

## Ecological Risk: Climate Change as Abstract-Corporeal Problem

Riesgo ecológico: cambio climático como problema corporal abstracto

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### Abstract

This essay uses Ulrich Beck's concept of risk society to understand the threat of catastrophic climate change. It argues that this threat is "abstract-corporeal", and therefore a special kind of threat that poses special kinds of epistemic and ecological challenges. At the center of these challenges is the problem of human vulnerability, which entails a complex form of trust that both sustains and threatens human survival.

**Keywords:** Climate change; Embodiment; Risk Society.

### Resumen

Este ensayo utiliza el concepto de Ulrich Beck de la sociedad de riesgo para entender la amenaza del cambio climático catastrófico. Postula que esta amenaza es "abstracta-corpórea" y por ende un tipo de amenaza especial que plantea formas especiales de retos epistémicos y ecológicos. El centro de estos retos es el problema de la vulnerabilidad humana, la cual involucra una forma compleja de confianza que sostiene y amenaza la supervivencia humana.

**Palabras clave:** Cambio climático; Corporalidad; Sociedad del Riesgo.

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## Ecological Risk: Climate Change as Abstract-Corporeal Problem

### Introduction

In October 2018 the United Nations' Intergovernmental Panel on Climate Change (IPCC) released its latest report on the progress of global warming (IPCC, 2018). The report, composed by more than 90 scientists from 40 countries, surprised even previous IPCC scientists with its prognosis. As reported in the *New York Times*, the IPCC contends that the threat of catastrophic global warming is more severe than previously believed. Without drastic, global economic changes we will witness greater food scarcity, wildfires, and coral reef devastation as soon as 2040. The situation is dire; it may very well be hopeless. The solution, if there is one, is precarious: rapid global economic transformation never before seen in human history (Davenport, 2018).

The crisis generated by anthropogenic climate change has been the focus of intensive social science and humanities research for decades now. In recent years, the Anthropocene has become a household term, even if it remains "tendentiously and contentiously" debated in the literature, as Adrian Ivakhiv (2018: 22) puts it in a recent book. What seems obvious, however, is that the current climate crisis is the natural result of a constellation of social, economic, political, technological, and moral factors that began to coalesce in the industrial revolution and have been consolidated by neoliberal economic policies that support deregulation and facilitate environmental degradation on a global scale. The same neoliberal ideology that has contributed to the environmental crisis in question, and which is promoted by developed nations like the United States and China, would have us believe that the solution to the climate crisis is provided by neoliberalism itself. Eco-consumerism, which shifts the burden of the climate crisis onto individual consumers, assigning these individuals moral responsibility for preventing a catastrophe summoned by collective political and economic decisions, is prescribed by those, like American president Donald Trump, who see

their power and wealth threatened by international agreements meant to curtail arrival of the end times. But neoliberal fantasies like this remain unpersuasive, as long as the crux of the problem is structural rather than individual (Lukacs, 2017).

If it is true that only a radical, systematic, and international shift in economic policy can forestall the imminent climate catastrophe diagnosed by the IPCC, it is not clear that increased government regulation or strategic social justice efforts will be an adequate means of defense, for these solutions place too much trust in the good will and altruism of agents and agencies that have consistently failed to produce effective responses to the environmental risks endemic to late capitalism. Trusting agents and agencies to choose to do the right thing, therefore, seems misplaced. It is misplaced, I believe, because the failure to address the threat of catastrophic climate change is more epistemic than moral, so we generally understand the problem backwards.

Moreover, it is not clear to me that we are capable of rising to the epistemic and moral challenges facing us. It may very well be the case that we *cannot* know how to answer the threats that industrialization has wrought on the environment, that we *cannot* count on our fellow humans to organize the global economic revolution prescribed by the IPCC. Current biotechnology promises, however, to resolve both of these human deficiencies by enhancing and modifying our bodies. If successful, biotechnology may offer the best solution to the climate crisis. I will examine this solution below and explain my skepticism toward it after first trying to characterize the epistemic challenge posed by large-scale objects like global warming, what Timothy Morton calls "hyperobjects."

