

Van Rensselaer Potter, Climate Change, and Justice

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Résumé de l'article

Lorsque Van Rensselaer Potter a inventé le mot anglais « bioethics », il a imaginé un domaine qui réunirait la compréhension biologique et les valeurs éthiques pour aborder les problèmes environnementaux mondiaux. Suivant la vision large de la bioéthique de Potter, j'explore les idées éthiques dont nous avons besoin pour faire face au changement climatique. Cependant, je développe et souligne les idées de justice et de responsabilité d'une manière que Potter n'a pas faite. À certains moments clés, j'oppose les idées que je développe à celles de l'oeuvre de Potter, mais j'essaie d'éviter les débats savants et de rester concentré sur la tâche pratique : développer des idées pour nous aider à faire face au changement climatique. Pour commencer, je décris le problème du changement climatique. Ensuite, je montre comment il soulève de profondes et sérieuses questions de justice. Puisque les questions de justice sont relativement claires et convaincantes, je concentre mon attention sur les questions de responsabilité – sur le pourquoi et le comment de la réponse aux injustices structurelles du changement climatique. Je note également comment l'accent mis sur la justice et la responsabilité soulève deux nouvelles questions. Pour conclure, je mentionne le rôle des citoyens écologistes dans la réalisation du changement social.

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ARTICLE (ÉVALUÉ PAR LES PAIRS / PEER-REVIEWED)

Van Rensselaer Potter, Climate Change, and Justice

James Dwyer^a

Résumé

Lorsque Van Rensselaer Potter a inventé le mot anglais « bioethics », il a imaginé un domaine qui réunirait la compréhension biologique et les valeurs éthiques pour aborder les problèmes environnementaux mondiaux. Suivant la vision large de la bioéthique de Potter, j'explore les idées éthiques dont nous avons besoin pour faire face au changement climatique. Cependant, je développe et souligne les idées de justice et de responsabilité d'une manière que Potter n'a pas faite. À certains moments clés, j'oppose les idées que je développe à celles de l'œuvre de Potter, mais j'essaie d'éviter les débats savants et de rester concentré sur la tâche pratique : développer des idées pour nous aider à faire face au changement climatique. Pour commencer, je décris le problème du changement climatique. Ensuite, je montre comment il soulève de profondes et sérieuses questions de justice. Puisque les questions de justice sont relativement claires et convaincantes, je concentre mon attention sur les questions de responsabilité – sur le pourquoi et le comment de la réponse aux injustices structurelles du changement climatique. Je note également comment l'accent mis sur la justice et la responsabilité soulève deux nouvelles questions. Pour conclure, je mentionne le rôle des citoyens écologistes dans la réalisation du changement social.

Mots-clés

Van Rensselaer Potter, bioéthique, changement climatique, justice, responsabilité

Abstract

When Van Rensselaer Potter coined the English word “bioethics”, he envisioned a field that would bring together biological understanding and ethical values to address global environmental problems. Following Potter’s broad vision of bioethics, I explore ethical ideas that we need to address climate change. However, I develop and emphasize ideas about justice and responsibility in ways that Potter did not. At key points, I contrast the ideas that I develop with those in Potter’s work, but I try to avoid scholarly debates and stay focused on the practical task: developing ideas to help us address climate change. To begin, I describe the problem of climate change. Then I show how it raises deep and serious issues of justice. Since the issues of justice are relatively clear and compelling, I proceed to focus attention on issues of responsibility – on why and how to respond to the structural injustices of climate change. I also note how my emphasis on justice and responsibility raises two new issues. To conclude, I mention the role of ecological citizens in bringing about social change.

Keywords

Van Rensselaer Potter, bioethics, climate change, justice, responsibility

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INTRODUCTION

In an article published in 1970, Van Rensselaer Potter coined the English term “bioethics” (1). The following year, this article served as the first chapter of *Bioethics: Bridge to the Future* (2). Potter coined the term bioethics because he saw the need to bring together biological knowledge and ethical values. For Potter, the “bio” in bioethics always included ecology and evolution, and ethics always included caring about the future and acting with wisdom. He hoped the new discipline of bioethics would address broad and pressing issues about our relationship to nature, population health, and acceptable survival. He urged scholars, students, and future leaders to take up this discipline and bring about change.

Potter always acknowledged a great debt to Aldo Leopold. Potter’s 1971 book *Bioethics* was dedicated to Leopold and his 1988 book *Global Bioethics* was subtitled *Building on the Leopold Legacy* (3). Potter drew on Leopold’s understanding of ecology, interactions, and carrying capacity – the healthy population of a species that an ecosystem can sustain. He also drew on and interpreted Leopold’s articulation of a land ethic. Leopold’s work resonated with Potter because they both saw that human beings were altering ecosystems and impoverishing the future (4).

