

Chapter 2

Putting the *Bios* Back into Bioethics: Prospects for Health and Climate Justice

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Abstract Global climate change is the most complex and significant ethical issue of our time. The urgent discussion of how to bring about alterations in human energy usage and economic production in order to mitigate the social and ecosystemic harm done by climate change calls for a bioethics voice. But bioethics will not be able to make this contribution if it merely addresses climate change as one more in a series of problems or dilemmas. The nature of the climate change challenge is such that bioethics will have to alter fundamentally its discourse and broaden its moral horizons. This chapter argues that bioethics should become more discerning and insightful concerning matters of political power and economics. It will also do well to establish new ties and overlapping perspectives with the ecological sciences. The purpose of this chapter is to explore the structure and the logic of the encounter between bioethics—understood as a particular kind of discourse—and climate change—understood as a systemic challenge to human and ecological health. Extended consideration is given to what needs to be added to the conceptual range of bioethics in its engagement with climate change, with particular emphasis on the concepts of autonomy, membership, and solidarity.

Philosophy, Marx said, only interprets the world, but the point is to change it. At its best and truest moments, the interdisciplinary field called “bioethics” does both, although its success in the past has been intermittent. Such a moment of critique and social change is urgently needed now because we stand in the midst of what Stephen Gardiner (2013) has aptly called “the perfect moral storm” of climate change and global warming. Can bioethics rise to this occasion and make a substantial contribution to the social intelligence of our societies in coping with this crisis? The conditions are perilous, success uncertain, the stakes are very high. James Hansen and colleagues pose the issue forcefully:

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a set of actions exists with a good chance of averting “dangerous” climate change, if the actions begin now. However, we also know that time is running out. Unless a human “tipping point” is reached soon, with implementation of effective policy actions, large irreversible climate changes will become unavoidable. Our parent’s generation did not know that their energy use would harm future generations and other life on the planet. If we do not change our course, we can only pretend that we did not know. (Hansen et al. 2013, 20)

Since its inception after the Nuremberg trials, and then in the renewal of interest in ethics, society, and public affairs in the 1960s, bioethics has effectively addressed a range of issues having to do with justice, power, technology, and life using modes of analytic reasoning from within the normative horizon of a liberal individualistic conceptual framework, including predominantly: self-interest, social utility, individual well-being based on health and choice, respect for the autonomy of persons, human rights, and equity or fair sharing in social benefits and burdens.

Clearly the issues of justice, power, technology, and life are not the purview of bioethics alone—other cognate disciplines and fields of ethics, such as environmental ethics and public health ethics have been shaped by these problems as well—but these themes have anchored the interdisciplinary focus and coherence of bioethics. However, bioethics in the future must recognize that power, justice, technology, and life cannot be addressed adequately any longer in the context of medicine, health care, and health care systems taken in isolation. It is becoming increasingly apparent that the institutionalization of health care and the practice and values of medicine—phenomena that bioethics has often considered as if standing alone and taken at ideological face value—are shaped by larger structures of neoliberal, capitalist political economy and by cultural forces of modernity and post-modernity on a global scale (Rose 2006). Bioethics is really a branch of political economy, and the state itself is increasingly relying on biological forms of science, technology, and commerce. Moreover, in the future bioethics must recognize that human health is merging with ecosystemic health, and that both are dependent on larger biogeological processes and systems on regional and planetary scales.

Climate change is the most complex and significant ethical issue of our time. It has all the elements of justice, science, technology, power, and life that have been mentioned, and the urgent discussion of how to bring about change required by moral duty and natural limits calls for a bioethics voice (Macpherson 2013). But bioethics will not be able to make this contribution if it merely addresses climate change as one more in a series of problems or dilemmas. The nature of the climate change challenge is such that bioethics will have to alter fundamentally its discourse and broaden its moral horizons.

Bioethics should adopt a global, not merely an international, perspective. It should become more discerning and insightful concerning matters of political power and economics, especially about new forms of biopower and bioeconomy. It will also do well to establish new ties and overlapping perspectives with the ecological sciences as it has done in the past with medical science and molecular biology.

Can we put the bios back into bio-ethics? Using an enriched vocabulary of moral value and normative social theory, can we in bioethics speak more forthrightly and more robustly in defense of the living world? And can we take a more ecocentric—interdependent, holistic—view of the human condition and the human good?

When I speak of reorienting bioethics in an ecocentric direction and supplementing the normative conceptual vocabulary that it offers to the broader democratic and professional conversation, what I have in mind is not quite the same as a paradigm shift along the lines pioneered by thinkers like Van Rensselaer Potter (1971, 1988); Potter and Whitehouse (1998). Potter's work is certainly worth revisiting today, particularly in its overlap with the land ethic proposed by his near contemporary, Aldo Leopold (Whitehouse 2002, 2003). In particular, I am not arguing that we need to take ethics and reground it in the findings of the contemporary biological, ecological, or evolutionary sciences. My notion is more historical, sociological, and ultimately political. I view bioethics partly through the lens of pragmatism in that I see it as a form of social intelligence: a mode of knowledge—a praxis of knowing—that is reflective and practical (Bernstein 2010; Schön and Rein 1994). It is not paradigmatic or heuristic but is instead an interpretive, discursive mode of active engagement with the world.

Can we put the bios back into bioethics? I believe that we can. My purpose in this chapter is to propose one tentative agenda for that endeavor and to explore the structure and the logic of the encounter between bioethics—understood as a particular kind of discourse—and climate change—understood as a thoroughgoing public problem of human and ecological health. In regard to bioethics as discourse I have two primary concerns: One is to reflect on the role that can be played by bioethics discourse—and by ethical or normative discourse as a whole—in the future of global justice and ecological democratic governance. The other is to consider what needs to be added to the conceptual range of bioethics, with particular emphasis on the concepts of autonomy, membership, and solidarity.

The discussion will proceed in five steps. I turn first (Sect. 2.1) to climate change as a public health problem and as a problem for bioethics. Next (Sect. 2.2), I explore reasons why a set of relational concepts and values can be of service—indeed, I believe are essential—in recasting our cultural and political response. Then (Sect. 2.3), I reflect briefly on the factors that have given bioethics its sense of historical moment and function and its worldview concerning the proper place of humans in nature. Following this (Sect. 2.4) I sketch how bioethics could contribute to that reorientation thanks to a relational turn, already begun, that will provide our moral and political vocabularies with an enriched understanding of autonomy, membership and mutuality, and solidarity. I conclude (Sect. 2.5) with reflections concerning the extended time scale of the danger of climate change, which will be our Achilles heel both politically and ethically unless we can recognize—using our relational moral imagination to see—intergenerational obligations and interests and to face forthrightly the presence of the future.

2.1 Climate Change as a Public Health Problem

Subsequent chapters in this volume will address the health aspects of climate change in considerable detail. I will only briefly preview that topic here and suggest one way of framing the problem.

Let me begin by recalling an illuminating distinction made by the sociologist C. Wright Mills between what he called “personal troubles of milieu” and “public issues of social structure.” Mills defines “troubles” as those things that “occur within the character of the individual and within the range of his immediate relations with others; they have to do with his self and with those limited areas of social life of which he is directly and personally aware,” while issues “have to do with the organization of many such milieu into the institutions of an historical society as a whole” (Mills 1959, 8).