To frame the epistemic problem, I draw broadly from the sociology of Ulrich Beck (1992; 2009), particularly his concept of "world risk society" and his work on ecological politics. Beck can help us demonstrate how today's campaign to enhance and/or modify our bodies at the most fundamental,

material level—chemically, genetically—cannot be extricated from one of the most abstract, immaterial problems facing humanity: the ecological crisis and its existential correlate, the extinction of humanity by anthropogenic climate change. This problem is especially troubling because it is *abstract-corporeal*. In other words, it is characterized by a certain imperceptibility and inconceivability (ignorance), resistance to experience (elusiveness), and, consequently, witness testimony. It is a problem for which the senses, which is to say, our bodies, are currently unequipped. And yet, it is precisely our bodies that are threatened with annihilation if the problem proves irresolvable.<sup>1</sup>

As Beck (1992) points out, this means that ecological threats are such that they can only be detected by institutions, which in turn means that our perception of them is always mediated, controlled, politicized. This fact raises the question of how such threats can be accurately identified, and who is capable of identifying them, for the purposes of mitigation. Unsurprisingly, the means of mitigation will themselves need to be mediated, interpreted, and deployed through institutions and, importantly, their bureaucratic infrastructure. This not only raises questions about the public's trust in its institutions and its credulity toward the efficacy of bureaucracy and the proposed strategies for combatting the ecological crisis, it furthermore raises the question of whether or not it is possible for biological creatures like us to resolve an existential threat generated by our unavoidably risky moral, political, and social behaviors.

To address the moral aspect of the climate crisis, I consider the solution proposed by Ingmar Persson and Julian Savulescu (2012) in *Unfit for the Future*. Not unlike those who recommend geoengineering as a response to global warming, Persson and Savulescu look to science for salvation. Instead of recommending geoengineering the Earth's atmosphere, however, they recommend something more indirect: human engineering. Their short book argues that we will not solve our most pressing moral crises, global warming included, unless future generations are morally enhanced.

With the help of Beck (1992; 1995; 2009), I argue that, while the solution proposed by Persson and Savulescu (2012) offers a persuasive riposte to both liberal and neoliberal environmental solutions, and that its moral motivation is appealing, Persson and Savulescu do not fully appreciate the epistemic aspect of the climate crisis, as Beck and Morton

(2010; 2013) frame it. Consequently, their moral argument's optimism should be tempered with the pessimism called for by our epistemic position vis-à-vis global warming. Specifically, I will argue that their approach, while morally compelling for utilitarians, fails to appreciate the abstract dimension of the abstract-corporeal problem of global warming. This is manifest in the naturalistic approach to "moral bioenhancement" they prescribe, which conceptually isolates the body from its ecological condition while marshalling arguments from evolutionary theory, moral and political philosophy, primatology, and anthropology to support its assessment of our moral psychology.

The argument for moral bioenhancement advanced by Persson and Savulescu (2012) rests on a diagnosis of human nature. The prescriptions they make, unsurprisingly, focus on tinkering with human nature. This presents an intriguing paradox involving the question of how our imperfect human nature could engineer a more perfect human nature, but I will not explore this paradox. I will focus instead on the extent to which our bodies are equipped to sense the problem at hand and to do something about it. I will conclude that the abstract-corporeal character of our environmental crisis makes the problem especially intractable and insidious, and that it will not be resolved with a biotechnological solution that focuses on modifying human nature.

### ***Ecological Risk and the Imperceptibility Problem***

Beck (1992) has developed a theoretical framework that enables us to understand the unique epistemic challenge posed by such massively distributed environmental problems like global warming. What is particularly useful about Beck's work is its diagnosis of modern industrial society as a "risk society," which insists on situating certain ecological threats at a level of reality that is not properly localizable, but whose effects are quite real for locales across the globe. It would not be inappropriate to describe this level of reality as neither local nor global, so we must then ask where the threat of global warming resides. The answer, it seems, is that this and similar threats are everywhere and nowhere at once. I call this level of reality "abstract-corporeal" to express the fact that, even though it is imperceptible, it nevertheless yields material effects, some of which are potentially catastrophic.

Contemporary industrial society is a risk society. A risk in this framework is not the kind of thing that one confronts when driving a car at excessive speed, free-climbing a mountain, or experimenting with recreational drugs of dubious origin. These

<sup>1</sup> The issue of imperceptibility has been characterized differently by Morton (2013).

involve foreseeable and calculable dangers freely accepted by individual agents who more or less know what they are getting into. They can, if they choose, take reasonable precautions to minimize potential harms. The kinds of risks that interest Beck are more insidious. They are the collateral dangers of technological and industrial progress; they are generated not by the choices of individual actors, but by the collective progress of globalized industries. In short, they are symptoms of modernization itself and cannot be attributed to the decisions or actions of anyone in particular, although they are anthropogenic (Beck, 1992; Beck, 1995). They call for containment, management, and minimization through security and insurance measures and, ultimately, pose threats—social, economic, ecological—which call for innovative solutions.<sup>2</sup> In this respect, they are a problem that can be conveniently exploited by the same capitalist economy that created them, as Naomi Klein has documented at length (2007).