In the 1970s, a field developed at Georgetown University, the Hastings Center, and elsewhere in North America that focused most of its attention on research ethics, new medical technologies, and the doctor-patient relationship. This field also came to be called bioethics, but the “bio” referred more narrowly to biomedicine and biotechnology. *Principles of Biomedical Ethics*, by Tom Beauchamp and James Childress, became the dominant book in this field (5). It was first published in 1979 and is now in its eighth edition. In retrospect, the contrast between these two views of bioethics is striking. It’s as if these views agreed that the twenty-first century will be the century of biology but that they disagreed on what that means: the century of biotechnology or the century of the biosphere (6).

Potter’s work showed me the need to conceive of bioethics in broad way. Many environmental problems are more serious and urgent than ever: climate change, extinction of species, overconsumption of resources, depletion of fish stocks, shortages of freshwater, deforestation, and more. These environmental problems raise ethical issues about our relationship to nature, ecosystems, people, and other living beings. Potter’s work also showed me the need to think globally. His ethical concerns

extend, as should ours, well beyond North America and well beyond the present generation. Furthermore, his work showed me the need to think more deeply about how to respond. Reading Potter reinforced a felt need to change how I (and many other people) inhabit and think about the world.

Although Potter's work helped me to live and think in a better way, this essay tends to emphasize my differences with Potter. Whereas Potter discusses acceptable survival, and focuses extensively on the control of fertility, I tend to emphasize issues of justice. I believe that taking up a perspective of justice is crucial to understanding and responding to contemporary environmental problems. Whereas Potter relies on a general concept of responsibility, I tend to emphasize a conception of political responsibility for structural injustice. I believe this conception fits, and helps guide responses to, many environmental problems. To respond more adequately to environmental problems, I think that we will need to change social structures, background conditions, economic systems, political processes, and accepted practices. This kind of change requires political action, in the best and broadest sense of that term.

What we do and should emphasize depends on the historical situation. The philosopher and social activist John Dewey makes this point in a discussion of perspectives, statements, and matters of emphasis. He writes:

We have indicated that since general aims are but prospective points of view from which to survey existing conditions and estimate their possibilities, we might have any number of them, all consistent with one another. As a matter of fact, a large number have been stated at different times, all having great local value. For the *statement* of aim is a matter of emphasis at a given time. And we do not emphasize things that do not require emphasis – that is, such things as are taking care of themselves fairly well. We tend rather to frame our statement on the basis of the defects and needs of the contemporary situation; we take for granted, without explicit statement which would be of no use, whatever is right or approximately so. We frame our explicit aims in terms of some alteration to be brought about. It is, then, no paradox requiring explanation that a given epoch or generation tends to emphasize in its conscious projections just the thing which it has least of in actual fact. (7, p 118, italics in original)

Dewey thinks that we should look carefully at the defects, needs, and potentials of our current situation, and then emphasize what needs to change. That is what I will try to do.

I tend to emphasize the idea of justice and the idea of responsibility for injustice because I believe these ideas are underdeveloped in Potter's work relative to the needs of the contemporary situation. This belief raises both scholarly and practical issues. The scholarly issues concern how the idea of justice may be implicit in Potter's work and why he did not develop it more. The idea of justice may be implicit in his concern for the future, his move to think beyond mere survival, and his vision to bring humanities together with sciences in order to address important environmental issues. His implicit idea of justice may be underdeveloped because, although he read broadly, he didn't seem to read explicit accounts of justice. Or the idea of justice may be underdeveloped because our current situation is different from his – because history changes. Our current situation and scholarship are making more visible how whole groups are marginalized and affected by environmental problems (8). Although the scholarly issues about what's implicit but underdeveloped in Potter's work are important, they are not my focus in this essay.

My focus, instead, is on a practical task: to develop and emphasize conceptual tools that we need to address the major environmental problem of our time: climate change. In particular, I aim to show what the current situation demands, conceptually and ethically, in terms of justice and responsibility. The ultimate test of how well I do that is not my dialectical ingenuity or argumentation; it is how these conceptual tools could and should be used to address the problem of climate change. At points in this essay, I compare and contrast my ideas with Potter's, but I am not trying to score points in a scholarly debate. I am really trying to respond to an urgent problem, in a way that builds on Potter's vision of bioethics.