Climate change will bring about personal troubles aplenty, to be sure. But it must be understood first and foremost as a public and a structural issue—the clash between a historical form of institutionalized human activity and the natural limits imposed on human life. Social order and stability in virtually every society today, and certainly in every nation state, rests on economic activity based on the intensive procurement and use of energy rich fossil carbon. This is much more thermodynamically efficient than earlier fuels, and it has made possible most of modern technology and industrial civilization. We are now realizing that burning it is a fundamental threat to that very civilization.

The consumption of fossil carbon energy (coal, petroleum, natural gas) emits massive amounts of carbon dioxide and other greenhouse gases into the atmosphere, much of which will remain there for centuries. This is causing a net gain in the planet’s exchange of solar energy and it is changing the composition and behavior of Earth’s atmosphere and oceans. These alterations are discernable to scientific researchers and modelers—and are becoming evident to the experience of persons around the world—as increasing global temperature, melting ice masses, changes in ocean currents, salinity, and pH, unusually frequent and violent storm patterns, and alterations in the conditions for land ecosystems and habitats all over the world, such as drought, species migration, and loss of biodiversity (Nordhaus 2013). The thermal inertia of the deep ocean, the possible release of methane deposits in the permafrost, and the prospect of deep melting that destabilizes land-based ice sheets are some examples of threshold effects in bio-physical systems that are non-linear. As we come to better understand and model the behavior of complex physical and biological systems, we discover such threshold effects and other emergent properties. Human activity leading to temperature rise beyond a certain point will set in motion geophysical processes with long delayed effects. Once begun, they cannot be stopped, contained, or reversed by human remediation, and they will not abate for decades or even centuries. We do not know precisely what those trigger point temperatures are, but it is very likely that we are on track to reach and exceed them sometime in this century unless immediate action is taken. Substantial reductions in the amount of carbon entering the atmosphere is required via reduced emission,

increased natural sequestration such as reforestation, or a combination of both. Artificial sequestration of atmospheric carbon is also theoretically possible but would be enormously expensive (Hansen et al. 2013).

Moreover, emissions come not only from the consumption of fossil carbon energy but also from its production. Easily accessible fossil fuel deposits are becoming depleted, and more difficult and costly extraction methods are coming into widespread use—tar sands oil, mountain top mining of coal, and hydro-fracking of natural gas in shale. In addition to the CO₂ emissions caused by the downstream burning of the fuels they produce, each of these technologies and extraction processes is a significant source of atmospheric emission in its own right, and each has other serious environmental consequences in terms of fresh water use and degradation, toxic byproducts, destruction of habitat and ecosystem services in the region of the extraction operations (Goldman et al. 2013).

In short, use of the most significant source of energy upon which humankind now relies must be curtailed very soon and replaced with energy sources that do not rely on fossil carbon. Most of the remaining fossil carbon deposits must be left in the ground. Economic and political ways must be found to prompt this massive change in human behavior, especially among people and nations that are the most intensive carbon users and are the world's richest, most powerful, and most materially comfortable. Ways must be found to offset the hardship and disruption that these economic changes will cause, especially in societies that are very highly stratified in terms of wealth and income (Center for Health and the Global Environment 2005; WHO 2005). This is a global phenomenon, so these responses must be applied not only within nations but among them. It is also an intergenerational problem. If we don't pay these prices now, others will have to pay a much larger price for the health consequences and social disruption later, likely under much less auspicious circumstances.

The health effects that will build up around the world in response to climate change of course relate to the fact that climate is intimately connected to the basics of human survival, well-being, and social order. Climate change undermines food and water sources, stable housing, and biodiversity and ecosystem services, thereby fundamentally threatening population health (Haines and Patz 2004; Frumkin and McMichael 2008). Social, no less than natural, determinants of health are affected. Climate change will lead to increased drought and famine, flooding, violent damaging storms, and political conflict which disrupt vital public services, such as the production and distribution of goods and services, sanitation, and law enforcement. These are all outgrowths of direct physical disasters, fear, disrupted expectations, anger, and widespread loss of trust at a very fundamental level.

The pattern of life will change and a global distribution of benefits and burdens will emerge that, if anything, is more unjust than it is at present. A recent review of the literature on the public health effects of climate change and the current projections of the IPCC summarizes the situation in the following terms:

Impacts of climate change cause widespread harm to human health, with children often suffering the most. Food shortages, polluted air, contaminated or scarce supplies of water, an expanding area of vectors causing infectious diseases, and more intensely allergenic

plants are among the harmful impacts. More extreme weather events cause physical and psychological harm. World health experts have concluded with “very high confidence” that climate change already contributes to the global burden of disease and premature death. IPCC projects the following trends, if global warming continues to increase, where only trends assigned very high confidence or high confidence are included: (i) increased malnutrition and consequent disorders, including those related to child growth and development, (ii) increased death, disease and injuries from heat waves, floods, storms, fires and droughts, (iii) increased cardio-respiratory morbidity and mortality associated with ground-level ozone. While IPCC also projects fewer deaths from cold, this positive effect is far outweighed by the negative ones. (Hansen et al. 2013, 8)

Environmental health has been understood as a public health issue and an issue of social justice in relation to air quality, water quality, and exposure to environmental pollutants that are toxic, carcinogenic, teratogenic, or are chemically bioactive in other ways (Frumkin 2010). The rise of fossil fuels as the energy base for economic production and transportation, advances in mining and metallurgy on an industrial scale, and the creation and widespread presence of synthetic chemical substances have contributed significantly to environmental health risks during the course of the past two centuries, and indeed have redefined the meaning of environmental health. In the past, the field of bioethics has tended to overlook public health generally and environmental health in particular. However, insofar as bioethics has taken cognizance of environmental health, it has seen it through the lens of a “pollution” problem in which a normal background environment has been temporarily (and unethically) contaminated by careless human activity and insufficiently regulated industrial processes. That is to say, bioethics has viewed environmental health as an incidental or ad hoc problem, albeit one that may be widespread and may affect very large numbers of people.

Fortunately in both public health and in bioethics the understanding of environmental health is becoming broader and more expansive (Shrader-Frechette 2005). There are several reasons for this. First, research on the social determinants of health indicates that it is not straightforward to distinguish the social from the natural aspects of an environment’s health effects. Except in the most remote wilderness areas perhaps, the natural environment is shaped by human activity, while the social features of everyday life, such as stress and relative inequality, have not only psychological (happiness and well-being) but also physiological (cardiovascular, hormonal) effects (Marmot 2004). Second, the condition of the built environment, such as land use and zoning patterns leading to suburban housing sprawl and automobile dependency, are now understood to be affecting both greenhouse gas emissions, and also lifestyle factors (such as obesity) that impinge on human health (Frumkin et al. 2004).

Therefore, environmental health hazards can no longer be thought of simply as discrete entities, such as carcinogenic substances, pathogens, or toxic chemicals, that intrude upon an otherwise healthy bio-ecology (Kessel and Stephens 2011). They are manifestations of the current historical bio-ecology that our economic system and cultural values have created. This is nowhere more apparent than in the case of climate change, but its effects are not limited to that alone. Climate change is only one of the planetary boundaries whose safe operating margins human technology is encroaching on (Rockström et al. 2009).