Risks are not identical to threats. Whereas risks are manageable by virtue of their calculability, threats are defined by their incalculable, irreversible, and self-destructive character. As Beck (1995b: 2) says, “Unlike the risks of early industrial society, contemporary nuclear, chemical, ecological, and biological threats are (1) not limitable, either socially or temporally; (2) not accountable according to the prevailing rules of causality, guilt, and liability; and (3) neither compensable nor insurable”. Threats are intractable, uncontrollable. They are the shadow of more localizable decisions and they belong to no one in particular. What intrigues me most is when Beck (1995b: 3) says that they “lack any sensory character”. If this is the case, then threats are *imperceptible*. This raises an urgent epistemic problem for bodies like ours, which find themselves vulnerable to environmental threats generated by their own behavior.

What does it mean to call a threat imperceptible? In *Risk Society*, Beck contrasts the risks of premodern, preindustrial society with the risks that beset modern industrialized society, which persists today. Prior to industrialization, risks were easy to identify and had “a note of bravery and adventure” (Beck, 1995: 21). Risks did not yet evoke “the threat of self-destruction of all life on Earth” (1995: p. 21) Beck argues that the risks of preindustrial society were eminently sensuous, detectable by the bodies rendered vulnerable by them. The medieval citizens of Paris or the Londoners of the early-nineteenth century could see, smell, and hear the risks their

hygienic standards posed to their health. They knew the dangers that society posed because they could detect them directly with their senses. “It is nevertheless striking,” writes Beck (1995: 21), “that hazards in those days assaulted the nose or the eyes and were thus perceptible to the senses, while the risks of civilization today typically *escape perception* and are localized in the sphere of *physical and chemical formulas* (e.g. toxins in foodstuffs or the nuclear threat).” While Beck admits a degree of localization for these risks, they at the same time defy localization; or, in Beck’s words, “they are no longer tied to their place of origin—the industrial plant” (1995: 22). They have been diffused throughout the environment, rendered spatially out of sync with their cause, and, in this way, have become imperceptible threats to life of Earth.

If Beck’s thesis about the imperceptibility of modern threats is defensible, then one of its advantages is that it helps explain the persistence of climate change skepticism and the lack of urgency found among climate change deniers. Climate skeptics, when not simply blinded by capitalist ideology, right-wing conspiracy theories, or a general distrust of science, tend to be the kind of people who believe that their senses are the best authority on what goes on in the world around them. They find it hard to believe in anthropogenic climate change because they cannot bear witness to it; they cannot see the causal relationships described by climate scientists. They step outside on a cold summer day and their bodies tell them that global warming cannot possibly be true because it does not *feel* true. For these folks, the requisite sensory evidence is lacking. A kitchen fire is one thing; atmospheric warming is something completely different. Where’s the fire? they ask.

If climate skeptics tend to place a great deal of trust in their senses, an often unwarranted amount of trust, it is not surprising that they tend to distrust the testimony of scientists who report on the existence and effects of things that cannot be sensed, like climate change. In the skeptic’s estimation, not only do scientists fail to provide sensory evidence for climate change, the scientists themselves have naively invested their trust in the instruments of science and other institutional organs of detection designed to measure what cannot be experienced directly with their natural organs (Beck, 1995b). Since the scientists themselves cannot rely on their senses, the very success of their research is contingent upon their willingness to trust in the institutions and institutional resources that enable them to perceive the imperceptible, to the extent this is possible. Accepting the testimony of scientists requires trusting

<sup>2</sup> Beck is acutely concerned with the distribution of these risks across diverse populations and the mechanisms by which this distribution is effected, but I am only tangentially interested in that aspect of his work here.

not the scientists themselves, their instruments, and their institutional support system. Trust of this order is more complex and demanding than that which we invest in our senses. It entails an incalculable risk that cannot be avoided by those who would reap the benefits of climate science, and it is an irreducible condition of our embodied condition.

Just because something cannot be sensed directly does not mean that it is not real or cannot be perceived, of course. Many real things are perceived indirectly. Microscopes, telescopes, and GPS allow us to perceive without sensing, so to speak. Skeptics may distrust these technologies, but this does not refute their epistemic reliability. Flat earth advocates may exploit the ambiguity of perception via instruments, but we have adequate epistemic resources to refute them. Nevertheless, the ignorance they manufacture exerts a certain degree of influence in the world—what Beck (2009: 116.) calls “manufactured non-knowing”—precisely because indirect perception is a standard and necessary epistemic position in the sciences. Manufactured non-knowing, however, is avoidable. It is manipulative, willful deception, the stuff of conspiracy theories and ideological denial. As such, it is less philosophically interesting than the ignorance and uncertainty that cannot be avoided, the kind of non-knowing entailed in properly imperceptible (as opposed to indirectly perceptible) risks. Let us call this *necessary* non-knowing. It is at the heart of what I am calling the abstract-corporeal problem of climate change.