My plan is as follows. In the first section, I briefly describe the problem of climate change – this is the biggest bioethical problem that we face, in Potter's sense of bioethics. Then in the second section, I show how the problem of climate change raises issues of justice. Since the issues of justice seem relatively clear, and the judgments of justice seem warranted, I proceed to focus more attention on issues of responsibility and responsiveness. In the third section, I make use of Iris Marion Young's account of responsibility for structural injustice. This account of responsibility fits the ethical problem and helps to guide responses, but it also brings up new issues. So, in the fourth section, I describe two of these new issues, but I do not offer definite solutions. The best I can hope for is to describe the issues in a way that will inspire further work. In the fifth section, I offer a few concluding remarks.

CLIMATE CHANGE

The evidence that human activity is causing climate change is very extensive and robust (9). The data and accounts in support of anthropogenic climate change come from physics, chemistry, biology, earth sciences, oceanography, history, ethnology, and other disciplines. The accounts include theories and models that explain past changes and predict future changes. The robustness of the evidence is reflected in both the scientific consensus, as indicated in peer-reviewed articles, and corporate strategy. Following the strategy used by tobacco companies to counter the evidence that smoking causes health problems, fossil fuel companies have tried to create the appearance of doubt about climate change (10).

Because emissions of greenhouse gases are higher than the natural world can absorb, the levels of these gases are increasing in the atmosphere. This increase is apparent in the levels of carbon dioxide, the greenhouse gas responsible for about two-thirds of the rise in Earth's temperature (11). The preindustrial level of CO₂ was probably about 280 parts per million (ppm); by 1960, it was about 315 ppm; and then it began increasing more rapidly. By 2019, it was over 410 ppm (12). The high level of carbon dioxide traps heat in the atmosphere and profoundly affects earth systems. Air and water temperatures are increasing, precipitation patterns are changing, storms are becoming more intense, droughts are becoming more severe in some regions, ice masses are melting, sea levels are rising, oceans are becoming more acidic, and much more.

These changes in earth systems increase the likelihood of particular environmental problems: heatwaves, floods, prolonged droughts (in some regions), wildfires, crop failures, soil degradation, salinization of freshwater, water shortages, etc. (13). These environmental problems have a profound impact on human health and well-being (14). Heatwaves and the associated thermal stress contribute to heatstroke and cardiovascular failure, especially among people who are very young, very old, work outdoors, or lack indoor cooling. Storms and rising sea levels contribute to surges that kill people, damage infrastructure, and ruin croplands. Shortages of freshwater contribute to dehydration and use of unsafe water. Crop failures tend to increase food insecurity, especially among small farmers and people with low incomes. The changes in temperatures and ecosystems tend to increase vector-borne, water-borne, and food-borne diseases like malaria, dengue, cholera, and many other diseases.

At least in the medium term, the biggest impact of climate change on health may be indirect: climate change will diminish the livelihood of millions of people, especially among people whose economic situations are already marginal and precarious. This may first become apparent among people who depend most directly on healthy ecosystems for food and income. We know, from decades of research on the social determinant of health, that income and social position have profound effects on health (15). Climate change will also lead to more migration, both within and between countries (16). Some people will migrate because storms and disasters displace them. Others will migrate because of diminished livelihoods. The differences between environmental and economic migrants, and between forced and voluntary migrants, may not be clear nor morally salient.

Climate change is the kind of environmental problem that concerned Potter and prompted him to propose the new discipline of bioethics. Indeed, he mentions climate change in his 1988 book *Global Bioethics* (3, p.41-42). This was not some prescient moment, two years before the first IPCC assessment, but was part of a larger discussion of survival. In the course of this discussion, Potter considers two examples of climate change – one natural, the other anthropogenic. He notes that the extinction of the dinosaurs may have been caused by climate change that resulted from the impact of asteroids on the earth. He also notes that use of powerful nuclear weapons might alter earth systems in ways that would trigger a nuclear winter. This nuclear winter would threaten the survival of those who were not killed by the nuclear blasts. Regardless of what Potter would have said about climate change produced by greenhouse gases, it is the kind of problem that concerned him. It shows the need to bring an understanding of biology, especially ecology, together with ethics. It is a problem that is global in its effects and threatens the future even more than the present. And it calls on many of us to change the way we inhabit and think about the world.

However, the problem of climate change also shows where and how my thinking goes beyond Potter's. As I explain in the next section, I don't find Potter's focus on survival very helpful. I find accounts of justice more helpful. Furthermore, I think we need a conception of responsibility that fits the injustices of climate change. Whether this way of going beyond Potter is a development of his original vision is an important scholarly issue that I put aside. I am more concerned to show how the current situation requires us to think about justice and responsibility.

JUSTICE¹

Almost all of us are at risk from climate change, but we are not equally at risk. Almost all of us contribute to climate change, but we do not contribute equally to the problem. Almost all of us act as agents at least some of the time, but we are not equally empowered to shape the practices and structures that affect climate change. Since these differences bear on justice, I want to consider in more detail the distribution of risks, contributions to the problem, and power to shape practices and structures.