The increasing discussion of the health effects of global climate change contributes to this more systemic and historical understanding of environmental health by calling attention to the fact that the environment is an interrelated holistic system and that health hazards come from factors that undermine the integrity or functioning of that system, such as biodiversity and ecosystemic resilience (Center for Health and the Global Environment 2005). For example, deforestation in tropical areas involves a chain of factors that ultimately affects the quality of life of persons with asthma in Central Asia; changes in the salinity, acidity, and temperature of the oceans will affect heat emergency events in Europe. A contaminated well is a localized health risk; environmental changes on the Himalayan plateau that alter the hydrology of entire river systems on which hundreds of millions depend for their fresh water supply represents a different challenge for public health analysis and response. The problem is global and institutional, which is to say, fundamentally political and economic. Climate change is a public issue (in Mills' sense) of human and ecosystem health. It requires more than merely specific protections and rules or laws. It requires a comprehensive engagement of governance on a number of different scales (The Hartwell Paper 2010).

This poses a serious anomaly to the general cognitive frameworks of human understanding of nature and a severe challenge to the assumptions and functioning of social, cultural, and political logics in contemporary technological societies. Simply put, the ideas and institutions upon which our current capability to respond collectively to climate change rests are out of step with the natural realities and threats we are discovering. Our collective capability to take climate stabilizing action is in question. More in question, by far, than the accumulating body of scientific knowledge and evidence concerning the anthropogenic causes of climate change.

2.2 Bioethics in the Face of the Perfect Moral Storm

Putting the bios back into bioethics involves finding a new consciousness and will to curb humankind's destructive economic and ecological behavior. As I shall argue in a moment, this demands civic *commonality* rather than merely self-interested *cooperation*.

The marshaled intelligence of humankind—three decades of concerted international scientific work represents precisely this—provides compelling reasons why further delay in drastically reducing atmospheric carbon (through both reducing emissions and enhancing sequestration in forests and other natural sinks) is irresponsible. Further delay risks triggering long-term lag effects that are much more severe than previously recognized. Permitting global temperature to rise by 2 °C by the end of the century, once considered a reasonable goal, is not an acceptable option. It appears to be still technically possible to avoid that or higher levels, but not for much longer (Hansen et al. 2013).

To be sure, there are powerful reasons of enlightened self-interest that by their own inner logic alone should lead to the steps required to limit the damage being

done not only to the climate system but also to other fundamental planetary systems of life, such as biodiversity, the planetary nitrogen load, and fresh water systems (Rockström et al. 2009). And yet look at what is happening and what seems likely to happen. Enlightened self-interest is not working. Apparently, its reasons are weaker than the logic of competitive advantage in market economics and market politics, and our institutions of governance are so constructed that they are overwhelmed by more short-term, short-sighted forces.

The hour is upon us when three great transformations are required. First, it is essential to *reorient* our predominant cultural understandings of the human place in the natural world. This is both a scientific and a philosophical undertaking.

Second, it is essential to *reconceive* the predominant economic worldview of neoliberal global capitalism (Harvey 2005; Klein 2011, 2014; Parr 2013). This requires a new understanding of the needs and circumstances of human societies and individuals—social welfare, human flourishing, rights and liberties, growth, progress, and wealth. It also requires new institutional forms and limits on the permitted functioning and effects of economic markets, on the organization of human labor and work, and on the basic activities of extraction of natural resources and the expulsion of waste products into natural systems (Schor 2010).

Third, it is essential to *restructure* our value priorities. This requires the widespread recognition and acceptance of the imperative of ecological responsibility, the present and intergenerational duties we have in our own individual and species flourishing, and also the duties humans have to all forms of life and to the sustainability and resilience of living systems (Jonas 1985). As dangerous as flirting with Ecotopia may be, imposing new responsibilities on each individual and each polity to conserve the ecological and planetary systems in which they subsist may be the only way out (Callenbach 1975; Ophuls 2013).

As far as the field of bioethics is concerned, this will involve seeing the demands of justice and the preconditions for a philosophically adequate concept of autonomy in ways that are quite new: seeing justice and autonomy as part of that imperative of responsibility of which Jonas speaks; seeing them in terms of each person's responsibility for sustaining the integrity and resilience of an ecological commons (both social and natural). This involves enacting shared rules and restraints based on an understanding of the good of human and natural flourishing, an understanding of the good that is necessarily rooted in robust scientific investigation and inference, but also premised on the enduring experiences and traditions of humankind, as we can know them from historical and anthropological study.

There has been a strong tendency in bioethics (and in contemporary liberal moral and political philosophy generally) to separate considerations of justice and autonomy from conceptions of the good (Mulhall and Swift 1996). And there has also been a tendency in bioethics to think mainly of utilitarianism and neoclassical economics, with their notions of preference satisfaction and consumptive, hedonic interests, as the only reasonable conception of the human good available in a secular society. A bioethics that is adequate to the task of responding ethically to climate change will need to move away from both of these tendencies.

Both justice and autonomy have to do with lives lived in relationship, interdependence, context, and connection; and right relationship is integral to the capability of both persons and natural and social ecosystems to function and flourish. In bioethics there is a movement in this direction. For autonomy, there is increasing interest in the notion of “relational autonomy” (Haliburton 2014; Nedelsky 2013; Gergen 2009; Baylis et al. 2008; Mackenzie and Stoljar 2000; Gaylin and Jennings 2003). In discussions of justice, there is a growing awareness of the need to look beyond the distributional pattern of resources among essentially individuated recipient parties and toward the relational contexts within which persons can fulfill their potential capabilities and pursue meaningful lives by turning those capabilities into abilities or “functionings” (Nussbaum 2011). The good news is that we don’t have to make this stuff up as we go along. These alternative understandings have been available for centuries, and the history of their interpretation and philosophical refinement is there to guide us (Jennings 2007).

The scenarios of environmental and social dislocation as a result of extreme climate change not only threaten to compromise the fulfillment of values like justice and autonomy, but also threaten to undercut the basic grounding of these concepts, rendering them lost to the moral imagination of everyday life, making them emotionally unintelligible and experientially unavailable. I do not see justice and autonomy as timeless ideas but as living concepts embedded in emplaced and historical forms of life upon which their intelligibility and motivational power depends. So understood, concepts can be resilient and able to survive social and historical change within limits, but they do presuppose a measure of continuity and stability in the lifeworld they inhabit. The potential dislocations associated with extreme climate change could undermine that continuity. To borrow an expression used by John Rawls, this is another way to understand the “circumstances” of justice and autonomy (Diamond 1988; Lear 2006).

No one should underestimate the stakes or the difficulty of the conceptual and the practical work—the moral and the political work—ahead. Two important books on climate change ethics, *A Perfect Moral Storm* by Stephen Gardiner (2013) and *Climate Change Ethics* by Donald Brown (2013), identify and discuss significant challenges to be met. In the following pages I explore some of the ways that bioethics might better address aspects of the moral storm of climate change. I believe that the most promising contributions of bioethics to moral and political challenges of climate change cluster around the following three broad questions:

- Can global justice be achieved? This is right relationship with, and right recognition of, contemporaneous humanity and nature. It is those of us in the developed parts of the world, (North America, Europe, and now China and India) who have brought about—and are still continuing to bring about—the carbon emissions leading to destabilizing global warming, while those in the less developed areas are going to bear the brunt of the dislocations. The distribution of these benefits and burdens associated with climate change will be disproportionate, and this injustice piles on top of the long-standing injustice of the distribution of global wealth and income and of health and welfare. The old paradigm of development

economics—growth through the dissemination of carbon intensive energy use and technology—won't work. That rising tide will swamp all boats. Can we find a way to share wealth and power more equitably in a world of lower growth?