While what scientists know about climate change is largely the result of indirect perception, there is much that they *cannot* know because of the type of thing that climate change is. It is not just that human activity produces unforeseeable side-effects, risks and threats that cannot be predicted, but that risks and threats are always accompanied by an epistemic blackhole that Beck (2009:115) characterizes as “ineradicable.” This condition produces a series of political, social, and moral dilemmas; it also defines a certain existential state that calls for thinking the unthinkable and sensing the insensible. Beck (2009:116) writes,

First, we must highlight a basic feature of life in world risk society, namely, the expropriation of the senses, and hence of common sense, as an anthropological precondition of self-conscious life and judgement. Human life is thereby jeopardized to its very core and individuals robbed of their power of judgement. For the “affected” lifeworlds (and to what extent it is “affected” is not known because that is part of

the non-knowledge), the inability-to-know has become an ineradicable part of their lamentable condition. Hence those who are robbed of their senses and judgement must use the knowledge and non-knowing which they accumulate concerning their lamentable condition as a “currency” to negotiate their biological, social, economic and political survival in their struggle with the controlling authorities.

Beck is speaking of the epistemic condition in which people find themselves with respect to, for instance, the nuclear explosion at Chernobyl in 1986 and the subsequent dispersion of radiation into the environment. Chernobyl is a metonym for the risk society. In its case there is an “inextricable intermeshing of nuclear contamination and non-knowledge [that] constitutes the strange, symptomatic, thoroughly Kafkaesque character of the post-Chernobyl world” (2009:116). In other cases, it is the dispersion of plutonium, greenhouse gases, or pesticides that constitute the contamination. In every case, it is a matter of the uneven distribution of risks throughout the environment, defined by their essential unknowability and imperceptibility.

Once again, Kafka has offered us the perfect characterization of the world in which we find ourselves enmeshed. With deference to Kafka, arguably no one has done more in recent years to try to describe the human epistemic, existential, and ecological condition in the Anthropocene than Timothy Morton. Morton’s work in some ways extends Beck’s framing of the world risk society, but Morton also goes further in his investigation of the non-knowledge endemic to our current ecological crisis and the imperceptibility of its risks and greatest threat, global warming. This non-knowledge, as Morton makes clear, is intimately bound up with the spatiotemporal nature of hyperobjects, which, like Beck’s risks, operate at a level of reality different from that of ordinary objects. Hyperobjects, therefore, call for a peculiar kind of perception and representation. In *Hyperobjects*, Morton (2013:139-40) writes:

As well as being about mind-bending time- and spatial scales, hyperobjects do something still more disturbing to our conceptual frames of reference. Hyperobjects undermine normative ideas of what an “object” is in the first place. This sudden turnaround has an uncanny effect. Knowledge about radiation makes us question commonsensical ideas about the utility and benefits of the sun. Unlike sunlight we cannot see radiation. Yet it affects us far more intensely

than visible light. Knowledge about ozone depletion, global warming, and radiation have turned ordinary reality into a dangerous place that Ulrich Beck calls “risk society,” a place in which governmental policy now involves the distribution of risk across populations, often unevenly.

Morton (2013:140) goes on to emphasize the imperceptibility of hyperobjects and, by extension, the risks of the risk society: “The fact that we need devices such as computers and Geiger counters to see hyperobjects, objects that will define our future, is humbling in the same way Copernicus and Galileo brought humans down to Earth by insisting that the universe was not rotating around us”. Beck describes our epistemic condition as one wherein we have “offloaded” or “expropriated” our senses to machines and other organs of science. Offloading of this kind displaces our observational responsibility and any accompanying anxiety about knowledge representation onto our institutional organs and those who manage them, raising once again issues of trust, transparency, and truth in representation.

Global warming is one of the most extreme examples of a hyperobject. Other examples include the Florida Everglades, our solar system, the “sum total of all the nuclear materials on Earth”, and capitalism. The concept of hyperobject is meant to capture the essence of those things that are “massively distributed in time and space relative to humans” (Morton, 2013:1; see also Morton, 2010). In a word, hyperobjects are *nonlocal* and nonlocalizable. Unlike ordinary objects, they cannot be pointed out to us or adequately placed in space or time. And yet, they exhibit material effects whose scale is inhuman, excessive to an alarming degree. As Morton (2013:60) points out, “[the] gigantic timescales [of hyperobjects] are truly humiliating in the sense that they force us to realize how close to Earth we are. Infinity is far easier to cope with”. Hyperobjects, unlike the concept of infinity, elude our cognitive powers; they have done so ever since the “end of the world” (the dawn of the Anthropocene), which Morton marks at the onset of the industrial revolution, April 1784 specifically, the year that “James Watt patented the steam engine, an act that commenced the depositing of carbon in Earth’s crust—namely, the inception of humanity as a geophysical force on a planetary scale”. The testing of the first atom bomb ended the world for a second time in 1945, according to Morton (2013:7).