People's particular risk from climate change depends on many factors: their age, health, location, neighbours, social position, the wealth of their society, and other factors. I will consider various risks in four broad categories. The first risk category is temporal position. As I noted in the last section, greenhouse gases are accumulating in the atmosphere faster than they can be absorbed and recycled by the natural world. Without more adequate measures to reduce emissions and build resilience, younger people face greater risks over their lifetimes than older people over theirs. Future generations will be at even greater risk – they will be born into a world with a much less hospitable climate.

The second risk category is geographical location. People who live in drought-prone areas will have to deal with more severe and prolonged droughts. Millions of small farmers who depend on regular patterns of rainfall will be at greater risk. People who live in flood-prone areas will have to deal with more intense and frequent flooding. People who live on coasts, river deltas, and low-lying islands are threatened by rising sea levels and storm surges. Billions of people in Asia depend for water on the regular accumulation and melting of the Himalayan glaciers (17). They are at greater risk of flooding in the short term and

¹ Some ideas in the first part of this section are drawn from previous work (16).

water shortages in the long term. People who live and work in hot regions are at greater risk of heatwaves that pose health risks and limit outdoor work. People who live in cold regions can be threatened in different ways. The Inuit sources of food, ways of transportation, infrastructures, and culture are threatened by rising temperatures and melting Arctic ice (18). As I note below, the geographical risks of climate change can be attenuated or exacerbated by social factors, structures, and practices.

The third risk category is the kind of society in which people live. Low-income countries lack the economic resources to make some needed changes: to reconstruct infrastructure, fund insurance schemes, invest in public health, and more. Although high-income countries have the economic resources to make needed changes, they often lack the foresight, political will, and governance needed to make deep changes. The category of the kind of society includes more than income and governance. When civil society cultivates civic engagement and social solidarity, people are usually better protected. Even neighbourly care makes a difference. People are better protected from climate change, especially from some of the effects of so-called “natural” disasters, in places where people look in on and look out for their neighbours.

The fourth risk category is people’s position within their society. Power, wealth, income, occupation, formal education, housing, gender, race, ethnicity, and other factors make a difference. Years of research on the social determinants of health show how relative social position affects people’s health risk (15). The Whitehall study showed that, at least in the United Kingdom, a small difference in occupation makes a large difference in health. Similar differences seem to affect the risks that climate change poses for people’s health, well-being, and recovery from disasters.

Sometimes these risk categories will diverge, as they do for wealthy people who live on the coast of Florida. Although their location places them at higher risk, their wealth offers some protection – insurance, connections, second homes, and so on. However, sometimes these risk categories will converge, as they do for agricultural workers in coastal areas of Bangladesh. One feature of these categories bears especially on justice: people are simply born at a certain time, in a certain place, in a kind of society, and into a social position. By saying this, I do not mean to deny that people can exert some control of some factors and that some forms of individual responsibility make sense. But I do mean to focus attention on the background conditions and social structures that shape the ethical problem, and on the need to change these conditions and structures. I will return in the next section to the relationship between social responsibility and individual responsibility.

Contributions to climate change also bear on judgments of justice. Many people who are at high risk from the effects of climate change have contributed relatively little to the problem. Per capita emissions in the United States are 60 times as high as in Bangladesh. Although national per capita averages are important and bear on issues of justice, especially justice between countries, they tend to obscure the differences within countries. In every country, wealthy people tend to have higher carbon footprints. Putting aside governmental investment in infrastructure, the wealthiest 11% of the world’s population is responsible for about 50% of all carbon emissions, while the poorest 50% is responsible for only 10% (19). Yet the wealthiest people face fewer risks because of their wealth, power, and social positions.

Opportunities for meaningful participation also bear on judgments of justice. Ideals of social democracy emphasize the need to empower and encourage the participation of people who are affected by policies and practices (20). Fostering meaningful participation respects the dignity of people, gathers insights from people who are differently situated, and increases the effectiveness of plans to bring about change. As philosophers from Jean-Jacques Rousseau to Elizabeth Anderson have emphasized, forms of respect and participation can be as important as the distribution of risks and wealth (21,22).

It seems unjust that people have not been empowered and encouraged to deliberate, in meaningful ways, about changing structures and practices that so profoundly affect their lives. And it seems unjust that people who have very low emissions face very high risks from climate change, while people who have contributed to and benefitted from high emissions face much lower risks. At least, these are my considered judgments of justice. I am not going to try to derive these judgments from an abstract theory of justice. Among people who have studied and reflected on climate change, there is more agreement on these judgments than on abstract theories (23). This situation is familiar in clinical bioethics: even when people disagree about abstract ethical theories and principles, they often agree on particular judgments and actions (24).