- Can intergenerational justice be achieved? This is right relationship with, and right recognition of, future humanity and nature. As difficult as the challenge of practically meeting the requirements of contemporaneous global justice may be, the problem of intergenerational justice is even more perplexing. When we are talking about contemporaneous persons, the shaping of their quality of life, options, and choices are clearly matters of justice and human rights. What moral difference does their status as future beings make exactly? Moral philosophy today is not clear on how best to answer that question. The task of getting the rich to recognize the rights and common humanity of the poor is common to both problems of justice, but it is complicated in intergenerational justice by the issue of the moral standing of persons who only exist statistically and probabilistically, not individually and concretely.

Can we forge a new global social contract of justice and governance (Jennings 2016)? That is to say, a covenant of responsibility and trusteeship in place of the current contract of self-interested consumption. Can we find a place within the new covenant for those yet unborn? The metaphor of the social covenant (less individualistically and more powerfully than the metaphor of contract) captures reciprocal relationality and interdependence among contemporaneous persons. But when we talk about relationships with persons that do not yet exist, inhabiting ecosystems and states of the world that do not yet exist—and may never exist depending on what we do in our lifetimes—what is the moral force of those relationships with those not yet persons?

Surely it is incorrect to say that there is no conceivable relationship here, or that such a notion violates the meaning of the concept of relationship. What we do now will in fact affect the not yet and their natural world. Granted, this cannot be reciprocal since the future party cannot affect us, except through the medium of moral imagination and conscience. And yet our actions in the present do have the power to shape the quality of life and the options of future people and the integrity and resiliency of the future ecosystems they inhabit substantially. Climate change brings the pluperfect tense of ethics to the fore in dramatic fashion.

2.3 Reorientations: What Does Nature Ask and Humanity Require?

Bioethics engages with moral philosophy and cognate disciplines (political philosophy, jurisprudence, theological ethics) to provide a basic normative conceptual framework. And bioethics also engages with the actually existing values, norms, and cultural belief systems that form the context for human behavior. It should meet actors and institutions where they are, but it cannot leave them there because change in assumptions, commitments, understanding, and action is the entire point of the

enterprise. If it is not critical, bioethics can become apologetic and do harm. This will be true of bioethics in the future as it engages with energy policy and the technology of carbon capture just as it has been true so far of the engagement of bioethics with health policy and biotechnology.

The discourse of bioethics is a sensitive barometer of the social context within which it germinates because the basic subject matter of this discourse—the human experience and meaning of health and illness—moves so fluidly from the most intimate, personal needs and experiences, to the broadest social, systemic, and policy questions. Pain makes policy vivid and compelling; suffering makes systems come alive as tangible social agents rather than as intellectual constructs or abstractions.

Every society needs to have a discourse to give expression to its sense of what history asks of it, a discourse with which to affirm and to contest power, equality, individual and group identity, knowledge, duty, and trust. Indeed, societies ideally need not one such discourse, but several layered and overlapping ones. Repressive and stagnant societies tend to flatten and winnow this discursive landscape; more dynamic and open societies tend toward more diversity and argumentative conflict. And every society needs a discourse to articulate the appropriate role and place of humans in nature: are we creators or creatures, are we destined to overcome limits or to accommodate ourselves to them? How should we use nature and what does nature ask of us? And how should we engage with our own humanity and what does our humanness ask of us and require? Finally, what is the calling of this moment in the ecological history of life on earth and in the history of humankind? What have we the power to do; what have we the responsibility to do?

These are questions as urgent as they are overwhelming. More manageable perhaps is our present focus on bioethics discourse. What kind of understanding of the human place in history and nature has bioethics contributed to thus far? How might it contribute differently in the future? How must it contribute in the face of climate change?

Let us begin by recalling some of the key ideas that gave the new field of bioethics its rationale and impetus as it emerged in the late 1960s. At a time of unusual cultural change, technological innovation, and popular unrest, social and professional elites were becoming increasingly anxious about the sources of social stability and political legitimacy. Bioethics arose as an ameliorative force in the midst of this change, a classically liberal force of reason and reasonable progress.

At the outset, bioethics was given impetus by the notion that there was a cultural lag between normative and scientific knowledge, especially in the context of the so-called “biological revolution” of the 1960s (Callahan 2012). What the new biology and the new medicine empowered us to do was expanding faster than the ability of our repositories of normative knowledge—ethics, cultural mores, religion, the law—to guide and govern the use of that power. Consequently, new forms of power threatened to break loose from their moral restraints and their legal bridles. Individuals were confronted with unprecedented choices in reproduction, in plumbing the body’s genetic secrets, in postponing or avoiding death. Physicians were becoming facilitators of these new powers and ranges of choice. Investors sought to profit from them, governments sought to regulate them. But all were acting without a legal roadmap or an ethical compass. A new discourse, later dubbed bioethics, was

needed to alleviate the danger inherent in this cultural and normative lag. Those skilled in normative discernment and calibration should anticipate and adopt bodies of cases, rules, and regulations proactively. They should not merely react to scientific *fait accompli*; their response should be neither knee-jerk rejection nor thoughtless affirmation and permissiveness.

This early response to the perception that slow-paced social, cultural, and legal adaptation lags behind fast-paced scientific and technological change gave bioethics an opening to serve as a mediating force between innovation and continuity. Bioethics rose to the occasion, but in retrospect two interesting blind spots stand out concerning it.

The first a blind spot concerned the nature of the lag phenomenon itself and the understanding of power at the level of institutions. Bioethics saw the relationship between science and technology in the bio-medical realm and the normative institutions and meanings of society at large as logical and detached puzzles for governance and social planning—as problems to be solved, dilemmas to be finessed, trade-offs to be made. Those in bioethics did not generally see this relationship between the technical and the normative in any broader historical narrative of modernization and social change. The metaphor of a “lag” effect between two social systems was borrowed from a structural-functionalist orientation in sociology that tended itself to be ahistorical (Mills 1959; Joas and Knöbl 2009). From an anthropological point of view, bioethics also did not inquire too deeply into the dynamics of cultural response to behavioral innovation or the varieties of ways in which values are given cultural meaning (Fox and Swazey 2008).

Bioethics developed the following powerful and influential prescription for solving the policy puzzles posed by the lag effect. Universal ethical principles (presumed to be both rationally authoritative and widely accepted in the broader society, at least implicitly and by those most articulate and morally self-aware) were identified as the touchstones for deducing justifiable conduct in particular situations (Beauchamp and Childress 2012). Then the conduct that was beginning to emerge from the new biomedical knowledge and technology (such as in vitro conception or extending the lives of permanently unconscious persons through the use of mechanical life-supports) was assessed in light of the normative standards deduced from the general ethical principles. Finally, regulation and governance of the new technology was proposed so that the morally beneficial conduct it induced would be promoted and the morally harmful conduct it induced would be minimized.

This pattern of discourse was widely endorsed over time by political and professional leaders and was welcomed into the precincts of law, policy, and clinical practice. For some, especially those who were unalloyed supporters of new technology and those who resented any incursion into professional self-sovereignty, the voice of bioethics was resisted and condescended to at best. But overall bioethics gained a strong measure of legitimacy from the establishment and the media from roughly the late 1970s on.

