and may have bred a greater sensitivity for the moral dimensions of climate change. If they did, then these examples qualify as instances of societal moral learning by historical experience.

At the *intellectual* level, historical analogies may fuel ideas about what is adequate, feasible or necessary to do in the face of climate change. Such analogies may take inspiration from historical episodes of moral progress. For instance, in his movie *An Inconvenient Sequel* (2017), Al Gore places the climate movement in the tradition of the American civil rights movement; in her book *This Changes Everything*, Naomi Klein (2014) likens the challenges of abandoning our reliance on fossil fuels to abolishing the slave economy; in the *Stern Review* (2007), Nicholas Stern compares the economic risks of climate change to a permanent economic depression similar to the crisis during the great wars. Apart from historical analogies focused on human societies, knowledge from the past might also foster insight into the potential cascade effects of rapid climate change, which can help to fuel our moral outlook. For instance, some scientists have argued that the current epoch in the earth's history bears resemblances to the 'Great Dying' that happened at the end of the Permian (252 mya), when 96 per cent of all species went extinct (Penn, Deutsch, Payne, & Sperling, 2018). Others maintain that in terms of the paleoclimatic events of the past, the warming that took place during the Paleocene – Eocene Thermal Maximum of 56 mya (which did not trigger one of the earth's major extinction events) provides a better comparison to our current climatological condition (McInerney & Wing, 2011).

But while such analogies can breed insight, they also have limitations. CO₂ molecules are quite unlike slaves, climate change is not a war, and the Anthropocene is very different from the Permian. Drawing historical analogies serves an important moral purpose, but with respect to the current episode of climate change, the disanalogies are substantial and should caution us not to frame our present predicament too narrowly as a repetition of the past.

This brings me to a general point about climate change, which specifically pertains to its long-term impact. Not only is this impact riddled with uncertainties, but it also places us under conditions where history provides little guidance. Much of recorded human history has taken place in an era when the climate was remarkably stable, with swings of average surface temperature ranging around 1 °C. While climate change did influence historical societies, it never did so at the pace of change that scientists currently anticipate, never at the same global scale, and – perhaps most significantly – never in a situation where societies were capable of responding not just in terms of adaptation, but also in terms of mitigation. To find a more drastic example of climate change we have to go back to the last ice age. But for purposes of comparison with the present, this is a problematic reference class, both because the average surface temperature was much

lower and because the last ice age happened during human prehistory. The Last Glacial Maximum (LGM) occurred approximately 21 kya, which was a time when agricultural human societies did not exist, and a sedentary lifestyle was infrequent at best. While it may be interesting to study paleoanthropological findings about how societies adapted to these circumstances, and especially how they adapted to the ensuing period of temperature rise, the lessons these findings might provide with regard to our present predicament seem to be limited.

One might think that this is indicative of a limitation of the ‘evolutionary approach’ to ethical learning I am outlining here. Ideally, we would like to take lessons from history that are relevant in the current context of global warming, for instance, by learning how adaptable past human societies have been to temperature rises similar to those of the present. We would like history to give us an indication of how well we can cope, and of what ought to be done. But unfortunately, historical precedents are lacking; hence, the approach arguably falls short.

Myself, however, I do not subscribe to this diagnosis. Rather than being a flaw of the approach, I submit that the absence of historical precedents in fact teaches us an important ethical lesson about the climate risks we are currently facing. The fact that the long-term impact of anthropogenic climate change is historically unprecedented, and that conditions of historical learning break down, implies that some of the more worrisome scenarios painted by scientists, which might have otherwise been discredited as being overly fanciful and historically unrealistic, should be entertained as serious possibilities. We are venturing into unknown territory, which makes it very difficult to state with reassuring confidence that the catastrophic scenarios that some scientists envision are wildly improbable. Moreover, we are confronted with conditions that we, during the era of advanced human civilization, have not previously learned to cope with. As the climate economist William Nordhaus (2013) ponders:

The last 7,000 years have been the most stable climatic period in more than 100,000 years. This is a sobering finding because this is also the period that has witnessed the emergence of written languages, cities, and human civilizations. Was climate stability a prerequisite for the emergence of farming and cities? Would the Sumerians have developed the first written language if they had been confronted with an unstable climate system? How would philosophy and literature have developed in Greece if the city-states were suddenly plunged into an ice age?