I believe that the idea of justice is a helpful conceptual tool to address climate change. The idea helps us to survey existing conditions, attend to salient features, identify particular problems, and consider relevant responses. However, using an idea or concept like justice is more than looking through a lens. Ethical concepts and perspectives often depend on historical development, social context, people’s past experience, the development of habits, etc. Furthermore, the existence of multiple concepts and perspectives “does not mean that all approaches are equally valid nor that all proposed solutions are morally acceptable; it is just that we cannot always predict in advance which formulations are going to be the most morally instructive” (25, p.204).

My emphasis on justice contrasts with Potter’s approach. In his approach to environmental problems, he does not develop and emphasize the concept of justice. Indeed, he only uses the word “justice” five times in *Global Bioethics*. What he develops and emphasizes is the idea of survival, a word he uses 196 times. In focusing on survival, he draws on and interprets ideas from Aldo Leopold. After Leopold graduated from the school of forestry at Yale University, he took a job with the U.S. Forestry Service in Arizona and New Mexico. There he saw first-hand what can happen to the deer population. Government-sponsored programs and short-sighted prejudice worked to eliminate wolves. As a result, the deer population increased rapidly. The deer browsed whatever they could find and denuded mountains. Then the deer population crashed. Leopold reflects deeply on this

problem in his famous essay “Thinking Like a Mountain” (4). Potter extracts and interprets a lesson from the problem that Leopold saw: “Aldo Leopold saw that human survival depended on the maintenance of a healthy ecosystem and the control of human fertility – at a time when neither of these ideas was widely understood” (3, p.17).

Potter distinguishes five kinds of human survival: mere, miserable, irresponsible, idealistic, and acceptable. Mere survival of some of the human population is not what Potter has in mind. After all, some deer survived the population crash brought on by over-browsing in Arizona and New Mexico. Neither is miserable survival a worthwhile goal. A life beset by malnutrition and preventable diseases is not what Potter has in mind when he talks of survival. Irresponsible survival is that path that we are on now: many people, groups, and societies in the present generation are surviving, but at the expense of future generations. On Potter’s list of kinds of survival, only idealistic survival and acceptable survival are options worth considering. Potter gives some reasons, which I do not find convincing, for rejecting idealistic survival. He says, “I shall not discuss *ideal* survival because that is something we shall never see and besides, each person has a private notion of what Utopia would be” (3, p.44-45, italics in original). But then he notes that people can and do agree on trying to eliminate preventable diseases, malnutrition, and starvation (3, p.45). Yet Potter rejects this approach because of its long-term consequences. He asks rhetorically, “Can any program that decreases infant mortality and thereby increases demands on the ecosystem, without concomitant educational measures that would protect the ecosystem and promote the idea of zero population growth, be anything but a disaster in the long run” (3, p.46)? We now have a better answer to his rhetorical question. Ethical forms of development can and have worked to reduce the burden of disease, improve education, and lower birth rates. When girls have been accorded rights, educational opportunities, and occupational choices, the birth rate has gone down dramatically. The state of Kerala in India is a good example.

After characterizing and rejecting the other forms of survival, Potter favours acceptable survival, but when it comes to characterizing acceptable survival, he says very little. In the chapter on “Human Survival” in *Global Bioethics*, he simply refers to Lester R. Brown’s work on sustainable societies (3, p.51-52). I will leave it to scholars of Potter to debate whether some basic view of justice is implicit in his idea of acceptable survival. The point I tried to make in this section is that we should use and emphasize the concept of justice in our response to climate change. In the next section, I will try to show how ideas about justice should shape our thinking about responsibility to address climate change.

RESPONSIBILITY²

Although Potter does not develop and emphasize the idea of justice, he has a lot to say about responsibility: he uses the word 66 times in *Global Bioethics*. In that book, he devotes a section to “A Bioethical Commitment for Person and Family Health” (3, p.159-161). The first seven points include responsibilities to avoid drug abuse, attend to diet and exercise, avoid sexually transmitted diseases, drive carefully, avoid unwanted and unintended pregnancies, avoid exposure to harmful chemicals and radiation, and seek timely medical advice. These seven points tend to focus on individual actions and responsibilities, but the eighth point brings in a social dimension. Potter states this responsibility as follows: “I will support local and national government officials and private organizations who provide responsible policies and decisions that facilitate the above individual actions by means of education, economic justice, environmental protections, and public health measures” (3, p.160). This responsibility even includes mention of economic justice. In “A Bioethical Creed for Individuals,” which is printed in both his books on bioethics, he formulates seven beliefs with corresponding commitments. In this creed, he starts with a social dimension of responsibility. The first commitment states, “I will work with others ... to seek a worldwide movement that will make possible the survival and improved development of the human species in harmony with the natural environment and fellow humans” (3, p.193). Here, some social dimensions and background conditions are explicit. However, the other beliefs and commitments tend to focus on individual actions and responsibilities. The seventh belief states, “I believe that each adult person has a personal responsibility for his or her own health as well as a responsibility for the development of this aspect of personhood in any offspring that may be produced” (3, p.195). The corresponding commitment, states, “I will endeavor to carry out the eight obligations described as a Bioethical Commitment for Person and Family Health. I will limit my own reproductive powers in accordance with national and international goals” (3, p.195).