I think there is no doubt that bioethics succeeded in injecting a higher standard of ethical propriety and self-consciousness into medicine and health care, certainly into medical research with human subjects (and later with animal care and use in

research) and important areas of health law, but also into clinical practice and public policy. Nonetheless, bioethics did not fundamentally challenge or threaten the biomedical establishment with this pattern of discourse and analysis.¹ For the most part bioethics discourse took an episodic rather than a structural approach to the workings of institutional, political, and economic power. It scrutinized specific human and social consequences of particular uses of science and technology, but did not develop anything approaching a systematic or critical philosophy of technology as such. In short, the character of the analysis and the remedies contained in much of bioethics discourse over the years has been shaped from within and delimited by the conceptual frameworks that bioethicists (whether they be physicians, nurses, lawyers, philosophers, or social scientists) brought to bear on the troubles they identified. And these frameworks were largely individualistic, rationalistic, and economistic rather than social, cultural, and historical.

The second blind spot of bioethics thus far that we must attend to in relationship to climate change is parallel to its lack of contextual understanding in terms of historical change, political economy, and power. It is the influence of a human-centered ontology that discounts or ignores ecological context. The concerns of bioethics have been almost exclusively human centered, in sharp contrast to many works in environmental ethics. This abstraction of human interests and activity from broader ecological systems has ironically limited even the capacity of bioethics to understand human health and other problems in human terms. This is a serious distortion because so much of human health and well-being comes precisely from the relationality with natural ecosystems. Informing most work in bioethics is an idea of nature as an instrumental handmaiden in the service of human need and desire; it is the stage setting, the scenery behind the enactment of the human drama. Consider, for example, one of the more environmentally oriented developments within bioethics in the last few years, the so-called precautionary principle. The precautionary approach can convey ethical value and significance on non-human organisms, and even on natural ecosystems, because they are taken as entities that can be benefited and can be put at risk. This is surely correct. But by and large those who adopt this frame hold that the risk and benefit to non-human beings is morally significant only because it represents indirect risk and benefit to human beings.

A more fundamental question is: What is the “right relationship” between human agency and the rest of nature (Brown and Garver 2009)? How should human beings relate to nature, not instrumentally for the sake of their own interests, but intrinsically as a matter of obligation derived from the fundamental conditions and nexus of life (Jonas 1985)? All individuals living in a particular place at a particular time—a here and now—have a relationship of interdependence with the natural world and

¹Perhaps this moderation was fundamental to the success and subsequent influence of the field. Bioethics researchers and practitioners needed to gain entry into certain professional, governmental, and financial citadels; it was important that they retain academic respectability by not becoming too activist or radical; and it was important that they position themselves so as to make what was perceived by their patrons and clients as constructive contributions to problem solving (Fox and Swazey 2008; Evans 2012; Callahan 2012).

with each other. The human shaping of planetary systems through the medium of economic systems expand that here and now to the entire planet.

A hallmark of the modern era is the Baconian idea that the human realm is set apart and that we have moral leave to manipulate nature, to reengineer it as we see fit in accordance with what we find expedient in order to achieve, in Thomas Hobbes's nice phrase, "commodious living." We are still wedded to that worldview and seem determined to pursue it to its logical extremes. As far as I can see, thus far the conceptual framework of bioethics has completely bought into that ontology. The term "anthropocentric" has been used to describe the perspective that nature is simply raw material for human beings to use and manipulate in order to achieve our own species specific purposes and ends.

The alternative to an anthropocentric answer to the question of right relationship between humans and nature is an "ecocentric" answer. On an ecocentric view, biophysical systems, even when they are scientifically well-understood, are mistakenly seen when they are seen as *things we live off of*. They should be seen instead as *places we live within*. The ecocentric ethical view holds that value in the world resides in the natural and biotic context of which human individuals and societies are a part. From an ecocentric perspective, human beings are plain members and citizens of the biotic community together with other species, and they should be subject to the workings of ecosystemic constraints, the historical rhythms of evolution, and aesthetic values (Leopold 1989; Callicott 2014). Therefore, there is a natural standard of ethical rights and duties, and the good for which ethical agency and action strive can be understood in terms of systems of interdependence, relationship, sustainability, and resilience. Adopting this ontological frame as the background to its discourse—the ethical questions it asks and the ethical answers it gives—is one basis for what I shall discuss below as the "relational turn" in bioethics. This turn has already begun and has been gaining momentum for some time, but I believe that we should redouble our efforts to pursue and refine it because the relational reinterpretation of our core concepts and values is necessary if bioethics is to respond adequately to the challenge of climate change.

2.4 A Relational Turn in Bioethics: Expanding the Conceptual Frame

The relational interpretation of key concepts relating to human agency and its contexts is an important reorientation underway in bioethics today. It is made possible in part by the fact that the field of bioethics over the years has become more self-reflective and critically aware of the conceptual limitations of its own discourse. This is a relatively recent trend, prompted often by the work of feminists, philosophers working out of non-analytic traditions, social scientists, and others who are able to adopt an external stance on mainstream bioethics (Hoffmaster 2001; DeVries and Subedi 1998; Lindemann et al. 2008).

How do we know what we owe one another? How do we get people to see their obligations? How do we motivate them to act on those obligations even when it involves some denial or sacrifice of one's own wants and interests? One of the reasons why appeals to the prudent protection of enlightened self-interest have not succeeded in motivating political support for equalizing and redistributive policies is that well-off individuals can see the reality of relative inequality all around them—in the form of poverty, crime, inadequate education, health disparities, and so on—but they do not perceive that this inequality undermines their own quality of life or future prospects. Thus instead of feeling empathy and solidarity for the least well off, they feel threatened by and antipathetic toward them. Their main preoccupation is keeping their footing on the rung they have managed to attain and not slipping down the social ladder. In a discussion of health disparities and the social determinants of health, David Runciman observes, "...the politics is considerably harder here: you can't simply say that inequality means we are all suffering together. Instead, it may mean that the poor are doing so badly that the rich aren't interested in looking at the wider picture. They are focused on making sure they don't wind up poor" (Runciman 2009). Thus far this same syndrome has undermined political support for policies to reduce carbon emissions, such as a carbon tax or any other measures that would threaten to raise consumer costs or increase unemployment.

If we are to use self-interest as the primary motivating factor in garnering democratic political support for climate-smart public policies and the effective regulation of commercial and private behavior, then we need to break out of this syndrome of social antipathy and competition. Simply striving for conditions to facilitate long-term self-interest over short-term self-interest is not sufficient. The politics of falling down and falling behind in a stratified society is not so much a question of the time scale of the personal and social cost-benefit equation, as it is a failure to see the connections between one's own social-economic situation and that of others, a failure to perceive the underlying forces of economic and social power that are working on everyone in the society, albeit with differential effects.

How do we break free of this conundrum? I do not believe that we can simply try to bracket the notion of self-interest in the motivational structure of individuals and replace it with some overriding moral ideal of duty or principles of justice and beneficence in that sense. The best contribution that bioethics—with other forms of moral learning—can make is to temper and reconstitute self-interest by interpreting it in new ways. This concerns reconceptualizing the constitutive features of self-interest (or happiness), by not only expanding its horizons of time and place, but also by reconceiving the subject or self whose interests are at stake. Both aspects of this reconceptualization come about by seeing self-interest in light of important relational concepts. This provides a vocabulary to speak about who one is and what one is doing in new ways. And this leads to speaking about who we are and what we are doing in new ways as well. It gives us a lens through which to see ourselves, our situation, and our possibilities in a new light. If the current failure of self-interested motivation is the failure to see connections, and hence the failure to see and care about the consequences of how our activities are institutionalized and structured, then the remedy can come in the form of an enrichment of our connection-making moral imagination.