While hyperobjects, like risks, can be ignored, they cannot be escaped. Their appearance “seem[s] to force something on us, something that affects

some core ideas of what it means to exist, what Earth is, what society is” (Morton, 2013:15). In other words, they place us in an existential crisis that parallels the ecological crisis announced by the 2018 IPCC report on climate change. How shall we live in this world that is at once the source of our survival and a threat to our livelihood? If we find ourselves in a kind of hostage situation, this is because we necessarily exist *inside* the hyperobjects (and risk society) that menace us, entangling us in a Kafkaesque bureaucracy operating at an asynchronous cosmological scale.<sup>3</sup>

Global warming is not a hoax or grand conspiracy wrought by the left; it is not a nightmare fabricated to terrorize CEOs and conservative politicians. It is also not some social construct, easily swept aside by a realist theory of science. On the contrary, it is confirmed by the realist perspective, one endorsed by Beck in addition to Latour, Haraway, and other so-called “social constructivists” in science studies.<sup>4</sup> “Global warming,” argues Morton (2013, p. 49), “is not a function of our measuring devices. Yet because it’s distributed across the biosphere and beyond, it’s very hard to see as a unique entity. And yet, there it is, raining on us, burning down on us, quaking the Earth, spawning gigantic hurricanes.” The reality of hyperobjects is properly uncanny, so it elicits the same kind of anxiety explored in the works of Heidegger, Kafka, and Freud—an anxiety that has no proper object to fixate on, that is intimately bound up with our lives, that is constitutive of who we are.

Hyperobjects like global warming, with their consequent risks and threats, present us with a “super wicked problem.” A wicked problem is “a problem that one can understand perfectly, but for which there is no rational solution.” A super wicked problem is “a wicked problem for which time is running out, for which there is no central authority, where those seeking the solution to it are also creating it, and where policies discount the future irrationally” (2013, p. 135). This sounds a lot like the dynamics of the risk society. In my view, the wickedness of global warming is intensified by the fact that it is an abstract-corporeal problem, which both Morton and Beck understand. It is abstract because imperceptible, insensible; it is corporeal because it bears directly upon the bodies that populate Earth. Moreover, its abstractness and corporeality are internally related. It is tragic because these bodies are currently incapable of confronting the problem that (unintentionally) threatens them, and threatens them because of their (intentional) collective political, social, economic, and

<sup>3</sup> On the concept of “the mesh,” see Morton (2013: 83; 2010:14-15).

<sup>4</sup> For Beck’s realism on climate change, see chapter 5 of Beck (2009: 81-108).

moral decisions. The irony is that these bodies are rendered vulnerable to the climate catastrophe by virtue of their dependence on an environment that at once sustains and threatens them. There is no other means of survival. As Beck (1992, p. 24) puts it, this “exceptional condition threatens to become the norm.” Perhaps it already has.

### ***Vulnerable Bodies and Geo-/Human Engineering***

We are now in a position to evaluate one proposed solution to the problem of catastrophic climate change as articulated by the 2018 IPCC report and the exceptional condition in which we find ourselves. In the previous section the problem was characterized as abstract-corporeal in order to highlight its elusive epistemic status and the insidious form of its risks and threats. Here we will consider some of the moral aspects of the climate crisis and suggest that pessimism may be the only justifiable attitude toward the future.

The IPCC report entails a certain risk-assessment temporality insofar as it recognizes a potential solution to the climate crisis. The report casts catastrophic climate change as an imminent risk, but one that can still be diverted. It frames the catastrophe as an ordinary object, rather than a hyperobject, and consequently frames it as an object of knowledge, calculable and manageable. Depending on the likelihood of the report’s proposed solution—radical global economic change—being realized, the threat of irreversible global warming may be a *fait accompli*. If it is, we have reached a point at which it is almost absurd to speak of managing ecological risks. But, moreover, if the proposed solution has failed to frame properly the risk in question—if, that is, it has mistaken a hyperobject for an ordinary object—then it is unlikely to be epistemically prepared to manage that risk. This is the pessimistic case.

Some moral philosophers believe that management of the most dire circumstances wrought by human beings is still possible. They are more optimistic about the possibility that humans can manufacture solutions to their ecological crises. One of the more provocative solutions is proposed by Ingmar Persson and Julian Savulescu in their book *Unfit for the Future*, wherein the authors argue that our ecological crisis, among other crises, is largely due to our moral imperfection and general inability to motivate ourselves, as a species, to do the right thing where environmental ethics is concerned. They propose “moral bioenhancement,” a kind of posthumanist corrective, as a solution. But they identify several obstacles to the implementation of this solution and, therefore, to the successful management of the climate crisis.