I want to comment on three features of Potter’s discussion of responsibility. My purpose is more practical than scholarly: to begin to articulate a conception of responsibility that would help us to respond to anthropogenic climate change. The first feature is the aim or point of the responsibilities that Potter discusses. These responsibilities aim to contribute to the future survival and the improved life of human beings. Because Potter believes that continued population growth endangers the survival of human beings, he places great emphasis on controlling fertility. Although he recognizes some social dimensions and the role that education might have, his emphasis is on personal and familial responsibility.

The second feature concerns the ground of these responsibilities. I believe Potter grounds these responsibilities in humanitarian concerns and natural duties to reduce avoidable suffering, foster good lives, and allow civilization to develop. He often groups these concerns and duties under the term “acceptable survival.” I do not doubt that natural duties are part of the picture. I recognize the need for humanitarian responsibility – for a sense of duty to assist other human beings simply because we are human beings in a position to help – but this form of responsibility is incomplete. It needs to be complemented with a conception of the responsibility to address injustice.

² Some ideas in the middle part of this section are drawn from previous work (16).

The third feature that strikes me is that Potter's account does not emphasize a responsibility to address injustice. There is a difference between our responsibility to respond to naturally occurring harmful events and our responsibility to respond to injustice, especially injustice that we have contributed to or benefitted from.

Before her untimely death, Iris Marion Young was working on a book that became *Responsibility for Justice* (26). This book could have been entitled *Responsibility for Structural Injustice* because it focuses on people's responsibility to address and try to change structural injustice. Structural injustice is not brought about by a particular person's actions or vices. Nor is it brought about by a particular governmental policy. Structural injustice is brought about when social practices and processes work to unfairly threaten, dominate, and deprive some groups. In her book, Young uses the example of practices and processes that work to deprive some people of housing and make them vulnerable to homelessness (26). In the article from which the book developed, she uses the example of practices and processes in the global apparel industry (27).

My purpose here is to extend Young's insight and reasoning to climate injustice. Because much of the injustice of climate change results from practices and processes that cannot be traced to particular people and policies, I want to use Young's account to discuss people's responsibility, including my own, to address and try to change social practices and processes. I shall sketch her account as I use it to address four important questions about taking responsibility for climate change.

1. What should I (and people who are situated like me) take responsibility for?

Some of the injustice of climate change is due to individual actions that are intentionally harmful or reckless. The actions of executives at Exxon come to mind. Some of the injustice of climate change is due to explicit government policies. The corporate tax codes in the USA that favor oil extraction come to mind. But I want to suggest that much of the injustice of climate change is due to social structures, background conditions, economic systems, political processes, and accepted practices. It is due to human constructs that I sometimes refer to as social structures.

When Young reflects on justice, she follows John Rawls in focusing attention on social institutions rather than individual actions, but she also notes problems with his account of basic institutions (26). So, she develops a more nuanced and contextual account of social institutions and processes:

Depending on the issue, the structural processes that tend to produce injustice for many people do not necessarily refer to a small set of institutions, and they do not exclude everyday habits and chosen actions. Social structures are not a part of the society; instead they involve, or become visible in, a certain *way of looking* at the whole society, one that sees patterns in relations among people and the positions they occupy relative to one another. (26, p.70, italics in original)

I tried to look at climate change in this way and to make visible some of the unjust relations among people. Social structures encourage activities that emit greenhouse gases, and thereby change the probability of heat waves, flooding, droughts, vector-borne diseases, loss of livelihood, migration, and much more (28). Rarely can we trace a clear causal link between a particular action or policy and some individual's harm, but social constructs change the probability of harm, and they position certain people and groups in ways that place them at greater risk of harm. This is what I and other people need to take responsibility for: social structures that unfairly contribute to climate change and place people at risk.