No doubt there are many important concepts that can be developed and added to the discourse of bioethics that will assist bioethics in contributing to an enhanced moral imagination in time to stave off the worst global outcomes of climate change. Here I wish simply to propose and briefly characterize three such concepts: relational autonomy, membership, and solidarity.

2.4.1 *Relational Autonomy*

Relational autonomy rejects two keystones of political philosophy in the liberal tradition. One is the privileging of individualistic values over communal ones. The other is setting up an antithesis between the individual and the community in the first place. These two features make liberal theories of individualistic autonomy remarkably devoid of the web of interdependencies—that is, culturally meaningful roles, styles, and self-identities; shared values, rituals, and practices. These theories tend to portray a privatized world of atomistic individuals, each with their own self-regarding interests and life-plans. In most cases, peaceful and predictable transactions of mutual advantage—in a word, “market” relationships—are thought to be sufficient to attain these aims.

Instead, in a relational conception of autonomy, agency and personhood are constituted, not *in spite of* connections and commitments linking self to others, but *in and through* these connections and commitments. Enacting relational autonomy in one’s life develops a self-identity built out of ongoing practices that exemplify the creative and aesthetic dimensions of a humanity naturally flourishing, a humanity healthy and resilient. A relational conception of autonomy and personhood contains a counter-vision to notions of alienation, commodification, and the objectification of the human or the natural other. It reflects the contextual, socially and symbolically mediated nature of self-identity and the agent’s interactions (Harré 1998). It reconciles individual self-direction (autonomy) with interdependence, community, and the common good.

Reductions in GHG emissions will come about only through change at both the level of individual behavior and of social norms and institutions. In practice this means that public policies must have recourse to values and purposes that the members of these societies will understand if they think and act like interdependent and relational selves. Discursively, part of the task of bioethics is to shape this relational self-identity and foster a moral imagination that can see autonomy, respect, rights and responsibilities in relational terms. If it was not morally evident before to all reasonable people (as the current global economy guided by neoliberal free market ideology suggests that it has not been), at a time of climate change it surely must be recognized now that there is no immunity, no safe harbor, no fortress of privilege and security. The health and well-being—as well as the possibility of a life of autonomous self-direction—of everyone is inextricably linked to the flourishing of others, the flourishing of enclaved communities, and the flourishing of the natural world.

In developing philosophically the concept of relational autonomy, it is important to recognize that not every form of human interaction or transaction constitutes a relationship through which individual autonomy or social justice are constituted. Interactions of domination, exploitation, coercion, violence, seduction, or duplicity, each of which effectively reduces human beings from the conditions of subjects to the conditions of objects, do not count as “relationships” in the requisite sense of the term. In just relationships, individuals enact an emplaced, contextualized, bounded freedom; they do not enact a fantasy of self-sovereignty or self-creation.

Relational autonomy, emplaced and bounded freedom, and justice as developmental capabilities for all, are closely linked to two additional concepts, neither of which has been adequately developed and explored in bioethics thus far, but which are essential in fashioning a moral comprehension and response to climate change. These are the concepts of membership and mutuality. Solidarity is a special mode of mutuality, and it is also a relatively neglected term in bioethics that needs to be developed future in the face of climate change.

2.4.2 Membership and Mutuality

Membership is constituted by the norm of parity of voice and participation and the norm of equality of civic respect. Social philosopher Nancy Fraser develops the notion of “participatory parity,” which she relates to a concept of justice encompassing both liberty and equality, in the following way:

Justice requires social arrangements that permit all (adult) members of society to interact with one another as peers. For participatory parity to be possible, I claim, at least two conditions must be satisfied. First the distribution of material resources must be such as to ensure participants’ independence and “voice.” ... The second condition requires that institutionalized patterns of cultural value express equal respect for all participants and ensure equal opportunity for achieving social esteem. (Fraser and Honneth 2003, 36)

To be a member of a moral community is to be subject to these norms and entitled to their protection and benefits. Solidarity is constituted by the norms of mutual concern and care. They are keystones of human flourishing and living a life fully realized and deeply experienced. Membership and mutuality are closely linked, and their common ethical ground is the valuing of others by the self (respect) and the valuing of the self by others (social esteem). To be a member in the normative sense is to have human standing. Membership status is conferred but it is also lived, earned, constructed and reconstructed by actions over time. To be in a condition of membership is to be interdependently self-aware.

Mutuality also consists in a form of life that justifies a certain type of self-recognition and perception. Mutuality involves the realization of an imaginative capability to see the linkages between the condition of others and the condition of the self. Membership and mutuality together intend a condition of the good as a *flourishing commons and a commons of individual flourishing*.

Membership confers standing; mutuality calls forth standing together. This is the symbiosis of each and all. Solidarity is a special type or aspect of mutuality in that it embodies that imagination of mutuality in a distinctive kind of emplacement and activity. To engage in solidarity is to stand up for those who lack standing and for change that will more fully realize the standing of all. Solidarity is the praxis of standing up and standing beside.

In the human condition, being individual and being together are linked: Aristotle called us *zōon politikon*, Seneca, *animal socialis*. To be human is to be a member of a community and a social order made up of culturally mediated lifeworlds and social and political-economic institutions. The moral point of those relationships is the individual flourishing of each participant. Therefore it follows that the justice, equity, parity of participation, engagement, and the exercise of autonomous agency within the web of relationships that make up a community are all required. The denial of parity in relational participation—disenfranchisement, exclusion, marginalization—is at one and the same time an exclusion from membership, a displacement, and a failure to respect one's person.

Justice and autonomy cannot exist within the context of arbitrarily restricted structures of "voice"—power, wealth, and social opportunity, health and psychological integrity—any more than effective human economic activity can exist sustainably amid the degradation and breakdown of geophysical and ecological systems. This provides a criterion for evaluating which types of relationships (transactions/interactions) are to be nurtured, facilitated, and promoted by common rules and public policy, and which are to be discouraged or prohibited.

I regard membership and mutuality not as separate from justice but as aspects of a certain perspective on justice and what it requires morally. Moreover, membership and mutuality are not separate principles to be added to a preexisting list of principles in bioethics but are to be seen instead as providing the very grounds for the possibility of other moral commitments. On this view, obligations arise out of, and require fulfillment within, venues of mutual recognition and respect. The existence and persistence, in turn, of these venues of recognition and respect depends on the ability to comprehend and be motivated by the idea of solidarity (Prainsack and Buyx 2011; Fraser 1986; Benhabib 1987).

It is certainly striking that so much work in bioethics has focused on individual autonomy and concerns about professional or social paternalism. It is often expedient to frame important ethical issues in this way—in the clinical encounter between physician and patient, for instance—but doing so incorporates certain ontological and normative views about society that are unnoticed and uncritically accepted. For example, it often seems to be assumed that we should begin our ethical consideration with an assumption of non-obligation and protecting the interests of the individual, and then the burden of ethical argument is to provide reasons why the needs and interests of others ought to be taken into account. Why not start with a presumption of right relationship and right recognition—acknowledging the moral force of reasons of connection and interdependence—and then put the onus on finding grounds for exceptions that permit individuals to override the obligations inherent in these relational reasons?

Another way to put this is to ask why we in bioethics so rarely question the presumption of individualism. Societies and communities are often treated in bioethics discussions as if they were mere backdrops for individual life and agency, much in the same way that non-human nature is taken to be something we use, not a place where we live and have our being. Being under an obligation is often thought of as a matter of consent and thus a situation that we can either choose to be in or not. Values are not viewed in any kind of historical or cultural context, nor are they seen as things that predate or constitute who we are. There may be some consideration of something like “externalities” or “public goods” in an economist’s sense, but they are of marginal interest to discussions in bioethics, while more constitutive conceptions of the commons or the common good are absent.