We cannot really tell; historical experience is lacking. We can, however, generate some impression of the *scale* of disruption that sudden climate

change would create. Consider once more the ice age analogy, understood as a resource for intellectual (rather than experiential) moral knowledge. While I noted that the insight the ice age can provide with regard to our present predicament is limited, it is not altogether absent. One relevant analogy concerns the range of temperature differences that the next generation might face. With some margin of uncertainty, the average surface temperature during the last ice age is typically estimated to be of an order of 5–7 °C lower than the present (IPCC, 2013, p. 124). A 5–7 °C temperature increase above pre-industrial levels, in turn, is among the extreme predictions for the twenty-first century, but might well be within the plausible temperature range at some point during the twenty-second century, if we extrapolate from current IPCC (2013) projections. What would the impact of this temperature rise be? The last ice age provides some indirect clues: During the LGM, the northern part of America and Northwest Eurasia were covered by continental ice sheets, with large tundra steppes below; sea levels were much lower, and one could have walked from present-day Amsterdam to Dublin, or from Siberia to Alaska. As the philosopher John Broome (2012, p. 130) conjectures: ‘Five degrees of cooling gave us an ice-age; six degrees of warming must be expected to give us dramatic effects in the other direction’.

Of course, the ice age analogy does not tell us exactly which changes to expect, but it does provide a relevant comparison class by illustrating how dramatic such changes might be. Moreover, it drives home the point that what seems to be a relatively small swing in the earth’s average surface temperature can have a huge impact on the climate system. In doing so, it makes it easier to appreciate that global warming poses serious long-term risks, which are highly relevant from an ethical point of view. These risks involve the prospect that intergenerational projects will have to be aborted, that structures erected over the ages will have to be abandoned, and that conditions amenable to human flourishing will degrade.

We conclude our first exploration of the intersections between climate change and evolutionary ethics, having arrived at a surprising insight. Initially, it seemed that the pragmatist approach towards evolutionary ethics which I have outlined – the view that moral knowledge itself comes about through evolutionary and historical processes – is of limited use to climate ethics, since in the context of anthropogenic global warming the conditions for historical moral learning largely break down. But on further thought, this very breakdown provides an important clue about the *kind* of uncertainty we are currently facing – a clue that is likely to be relevant in the context of risk ethics, and may help, for instance, to articulate a version of the precautionary principle tailored to climate risks.

3 THE FALLACY OF GEOLOGICAL RELATIVISM

Our brief excursion to the ice age testifies to the fact that the earth's climate has not been stable throughout history. Ice ages came and went at regular intervals during hominid evolution. Going further back in time, there have been periods when the earth was a tropical planet with sea levels that are much higher than nowadays, periods when much of our planet was a desert, as well as periods when the entire planet was covered in ice. Human emissions are causing the rapid pace with which the global temperature is currently warming up, and this is a novel phenomenon. Climate change *as such* is not.

Does the 'deep history' of climate change have any moral significance? The Dutch geologist Salomon Kroonenberg, a well-known contributor to the public debate about climate change in the Netherlands, believes so. In a lecture about the geological history of the earth's climate, he states (Kroonenberg 2009, my translation from Dutch):

The climate is changing. You read it in the newspapers, you hear it on the radio, you see it on television. Hearing all of it, you think: the earth is upset. It's not like it used to be. And *we* have done that. (. . .) [Upon learning about the IPCC's projections] you think: Yes, of course this is worrisome. The climate should not be changing. But I want to provide a bit of perspective. Because in fact, you can only answer the question of whether this is worrisome, if you look a bit further back in time, and consider how the climate has been in the past.