2. Why should I (and people who are situated like me) take responsibility?

As I go about my life, I participate in, reinforce, and reproduce social structures that increase climate change and position other people unfairly. By relying on these social structures in the background, I do not intend to harm anyone. Nevertheless, my involvement grounds my responsibility to work to change these constructs. Young writes:

The ground of my responsibility lies in the fact that I participate in the structural processes that have unjust outcomes. These processes are ongoing and ought to be transformed so they are less unjust. Thus I share with others the responsibility to transform these processes to reduce and eliminate the injustice that they cause. My responsibility is essentially shared with others because the harms are produced by many of us acting together within accepted institutions and practices, and because it is not possible for any of us to identify just what in our own actions results in which aspects of the injustice that particular individuals suffer (26, p.110).

This responsibility is not grounded in or explicated by humanitarian concerns and natural duties – it is grounded in how I, and millions of other people, are related to the constructs that frame and shape climate change. Because of the way I am related to the social structures that create risks and position people, I have a shared responsibility to change those structures that unfairly disadvantage people, including people in distant places and future generations.

3. How should I (and people situated like me) take responsibility?

Because I and many other people are implicated in unjust social structures, we share some responsibility to change them. With respect to climate change, we need to change social structures so as to reduce greenhouse gas emissions and build resilience, especially for people and communities who are most affected. Appropriate actions may include capping emissions,

instituting carbon taxes, creating new forms of economic life, reducing the influence of money in politics, changing energy generation, reconstructing infrastructure, changing agricultural practices, creating insurance schemes for people at risk, developing more responsive public health systems, fostering more responsive networks of neighbors, reconceiving good lives, and so on. Changes like these require political action, in the best and broadest sense of that term.

Young views political action as “public communicative engagement with others for the sake of organizing our relationships and coordinating our actions” more justly (22, p.112). This form of engagement takes place in public spaces – indeed, it sometimes needs to defend or create public spaces. It relies on different ways to communicate meaning: conversations, written materials, arguments, plays, humor, photographs, protests, strikes, etc. We should not try to limit in advance the modes that this communication will use. Political action includes not only action that tries to change policies and programs, but also actions that citizens take in civil society. Young notes that those “who share responsibility for structural injustice may also find ways of making social changes ... through collective action in civil society independent of or as a supplement to state policies and programs” (26, p.112).

Since governments are often protected by autocrats, vested interests, and dominant parties, civil society is sometimes the better or only place to begin. I have often thought that many of us have a lot to learn from dissidents in Central Europe who emphasized the role of civil society (29). Action in civil society also allows and encourages building networks that span international borders, just as the effects of climate change do. In discussing how to respond to structural injustice, Young emphasizes the need for political action, but I sometimes wonder whether a life with this emphasis is a good life. Thinkers like Aristotle and Rousseau see political engagement and citizenship as deep expressions of our nature. Rousseau esteems and idealizes the role of citizens in cities like Geneva, and he sees political engagement as “the privileged *locus* of the good life” (30, p.334). That’s not my view, and I do not think it is Young’s view.

In Young’s view, political engagement aims to change aspects of relationships by changing how social structures position people with respect to one another. This broader view of politics comports with a view of human beings as relational; it recognizes our enmeshment in webs of relationships and how social structures shape those relationships. Political action is an attempt to adjust relationships, including relationships in civil society. However, successful attempts require a lot of awareness, skill, and work – there is no getting around that. The hope is that many people will find this awareness, skill, and work to be important aspects of a good life.

Although the response to structural injustice often finds expression in collective action, the responsibility is individual. Too often individual and social responsibility are opposed in some simplistic way: emphasis on one is taken to reduce the other in some mathematical way. Part of the merit of Young’s work is to reconceptualize the relationship between individual and social responsibility. A good part of the responsibility for climate change arises when individual people are structurally situated, have the capacity to communicate, and can act politically to try to bring about social change. However, the task is enormous – to generate political will to address injustices that are built into social forms of life. This daunting task leads to the next question.

4. How much responsibility should I (and people who are situated like me) take?

I do not have an exact answer to this question, but I want to mention three factors that seem morally salient. How much responsibility I should take depends on how serious is the problem. I believe that climate change is the most serious public health problem in this century. It exacerbates injustice. It threatens the lives and well-being of billions of people. It endangers the cultures and civilizations that groups have constructed together over time. The more serious the problem, the more responsibility I should take.