Many in bioethics have reservations concerning formulations such as these, reservations that parallel a number of liberal objections to communitarian or collectivist positions (Mulhall and Swift 1996). I do not regard the relational interpretation of autonomy and justice to be paradoxical or open to the usual objection of failing to take individuals seriously. Relational bioethics may take one of two different orientations, which, in the more general setting of communitarian theory, have been referred to as the “integrationist” and the “participationist” orientations by philosopher Seyla Benhabib (1992). Only the integrationist orientation risks a collectivism that eclipses the moral significance of each individual inasmuch as it enjoins a tight knit formation of permissible life plans and a narrowly constituted permissible self-identity. A participationist orientation is fully compatible with autonomy because it is open-textured, dynamic, and open to cultural and personal difference. Respect for difference bespeaks humility and an avoidance of the arrogance of certainty and control, a kind of moral arrogance that integrationist forms of community often espouse.

Benhabib’s distinction and line of reasoning are not satisfactory, however, if one holds that a pluralistic and diverse society that truly values and protects the individual is inherently incompatible with a relational ethics of membership, mutuality, and a shared sense of goods and purposes held in common. Can a relational bioethics account for the moral importance of the *individuality* of persons, while staving off a moral and societal *individualism* that is tending in the wrong direction in the era of climate change? I believe it can. Hoping to show this, it is to a more detailed model of the practice of solidarity that I now turn.

2.4.3 *The Practice of Solidarity*

Solidarity requires a public action. The act itself is to be seen and understood in a particular way, it is a positive identification with another and their position, whether individual or group, driven by sympathy and understanding. It is orientated toward improving or correcting past or present disadvantage or injustice. Solidarity is essential to counteract the centripetal forces that obscure our interdependence and lead us to toward an illusion of self-sufficiency and invulnerability. And

counteracted this illusion must be, for it is intolerable as a widespread mindset in the era of climate change.

Central to working with the concept of solidarity in bioethics is interpreting the meaning of particular types of relational and positional connections (Dawson and Jennings 2012). This is important to climate change because the reality of it is both global and local. The obligations of global justice and climate justice are inclusive of the broadest kind of human connection in space and time. They extend to all places on earth—all nations, all peoples, all cultures, all habitats, all landscapes, all ecosystems. They extend across generations to those who will be. They extend to the non-human living world, present and future. At the same time, political action on the global, international, or even national political levels is not working. Global solidarity must feed off of solidarity in place. Local modes of democratic deliberation and civic action are essential both for purposes of education and regional scale mitigation but also as the building blocks of larger networks which can have a global effect (Rayner 2010; Barber 2013).

Solidarity is a mutuality of care and a public expression of recognition and concern. If the characteristic gesture of membership is participatory voice, solidarity's characteristic gesture and stance as a moral action is *standing up beside*. This stance then has three relational dimensions: *standing up for*, *standing up with*, and *standing up as*.

Standing Up Beside When you stand up beside a person, a group, an organization, a species, a habitat, or even an idea or ideal, you make yourself visible; it is a public gesture, a communication in which saying and doing merge. Solidarity requires both taking a stand and standing up. This public posture also carries with it a sense of urgency and moral importance to both the agent being seen and to those who are looking. In standing up one is moving upward toward justice, such as the redress of the oppression or denigration of others, or the protection of a watershed, a forest, an endangered species.

Standing up for The first relational dimension of solidarity is *standing up for*. This suggests an intention to assist or to advocate for the Other (oftentimes a stranger, and again not necessarily a human individual—one can stand up for other species, an ecosystem, a cultural way of life). The Other for whom one stands up in solidarity is someone whose situation presumably is morally problematic either because of their own behavior or because of what is being done to them. Environmental and health conditions as well as broader forms of social, economic, and political oppression and injustice provide an occasion for this dimension of solidarity.

Standing up with The second dimension is solidarity as *standing up with*. It takes another step in the direction of mutuality and recognition of shared moral standing. Moving from *relationality for* solidarity to *relationality with* solidarity advances one further into the lifeworld of the Other. Doing so entails changes in one's initial prejudgments and perspectives, and solidarity as standing with requires an openness to this possibility. Relating to other people or groups in the specificity of their values

and vocabularies of self-interpretation simultaneously develops respect for the specific standpoints of others (Habermas 2005; Dean 1995, 1996; Calhoun 2002, 2006). Being with in this sense also reveals a level of commonality between the parties to this kind of solidarity. This commonality resides in the capacity for intercultural and transpersonal interpretive understanding. Without such understanding, Others cannot truly be treated with respect, and hence their relational autonomy cannot flourish, and they cannot be said to have attained the membership status that right recognition requires. Solidarity contains the possibility of being common readers of the diverse and distinct lives we each author.

Standing up as The third dimension is solidarity as standing up *as*. Obviously this suggests a yet stronger degree of identification between the agents of solidaristic support and the recipients of such support. However, mutuality and solidarity are not the same thing as a merger of identities or even literal identification with the Other. Solidary *as* is a relationship between an actual Other and an imagined possibility of the self. This is how I would interpret such familiar notions as “seeing through the eyes of another,” or “putting oneself in another’s shoes.” For agents engaged in the practice of solidarity who reach this mode of relationship, it is not a question of denying diversity or doing away with the continuing obligation to recognize and respect difference. Quite the opposite.

To move through the trajectory of solidarity is to move in the direction of greater imaginative creativity and range in the moral life. Standing up for depends upon a kind of abstract moral commitment to support the application of general norms to the life situation of the Other as a creature with a certain moral status. Standing up with involves adopting a perspective that is more internal to the lifeworld and the contextually meaningful agency of the Other. Standing-up-as solidarity is the solidarity of humanity in place, the solidarity of being embodied, vulnerable, located and locatable.

But there is another way to look at this as well. In the concept of solidarity in each of its modes, the particularity of respecting difference and the universality of inherent moral worth of humanity and life are two sides of the same moral coin. Acts of solidarity always “take place” somewhere sometime, not anywhere any time. But solidarity can (I would say, must) also inform cosmopolitan conceptions of citizenship and obligation. This suggests interesting lines for the further development of theories of global health justice and climate justice.

As the moral recognition of the Other is altered by this interpretive journey, so is the moral imagination of the self. Strong bonds of attachment, identification, and empathy may not be the destination of this journey. But arguably a growth in one’s capacity to project oneself imaginatively into the perspective and viewpoint of the other person, and a growth in moral awareness or the ability to see connections previously unseen are plausible outcomes of the interpretive transformation effected by the trajectory of solidarity. Need I add how integral these recognitions are to developing democratic political cultures morally and politically capable of supporting effective measures to mitigate climate change within nation states and to achieve global cooperation among them?

2.5 The Presence of the Future

Thomas Hobbes remarks that only the present is real because the past is gone and the future does not yet exist. Closer to the mark, I believe, is Marcel Proust's idea that the past exists through memory, and is not gone, while the future exists through imagination, and is already here. Creation is not a completed act but a continuing one. Reality is not the exclusive preserve of the past, the present, or the future.

Elsewhere I have attempted to explore the politics of memory and tradition (Jennings 1981). This essay has focused largely on imagination and the future. Can we muster the moral imagination necessary to appreciate the presence of the future? Can we grasp the fact that we have a responsibility here and now for what we are doing to the well-being and the conditions of life of those there and then, including those who are not yet?