While their argument for moral bioenhancement is compelling in some respects, it has some significant shortcomings. Among these, it fails to appreciate the epistemic difficulty of representing the problem of global warming because it fails to confront the abstract-corporeal nature of the problem. Like the IPCC report, it does not analyze global warming as a hyperobject; it regards global warming as a harmful, yet manageable, phenomenon rooted in our flawed human moral psychology. This, I contend, leads Persson and Savulescu (2012) to overestimate the efficacy of their solution, effectively the biotechnological modification (enhancement) of human bodies in order to make them more prone to make altruistic environmental decisions.

*Unfit for the Future* is a short book that efficiently makes its argument. The authors take a utilitarian perspective on the issue, arguing for the necessity of moral bioenhancement in terms of benefits and harms. Their major premise is not obviously true, but it is intriguing and exerts some force. They claim that our major moral predicaments, those that threaten the future of the species and the planet, e.g. climate change, are rooted in the failure of “folk morality” and the imperfect moral psychology of our species. Evolution, they argue, has not equipped us to take collective action on what we know to be right. As a result, we are not evolutionarily equipped adequately to manage the risks that accompany the progress of civilization (Persson and Savulescu, 2012: 1). Hence, an intervention in evolution is called for. They go on to argue for a biotechnological corrective to our moral-psychological shortcomings, not quite concluding that this corrective is our duty, but that it is not objectionable and could potentially be quite efficacious. Persson and Savulescu (2012: 2) write: “there are in principle no philosophical or moral objections to the use of such biomedical means of moral enhancement—*moral bioenhancement*, as we shall call it—and that the current predicament of humankind is so serious that it is imperative that scientific research explore every possibility of developing effective means of moral bioenhancement, as a complement of traditional means”.

Persson and Savulescu (2012) do not go so far as to recommend genetic bioenhancement of the species, but some of their deep worries about the prospects of actualizing the potential benefits of moral bioenhancement on a grand scale in liberal democracies—which seems necessary to address adequately the moral predicament they diagnose—would seem to make a strong plea for genetic enhancement as the only practical means of guaranteeing that large-scale moral bioenhancement

is established. For instance, they write (p. 101), “it is practically certain that, if the human species does not undergo anything like a dramatic genetic mutation, a majority of humans will not of their own free will starve themselves, abstain from sex, and seek utter solitude, whatever their experience seems to teach them”. Our “recalcitrant drives,” they seem to suggest, can only be combatted with physical modification of the species. If it were possible to do this safely, and with a greater net benefit, at the genetic level, setting aside the prospect of an evolutionary disaster, then Persson and Savulescu’s argument for moral bioenhancement could also support an argument for genetic modification of the species.

Since they say very little about how moral bioenhancement could be achieved on a vast enough scale to make the requisite impact on global warming, I see no reason why moral bioenhancement at the genetic level is not a live option for utilitarians. Of course, such modification would generate a whole new set of risks, but I suspect that these risks would be weighed by Persson and Savulescu (2012) against the benefits promised by genetic modification. Their general approach applies a risk society logic, which is not surprising given their utilitarian standpoint, and if it could be demonstrated that a genetic intervention for the sake of correcting the moral weaknesses of the species were capable of producing a great benefit, then this would be a risk worth taking, assuming that the “precautionary principle” were effectively applied (pp. 12-15, 49-50).<sup>5</sup>

The authors of *Unfit for the Future* acknowledge that liberal democratic governments pose a significant challenge to the implementation of their solution to the climate crisis. Indeed, they cast it as such an impediment that they are compelled to explore the possibility that authoritarian governments might be a better vehicle for the delivery of moral bioenhancement. Admittedly, authoritarian regimes are “are better placed than democracies to implement unpopular reforms effectively” (Persson and Savulescu, 2012:86), but the authors do not recommend the replacement of democracies with dictatorships, for many of the usual reasons.

The problem with liberal democracies is that they rely on the good will of the citizenry to effect large-scale social and economic change, precisely the kind of change recommended by the IPCC to prevent an imminent climate catastrophe. Given the realities of our moral psychology at this point in our evolutionary history, we cannot rely on moral education, social justice campaigns, guilt, or political pressure to

effect the necessary degree of lifestyle modification necessary to respond to our ecological predicament. On top of this, climate skepticism and disinformation campaigns from those on the right serve to exacerbate the problem (Persson and Savulescu, 2012:117, 79-81). “All in all,” argue Persson and Savulescu (2012: 83), “it seems that affluent democracies will find it very hard to establish a consistent, long-term conservation policy which could prevent a threatening climatic and environmental crisis. Democratic politicians are badly suited to implement such a policy because they have to please the majority of their citizens who look bent upon deriving as much satisfaction as possible out of the advances of science”. These citizens seem unlikely, given their biological makeup and the evidence of history, to exercise the “voluntary restraint” (Persson and Savulescu, 2012:84) necessary to combat effectively the major moral issues of the day and to promote the welfare of distant foreigners and future generations.