This quote is representative of Kroonenberg's general outlook, which he has expressed in several books, lectures and newspaper articles. Only in the context of the geological deep history of the earth – for by 'looking a bit further back in time' he means looking at geological timescales of millions of years, which is his area of expertise – can we appreciate the significance of present-day climate change.

In this section, I take issue with Kroonenberg's view and argue that he commits a moral fallacy, which I dub the fallacy of 'geological relativism'. Kroonenberg's paleoclimatic expertise is unquestionable; as a purely scientific matter, I endorse his contention that the question of whether anthropogenic climate change is historically unprecedented, or rather a repetition on a familiar theme, should be answered against the background of all paleoclimatic evidence. However, the way in which Kroonenberg frames the question is not scientific, but ethical. He asks his listeners whether anthropogenic global warming is *worrisome*, and subsequently intends to downplay any worries listeners might have by elucidating that dramatic shifts in the earth's climate are by no means unique.

From an ethical point of view, this reasoning is confused. The confusion stems from the fact that Kroonenberg ties the ethical question of whether climate change is worrisome to the geological question of whether the earth, or life as such, can endure it – and using geological phenomena that have played out over thousands to millions of years as his frame of reference, he argues that it can. But this is a red herring. What makes global warming a pressing ethical concern has little to do with the assertion, whether correct or not, that our planet has faced similar climatic changes in the deep past. In fact, the climatic changes of the deep past are entirely irrelevant to the ethical gravity of the changes occurring in the present. Since the climatic changes Kroonenberg refers to happened long before humans occupied deltas and cultivated farmlands – indeed, given that his toy examples concern climatic changes that happened before *Homo sapiens* even existed – they do not speak to the issues that are most obviously at stake in our current moral context.

We may grant that the planet itself will endure anthropogenic climate change, and that evolution will not come to a halt. But many currently living species *will not* endure it, the future of human societies will be jeopardized, and worthwhile intergenerational projects will have to be aborted. *These* are the things we typically value and care about, our subjects of ethical concern, the potential loss of which we regard as morally problematic. Therefore, in making an ethical claim about whether anthropogenic global warming is worrisome, we should focus on the endurance of *these entities* as our core concern. To answer the question of whether anthropogenic climate change is worrisome by pointing to changes that have occurred over the last hundred millions of years is to focus attention at issues that are irrelevant from a moral point of view, even if they are of great scientific interest.

This is an instance of a fallacy which I will dub ‘geological relativism’: the unwarranted trivialization of the ethical significance of climate change, due to selective attention for processes that occur or entities that endure only at geological timescales. The fallacy is easy to correct: Surely, from an ethical viewpoint, we should not selectively consider the impact of climate change on processes that unfold at geological timescales, since the processes and entities we care about exist at very different timescales. We typically care about processes that unfold over our own lifetime, as well as certain processes that go beyond that (e.g. Scheffler, 2016) – the future of countries, civilizations and intergenerational projects over the next couple of hundreds of years. Perhaps we might even value the persistence of ecosystems, or of certain cultural achievements and artefacts, over thousands of years. When we say that the future of our planet is at stake, *these* are the kinds of things we worry about. Broadening our perspective at logarithmic steps, we enter at timescales that rarely figure in what we ordinarily value, and surely, the multi-million-year processes of geological time cannot be taken as the *default*

temporal reference class for judging what matters. At the very least, a reason should be given to think that such vast timescales constitute the proper reference class for judging whether anthropogenic climate change is a worrisome phenomenon. Absent any such justification, ‘geological relativism’ should be regarded as a fallacy.

Something similar can be said about a sister-species of ‘geological relativism’, which I will call the fallacy of ‘Darwinian relativism’: the unwarranted trivialization of the ethical significance of extinction, based on the fact that over eons of evolutionary time no species will persist. While this is scientifically correct, it does not follow that preserving species from going extinct *during our lifetime* is not a worthwhile endeavour. Of course, over long stretches of time, everything is in flux and nothing ever stays the same. But there can be quite some stability at shorter timescales, and these shorter timescales constitute the default temporal dimension against which we make judgements of value.