Two considerations seem to me to lend weight to these questions. The first is that our actions in the present do have the power to shape substantially the quality of life and the options of future people and the integrity and resiliency of the future ecosystems they inhabit. In his famous essay, "What is Enlightenment?" Kant announced the arrival of the age of maturity for humankind (Kant 1949[1784]). The notion of the "Anthropocene" age carries much the same connotation: we have grown into great power and with it comes corresponding responsibility. The time for indulging our narcissism and *amour propre* is over.

The second consideration is the flip side of the first. If the future is vulnerable to our irresponsibility, we are already in the present vulnerable to harm from the degradation of the future. If we did not believe that there would be future people, would anything matter to us? Perhaps immediate circumstance and immediate pleasure, but no projects or activities that project themselves into a future, and nothing that depends for its essential point on some future state of affairs, such as finding a cure for cancer. If everything that is "not yet" turns into something that is "too late" in our intentional, purposive agency, then surely our humanity would be fundamentally altered and effaced (Scheffler 2013). Our belief in a human future (a key aspect of which is a viable, resilient natural future) is then essential to our present. How then can we say that future people do not matter?

My sense is that we do have the capacity to muster the moral imagination necessary to appreciate the presence of the future. We can grasp the fact that we have a responsibility here and now for what we are doing to the well-being and conditions of life of those who are not yet. Of course, we can only infer in a generic way how human beings will think, feel, and act and how the biotic communities of the Earth will function in the future. That generic knowledge and that imaginative connection between present and future experience are premised on an assumption of some measure of social and biological continuity and commensurability, to be sure. But this is sufficient to motivate judgments of moral responsibility for the actions we do now. That is really all a sense of responsibility and the logic of obligation require, or have ever required. I think it is time to stop wringing our hands about the philosophical puzzle of whether anything we do in the present can be said to harm even-

tual people because without our actions they would not come into existence at all. And we should stop distracting ourselves with hoped for technological fixes, acting like the economist who was at the bottom of a deep hole and when asked how to get out replied, “Assume a ladder.”

The mission of bioethics is the normative task of guiding the just use of power, the sciences of life, and technology. With the total situation of climate change (geophysical, biological, economic, political, and ethical), which I have tried to sketch here and which will be dealt with in depth in other chapters in this volume, this mission faces a much more demanding challenge than any it has encountered before in the domain of health affairs and the practice of medicine and biomedical research in national contexts.

It would be a shame if bioethics limited itself to commenting on the ethics of managing health care delivery in response to the deleterious health effects of climate change. I have nothing against that sort of commentary: it can be very helpful and informative, as evidenced time and again in the aftermath of natural disasters and health emergencies. But global climate change portends so much more than that, for beyond acute health effects, climate change will bring about chronic malady—“illth,” as John Ruskin (1985, 211, 299) so aptly called what we often produce in fact when we think we are producing wealth. Climate change will also prompt a slow, evolving attack on human health and well-being by undermining the social determinants of health, by exacerbating the social determinants of disease, and by degrading the integrity functioning of ecosystems upon which human health ultimately depends. A remarkable biosphere has evolved on earth during the Holocene; we are on course to ruin the natural work of millennia in just a few centuries.

In short, the health effects of climate change are ultimately the justice effects of climate change. I have argued that in order to respond adequately to climate change the field of bioethics must bolster its conceptual repertoire in two ways.

First, I have suggested that bioethics should rethink the “bios” aspects of its vision by eschewing an uncritically human-centered mode of theorizing, by seeing ecosystems as contexts we live in and through, not simply as resources that we use and use up.

Second, I have suggested that bioethics enrich the “ethics” aspects of its vision by taking a relational turn in its theorizing and by informing its discourse with certain fundamental concepts that provide alternatives to the individualism of the libertarian and capitalistic market tradition. Among these are relational rather than individualistic conceptions of autonomy and justice; membership, mutuality, and solidarity. These concepts will be fruitful for ongoing discussions of the ethical aspects of climate and energy policy. Bioethics, together with environmental ethics, should have an audible voice in those policy circles.

There are many philosophical reasons why one might support this relational turn, but it is given both theoretical and practical impetus today by the need to mitigate further deleterious global thermal imbalance and climate change through massive efforts, on both large and small scales, to alter human social, economic, and technological relations with nature. And, no less problematic, this must be done very, very soon. A fossil carbon civilization that has taken two centuries to construct must be

fundamentally reconstructed into a sustainable, renewable energy civilization in the next three or four decades: within the lifetime of our children.

Politically and culturally it is not obvious at all that this will happen. Close to the cognitive and the affective center of our incapacity lies a cultural blindness to relationality and interdependence. Other factors of greed and power and ideological politics may be equally important, but bioethics as a field and as a community of men and women of ideas has few resources to stand up to those forces. But we may be able to do something about the state of thinking and motivation in our societies and communities. We may be able to bring moral imagination and moral conscience to bear on behaviors and practices of consumption, pollution, and power that push us further toward disruptive planetary change and that promise to truncate the futures of persons for decades or even centuries to come.

The most daunting challenge of climate change is not technological or even economic, it is political and moral. Prosperity without unsustainable economic growth can be attained through rational orchestration of measures to slow down and reduce the consumption of fossil carbon and through technological transitions to new sources of low-carbon emission and renewable energy (Victor 2008). But these measures, such as carbon taxation, to reduce—or better, recast—economic growth must be accompanied by robust social policies that forthrightly, not begrudgingly, embrace goals of social justice and equality, education, meaningful employment, and democratic citizenship. If that is to happen, a certain moral maturity must be achieved in many of the political cultures in the world today.

Here finding the proper relationship between theory and practice—conceptual argument and discourse—is fundamental but also complicates the task. When interpreted relationally, the key concepts and categories of bioethics are not simply conceptual ideals, qualities, or rights individuals possess. They are forms of practice, culturally and socially meaningful structures of agency and activity that are deliberate, recognizable, and rule governed. Through enacting the practices of membership and solidarity, intentions are formed, new social possibilities are discovered and defined, and moral principles and ideals themselves are made meaningful. This occurs in the social perceptions and self-understandings of individuals precisely through the types and networks of social action in which they engage; precisely, that is to say, to the extent that membership is also a lived practice and condition of their self-identity and social awareness. And also to the extent that they are respected and free to develop their capabilities richly in and through their relational circumstances.

The notions of a membership of recognition and respect and a mutuality and solidarity of care and concern denote a future world that is open rather than closed, a hospitable Earth household of participation, voice, equity, trusteeship, preservation, and conservation. The ideas of membership and mutuality are not primarily distributive notions—they are concepts of plenitude rather than scarcity—although they clearly have important distributive implications, mainly in the direction of greater equality. But this is not what defines them most. What does so is the idea that the communal, connection-making side of ourselves and our existence (and not the

competitive, separation-making side) is most worthy of affirmation and encouragement in the human and natural future.

The moral imagination fostered by the notions of membership and mutuality is the ability to sense the presence of the future, and to see a place where we each attain moral parity with fellow sufferers, fellow creatures of need and aspiration, fellow inhabitants of the body natural, the body human, and the body politic.

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<http://www.springer.com/978-3-319-26165-2>

Bioethical Insights into Values and Policy
Climate Change and Health
Macpherson, C.C. (Ed.)
2016, XIV, 220 p., Hardcover
ISBN: 978-3-319-26165-2