*Unfit for the Future* does a fine job anticipating many of the difficulties likely to be raised by readers, including the bootstrapping question: how is it possible for a morally imperfect species like ourselves to engineer a morally improved version of our species? They likewise notice that there might not be enough time to achieve the widespread moral bioenhancement necessary to combat the climate crisis threatening the species (Persson and Savulescu, 2012:2). They remain optimistic, however, about our prospects if the right techno-political revolution can be brought to fruition. This means that, unlike Morton (2013), they do not see global warming as a “wicked” problem, even though they do estimate its temporal urgency.

While I am compelled by the moral motivation of Persson and Savulescu’s argument, I am more pessimistic about our prospects as a species, for two interrelated reasons. First, their framing of the moral problem as principally biological employs a too-simple idea of human embodiment, one that fails to take full account of the way that human bodies are enmeshed in the environment that seeks to extinguish them. As I have argued elsewhere (Sparrow, 2018), if human subjectivity—“human nature”, as it used to be called—emerges from a body that is crisscrossed by biological, social, economic, political, aesthetic, and ecological forces that cannot be practically disentangled, then the modification of the human body only at the biological level is not sufficient to modify human subjectivity. This entails a second, practical problem: if global warming is a hyperobject, as outlined above, then no localized geo- or human engineering (moral bioenhancement) will be

<sup>5</sup> See their remarks on the “precautionary principle” (Persson and Savulescu, 2012:50).



adequate to matching the scale of the threat. Together these two reasons articulate what above I called the abstract-corporeal nature of the problem, which is simultaneously epistemic (entails an irreducible degree of non-knowing) and ecological (requires the bodies enmeshed in the environment that threatens them to extricate themselves from the environment to better understand it, which is impossible).

If the climate problem is ecological and structural, then a solution that targets individuals will necessarily fail to do the job. One could argue that moral bioenhancement (or genetic enhancement) could be publicly funded, made a priority of the welfare state, and that would make it more likely to address the structural threat that climate change poses. One can imagine a number of ways of making it a structural effort. But at the end of the day this kind of approach gets the spatiality and temporality of hyperobjects all wrong. It is focused too much on the future and the imminent threat that global warming poses, as if it were directly in front of us, waiting to be assessed and managed, whereas the real threat is massively distributed in space and time, already inhabiting our bodies insofar as they are expressions of the environment they inhabit.<sup>6</sup>

### **Ecological Trust**

I have argued elsewhere that our ecological condition necessarily involves us in a web of trust—in others, in strangers, in objects, in natural laws—that we cannot possibly reckon with, whose risks we could never calculate or mitigate. It is a trust, what I call *ecological trust*, that is necessitated by the intrinsic dependence of our bodies on their environment and their ensuing vulnerability (Sparrow, 2017). In the present essay I have aimed to draw out several dimensions of ecological trust by synthesizing Beck's concept of risk society with Morton's idea of hyperobjects in order to characterize the abstract-corporeal nature of the current climate crisis, as diagnosed in the 2018 IPCC report. To conclude, I will summarize some aspects of ecological trust and specify why Persson and Savulescu's biotechnological solution neglects to address the existential/ontological threat of global warming.

We have seen that there is a twofold issue of trust that lurks at the heart of the crisis proclaimed by science. Not only does this science require ordinary citizens to place their trust in the instruments of detection upon which scientific findings rest, the citizenry is asked to trust that the reports of the scientists are accurate, unbiased, and useful. Many

citizens refuse this trust, even though, where climate science is concerned, they have no other choice. Ordinary citizens may want to rely on their senses as the primary source of evidence for their beliefs about anthropogenic climate change, but their senses alone could never furnish such evidence. These folks forego trust in scientists and scientific instruments at their own peril, perhaps at the peril of the species itself. Their mistrust in science, misconstrued as sensible skepticism, gives rise to disinformation campaigns and conservative propaganda that fuels climate change denial, which breeds further distrust of science. It is no surprise that technological solutions to global warming, whether in the form of geoengineering, moral bioenhancement, or genetic engineering are scoffed at, feared, or dismissed as absurd or dangerous on both sides of the political spectrum. "The fears and anxieties of 'risk societies'", as Onora O'Neill (2002:8) argues, "focus particularly on hazards introduced (or supposedly introduced) by high-tech medicine and genetic technologies, by nuclear installations and use of agrochemicals, by processed food and intrusive information technologies".