Returning to our general theme, the discussion in this section brings out that the intersection between evolutionary ethics and climate change is not necessarily virtuous. An evolutionary perspective may enrich our ethical framework, but it can also invite specific fallacies. Being wary about these fallacies is especially important in the context of discussions centring on the ‘Anthropocene’, which is the name that some scientists give to a new geological epoch that has recently begun, and which is characterized by the fact that human activities have become significant geological forces (Crutzen, 2002). Whether the Anthropocene should indeed be regarded as a new geological epoch, and whether the notion does not bring along unwarranted ideological presuppositions, are matters of scholarly contention (e.g. Baskin, 2015). But setting aside any such controversy, note that the conceptual framework of the Anthropocene suggests that human and geological timescales have become entangled. Given this entanglement, the fallacies of ‘geological relativism’ and ‘Darwinian relativism’ lure: they are the kinds of fallacies that the conceptual framework of the Anthropocene easily invites.

The climate ethicist Stephen Gardiner has argued that the issue of climate change gives rise to various forms of ‘moral corruption’, which is, roughly, a tendency to rationalize immoral behaviour, to neglect the risks that climate change brings about, and a failure to be motivated by moral concerns, of which I will provide some examples in the next section (Gardiner, 2011). That climate change involves these convoluted problems makes it all too easy to engage in manipulative or self-deceptive behaviour. I submit that ‘geological relativism’ and ‘Darwinian relativism’ can be regarded as instances of self-deceptive – and morally corrupting – behaviour along these lines, as they involve looking away from pressing ethical concerns and focussing attention on matters that are of little moral significance. This is a possible pitfall of

looking at the issue of climate change through an evolutionary lens. A deep time perspective, while invaluable for scientific purposes, can be a distraction when coming to terms with our ethical predicament.

4 CLIMATE CHANGE AND EVOLUTIONARY MORAL PSYCHOLOGY

Thus far, we have focused mostly on findings from (pre-)history and the deep time perspective of geology, and assessed their (ir)relevance for climate ethics. We now turn to the field of moral psychology, where evolutionary considerations often loom large. Especially in popular writings, scientists regularly make claims about our evolved capacities to deal with the issue of climate change. The general tenor of these claims echoes the title of Marshall's (2014) book *Don't Even Think About It: Why Our Brains are Wired to Ignore Climate Change*: We are evolutionarily ill-equipped to handle the problem. Consider the following three statements from a prominent science communicator, a philosopher and a psychologist:

- Communicating climate change is a very tough problem. You know, it doesn't trip the normal hormonal responses we evolved to protect ourselves with. You can't see it, you can't taste it, you can't smell it. It appears to be in the distant future. (David Fenton on the podcast *Climate One*, 2018)
- Evolution built us to respond to rapid movements of middle-sized objects, not to the slow build-up of insensible gases in the atmosphere. (Jamieson, 2014, p. 4)
- Global warming doesn't (. . .) violate our moral sensibilities. It doesn't cause our blood to boil (at least not figuratively) because it doesn't force us to entertain thoughts that we find indecent, impious or repulsive. (. . .) [I]t doesn't make us feel nauseated or angry or disgraced, and thus we don't feel compelled to rail against it as we do against other momentous threats to our species, such as flag burning. The fact is that if climate change were caused by gay sex, or by the practice of eating kittens, millions of protesters would be massing in the streets. (Gilbert, 2006)

How seriously should we take these admonitions? There is an ever-growing body of research on the topic of climate psychology, including work on the psychology of climate inaction (Markowitz & Shariff, 2012). This body of research suggests that there are indeed various cognitive biases and other psychological obstacles to coping with the challenges that climate change poses. To name a few tendencies that are relevant in this context:

- Climate change is often perceived as a distant and abstract threat and its impact is difficult to envision; as a result, it does not trigger a strong emotional response (e.g. Marshall, 2014, pp. 55–7);
- People easily get habituated to gradual processes; crises that lack abruptness also lack psychological salience (e.g. Marshall, 2014, p. 48);
- People’s attention tends to be directed towards the short-term future; we are psychologically inclined to engage in temporal discounting (e.g. Jacquet, Hagel, Hauert, Marotzke, Röhl, & Milinski, 2013).

Psychological considerations along these lines underscore the risk of moral disengagement with the issue of climate change, and of disregarding the interests of future generations. Our moral psychology did not evolve in response to long-term threats and pressures for global cooperation, and as a result, achieving such cooperation is all the more challenging.

It should be emphasized, however, that to a substantial extent, these are malleable tendencies, rather than fixed features of human psychology. Consider, for instance, the climate activist Greta Thunberg, whose ‘school strike for the climate’ got following worldwide, and who has publicly expressed emotions of anger, indignation and feelings of neglect.⁵ Apparently, climate change *can* trigger a strong emotional response and *can* be regarded as an urgent crisis, even motivating millions of protesters to mass the streets. The psychological obstacles to facing climate change may be real, but they are not absolute.

The practical upshot of climate psychology is that it can foster strategies to take away these obstacles and increase moral engagement. Consider the negative emotions around which Thunberg’s rhetoric revolves. Are these the most effective emotional buttons to push? Drawing on psychological findings, Pözlzer (2018, p. 13) argues that people are more likely to be motivated to take action when climate change is linked to positive emotions. By way of example, Pözlzer proposes that we might practice extending the emotion of love universally to encompass non-human nature – a proposal reminiscent of some Buddhist meditative practices.

Myself, I think that the emotions of honour and pride, which have thus far not been central to climate discourse, might be powerful instigators of climate action. By this, I do not mean the pride (or disgrace) that future generations might feel towards us. The credits that fuel such pride will only be available in the long-term future, and I doubt whether a leap of imagination (‘what will your grandchildren say!’) is sufficiently effective to prompt action in the here

⁵ See, for instance, her address at the United Nations Climate Action Summit of 23 September 2019. A video and transcript can be found at: www.npr.org/2019/09/23/763452863/transcript-greta-thunbergs-speech-at-the-u-n-climate-action-summit

and now. Instead, I am thinking of pride in terms of the virtue we might bestow on individuals who are role models of low-carbon lifestyles, the national pride we might take in being leaders of a green energy transition, and taking pride in the fact that we, as a species, can cope with the momentous challenge we are facing, without being disheartened by the sacrifices we have to make along the way. Moreover, we can take pride in our historical achievements, and find value in their continued preservation – which, in the face of melting glaciers and rising sea levels, might well be in jeopardy. The enormous number of donations given to the Notre Dame after the near-catastrophic fire of 2019 illustrates that when icons of contemporary culture are at stake, people become quite willing to seriously invest in averting disaster.

What, then, is the relevance of evolutionary considerations for climate psychology? Many of the biases, tendencies and emotions discussed earlier have clear evolutionary underpinnings. For instance, emotions of honour and pride, which are intimately tied to reputation, have likely played a significant role in human moral evolution (e.g. Sperber & Baumard, 2012). Being aware of these evolutionary origins can help us to appreciate our psychological strengths and weaknesses, but such awareness is not essential to overcoming our blind spots. What is of practical significance in the context of climate psychology is understanding the *mechanisms* that can move us to climate action, not their evolutionary origins.

Moreover, an evolutionary perspective can also prove to be a moral confound, as it may give rise to an unwarranted form of ‘evoconservatism’: an unduly restrictive view of our potential for moral improvement, based on a failure to appreciate the cultural flexibility of our evolved tendencies (Buchanan & Powell, 2018). As I pointed out earlier, while there is good reason to think that psychological presentism and lack of emotional engagement are obstacles to climate action, there is also good reason to think that these traits are quite flexible. The evolutionary origins of our moral blind spots may be telling, but can also mask how easily these blind spots might be overcome in the right institutional setting.