While the fears and anxieties identified by O'Neill (2002) obviously present an obstacle to trust in scientific solutions, it also important to point out that these solutions will be introduced into the world with or without the consent of the people. Mistrust of science cannot stop the progress of science; it can only hinder it. And if the solutions to climate change are hindered long enough, either because we refuse the evidence of science or because we accept its evidence but only adopt a neoliberal solution to the climate problem—green consumerism, for example—we may hasten our own demise. Likewise, if we leave it up to the ruling liberal democracies to adopt Persson and Savulescu's moral bioenhancement solution, there is little reason to assume that catastrophic climate change will be staved off.

At a more fundamental level, if the threat posed by global warming is essentially imperceptible, full of epistemic holes and irreducible gaps in understanding that render full representation, calculation, measurement, and management impossible, then we cannot in good faith trust our senses. Our trust must be placed in the senses of our collective institutions and their means of detection, judgment, and action. The situation is not unlike that of someone riding in an autonomous vehicle. To get us where we are going, the vehicle sees on our behalf, navigating the environment for us. If trouble arises and the vehicle detects a disaster involving risks and harms that cannot be completely avoided (in other words, a Trolley Problem), the vehicle must

<sup>6</sup> For more on the body as an expression of the environment, see Sparrow (2015).

render a judgment about the best way to navigate the disaster. This judgment is an essentially moral one. A truly autonomous vehicle would be one in which we have offloaded our senses and our moral judgment onto technology. These vehicles would be endowed with a great deal of trust. Unlike the climate crisis, we may elect not to develop autonomous vehicles on a significant scale because we cannot trust them to deliberate and judge as we need them to.<sup>7</sup> With climate change, we do not have the luxury of mistrust.

At the deepest level, our survival requires us to place a certain degree of trust in the environment to sustain us, to provide for our welfare. When we know this environment is contaminated with nuclear waste, agricultural chemicals and pesticides, carcinogens, and other pollutants, our suspicions rise and trust becomes more difficult. But ecological trust, deliberate or not, remains necessary for survival. This gives it an existential/ontological edge. It is a perverse situation to find oneself in: placing trust for one's wellbeing in the entity that threatens to poison or kill us. And yet, this perverse situation is inescapable for dependent bodies like ours. Our ecological vulnerability, along with our ecological trust, is unavoidable. It is a necessary condition of embodiment, a transcendental form of trust and helplessness that is constitutive of life. It cannot be modified with biotechnology because it resides at an ontological level more fundamental than biology. The world risk society rests upon these non-negotiable foundations.

### References

- BECK, U. (1992). *Risk society: Towards a new modernity*. London: Sage.
- BECK, U. (1995). *Ecological enlightenment: Essays on the politics of the risk society*. Atlantic Highlands, NJ: Humanities Press.
- BECK, U. (1995a) "Survival Issues, Social Structure, and Ecological Enlightenment". *Ecological Politics* (19–36).
- BECK, U. (1995b) "Politics in risk society". *Ecological enlightenment* (1–18).
- BECK, U. (2009). *World at risk*. Cambridge: Polity.
- DAVENPORT, C. (2018, October 7). Major climate report describes a strong risk of crisis as early as 2040. *The New York Times*. Retrieved from: <http://www.nytimes.com>
- IVAKHIV, A. (2018) *Shadowing the anthropocene: Eco-Realism for turbulent times*. Brooklyn, NY: Punctum.
- IPCC (2018). Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (Eds.). In Press. Retrieved from <http://www.ipcc.ch/report/sr15/>
- KLEIN, N. (2007) *The shock doctrine: The rise of disaster capitalism*. New York: Picador.
- LUKACS, M. (2017, July 17) Neoliberalism has conned us into fighting climate change as individuals. *The Guardian*. Retrieved from: <http://www.theguardian.com>
- MORTON, T. (2010) *The ecological thought*. Cambridge, MA: Harvard University Press.
- MORTON, T. (2013) *Hyperobjects: Philosophy and ecology after the end of the world*. Minneapolis: University of Minnesota Press.
- O'NEILL, O. (2002) *Autonomy and trust in bioethics*. Cambridge: Cambridge University Press.
- PERSSON, I. & SAVULESCU, J. (2012) *Unfit for the future: The need for moral enhancement*. Oxford: Oxford University Press.
- SPARROW, T. (2015) *Plastic bodies: Rebuilding sensation after phenomenology*. London: Open Humanities Press.
- SPARROW, T. (2017) "Ecological trust: An object-oriented perspective". *Philosophy Today*, 61 (1), (pp. 99–115). <https://doi.org/10.5840/philtoday2017320149>
- SPARROW, T. (2018) "Disabled bodies and norms of flourishing in the human engineering debate". *IJFAB: International Journal of Feminist Approaches to Bioethics*, 11 (2), (pp. 36–62). <https://doi.org/10.3138/ijfab.2018.01.02>

<sup>7</sup> This mistrust is also at the bottom of bioconservative resistances to human genetic engineering and, correlatively, the moral bioenhancement solution of Persson and Savulescu.

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