This appears to be an encouraging prospect. Institutional nudges might provide a feasible means for adapting our behaviour to act with greater sensitivity to the moral perils of climate change. But I will end on a less hopeful note. Just like our moral emotions, our core societal institutions have not evolved in response to pressures of climate change. Instead, over the last two centuries, modern states have co-evolved with the fossil fuel industry, creating path-dependencies and lock-in effects that hinder social-ecological transformation (Brand & Wissen, 2018; Hausknost, 2020). Our means of transportation and networks of production and consumption are tailored to a carbon-intensive economy; our political institutions are focused on short-term interests. I began this chapter, in section 2, by arguing that historical

experiences are key triggers of morally progressive societal adaptation. The fact that our core institutions have evolved in the absence of experiencing the harms of CO₂ emissions, makes the societal transformation that is upon us all the more daunting.

5 CONCLUSION

In this chapter, I have explored some intersections between evolutionary ethics and climate change. Examining the connections between these topics can deliver valuable insights, and gives rise to a variety of questions, undoubtedly many more than I have touched upon here. What the examples I have singled out in the foregoing sections illustrate is that an evolutionary lens, and a scientific outlook more generally, may both help and hinder ethical assessments. When properly incorporated in our moral reference frame, a scientific perspective will certainly be beneficial. But a scientific perspective also has a potential to fuel moral blindsight and may invite fallacies of moral reasoning. Those venturing to further explore the intersections between evolutionary ethics and climate change should bear in mind both sides of this coin – the potential for virtuous interaction between ethics and science, as well as the potential for distortion, and need for correctives.

In conclusion, let me return to the overall theme of this volume and reflect on how the foregoing analysis relates to philosophy's societal relevance. Above all, climate change is itself an issue of great societal relevance, which raises challenges – particularly in the field of ethics – to which philosophers directly contribute, for instance, by scrutinizing what counts as a fair distribution of the burdens of global CO₂ reductions. But apart from this, and building on the foregoing discussion, let me highlight two further societal roles that academic philosophy can fulfil. First, many philosophers are trained in normative reasoning, well equipped to discern good from bad arguments, and have specific expertise in detecting formal and informal reasoning fallacies. As a result, philosophers are well positioned to function as gatekeepers of (non-technical) scholarly and public debates, pointing out fallacies and correcting popular misunderstandings, such as the 'geological relativism' of Salomon Kroonenberg. This role is not unlike that of journalists, but its focus is geared towards a different set of issues. While an important gatekeeping function of journalism is to correct for factual mistakes, a philosophical training will be specifically helpful in correcting mistaken interpretations of the overall balance of evidence, conflation of fact and value, or in pointing out conceptual ambiguities. This is by no means philosophy's only societal task, but it is an important one, especially in an age where traditional editorial

filters have substantially weakened. Societal discourse needs critical scrutiny and philosophers are well equipped to provide it.⁶

Second, in this chapter, I have borrowed on findings from a number of different disciplines, with the aim of providing a general impression of long-term risks of anthropogenic climate change, and of the obstacles we face in coming to terms with these risks. A fair number of academic philosophers (though by no means all of them) regularly undertake projects of this sort, as purported ‘experts of generality’, aspiring to synthesize knowledge from several disciplines. Interdisciplinary expertise, in turn, is a skill of great importance with regard to many of the complex challenges facing today’s societies. Related to the ability to integrate different bodies of knowledge, but more distinctive of the *philosopher’s* role in doing so is an ability to formulate overarching perspectives and advance all-things-considered normative judgements. Such perspectives and judgements are specifically important for purposes of science communication, which should serve to raise awareness among the general public of the pressing scientific questions of our age, as well as the ethical issues to which they give rise. While philosophers are not the only ones who may be qualified to integrate disciplinary perspectives and advance holistic judgements, a philosophical training does help to develop crucial skills towards this end.

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⁶ The popular Dutch philosophy blog *Bij Nader Inzien* (www.bijnaderinzien.com) provides an illustration of the diversity of societal topics to which academic philosophy can contribute. For my own contributions to societally engaged philosophy, see Boudry and Hopster (2019) – a discussion of forty-nine fallacies in contemporary public debate.

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