How much responsibility I should take also depends on my relationship to the social structures. The more privileged I am by the unjust structures that shape climate change, the more responsibility I should take. Many high-income countries and people have profited from and depend on high levels of greenhouse gas emissions. Although I am an ordinary person who tries to live a modest life, when I examine my own situation, I see that I am relatively privileged by the social structures and background conditions of the carbon-intensive society in which I live. Like many people in this society, I ride in automobiles, fly in airplanes, use a computer, take hot showers, and do many other things that depend on fossil fuels (31). At least in the current context, these and other activities have unsustainable carbon footprints that disadvantage other people, nonhuman animals, and plants. The amount of responsibility that I should take may also depend on the nature of the unjust structures. There may be important distinctions between some of the factors that place people at risk. Other things being equal, social structures that privilege race, for example, seem even worse than factors that privilege geographic location. In the United States, Black people face a higher risk of permanent displacement from hurricanes than white people (32). Part of the differential risk may be due to wealth, but existing distributions of wealth are shaped by past practices of discrimination and exclusion. Even if we cannot neatly separate different factors, the general point seems sound – the moral nature of the privilege is relevant to how much responsibility I should take. However, the general point seems to suggest that we must change many things at once: greenhouse gas emissions, economic inequality, racial exclusion, and much more. I will return to the implications of this point in the next section.

I extended Young’s account of responsibility for structural injustice to climate change because I think her account illuminates people’s responsibility to address that problem. Of course, I do not mean to contend that her account is the only account of responsibility that can help to guide responses to the problem. I’ll briefly compare and contrast her account with one other

account of responsibility to address climate change. In "It's Not My Fault: Global Warming and Individual Moral Obligations," Walter Sinnott-Armstrong takes up issues about responsibility and climate change (23).

In his essay, Sinnott-Armstrong focuses on a particular question: whether a person has a responsibility not to go out for a Sunday drive, just for fun, in a gas-guzzling car. After reviewing key features of causation and responsibility, he comes to the conclusion that there is no such responsibility. In many legal and everyday contexts, we only pick out an act as a cause if that act is intentional (or grossly negligent), stands out from the usual background conditions, and can be linked clearly to a particular harm. For example, a person striking a match may count as a cause of a house fire, but the presence of oxygen would not. With these features in mind, Sinnott-Armstrong claims that "we should not hold people responsible for harms by calling their acts causes when their acts are not at all unusual, assuming that they did not intend the harm" (23, p.335). He adds, "No storms or floods or droughts or heat waves can be traced to my individual act of driving" (23, p.336).

Young herself notes that the liability model of responsibility does not work very well when the conditions and structures are accepted as the background, the acts are not intentionally harmful, and it is difficult to link acts to particular harms (26). So, she develops a model of political responsibility for structural injustice as a complement to the liability model. Even when my individual act cannot be linked to a particular harm, I should take some responsibility for changing unjust social structures if I participate in and help to reproduce these structures.

In an indirect way, Sinnott-Armstrong comes to agree that a political conception of responsibility is more fitting and appropriate in the context of climate change. Toward the end of his essay, he writes, "My fundamental point has been that global warming is such a large problem that it is not individuals who cause it or need to fix it. Instead, governments need to fix it, and quickly" (23, p.343-344). Rather than focusing on individual acts like driving, he suggests we focus on "our real moral obligations, which are to get governments to do their job to prevent the disaster of excessive global warming" (23, p.344). Although this shift to political responsibility is promising, Young's account focuses attention in a more helpful way. Sinnott-Armstrong simply asserts that we have an obligation to get governments to change course, but Young's account helps to explain why many of us, depending on how we are situated, come to have and share responsibility to address climate change. Sinnott-Armstrong focuses on government responses, but Young emphasizes social structures, which include more than government policies and responses. Sinnott-Armstrong focuses on political action aimed at getting governments to take action, but Young has a broader view of political engagement, a view that includes engagement in civil society. When governments are unresponsive, political engagement may need to focus on civil society and build political will.

NEW ISSUES

To address the issue of climate change, I developed and emphasized ideas about justice and responsibility for injustice. However, these ideas and perspectives raise new issues and problems – that's probably a good thing. At their best, new approaches in science, philosophy, and social life solve or dissolve some old problems, but they also raise new issues (33). In this section, I sketch briefly two issues that my approach raises. I do not have the time and insight needed to offer definitive solutions, but I want to describe them in a way that encourages other people to help address them.

The first issue concerns the need for selection in ethical life. Towards the end of his life, John Rawls (1921-2002) wrote an account of international justice (34). Because he did not want to presuppose traditional views about the sovereignty of nation-states, he referred to his work as the Law of Peoples. In this passage, he makes explicit the ideas that motivate this work:

Two main ideas motivate the Law of Peoples. One is that the great evils of human history – unjust war and oppression, religious persecution and the denial of liberty of conscience, starvation and poverty, not to mention genocide and mass murder – follow from political injustice... The other main idea, obviously connected with the first, is that, once the gravest forms of political injustice are eliminated by following just (or at least decent) social policies and establishing just (or at least decent) basic institutions, these great evils will eventually disappear. (34, p.6-7)

With this motivation, Rawls tries to specify a conception of justice that will address these great evils. My purpose here is not to defend or criticize his conception, but to note the large number of serious injustices that we face. When we look at the world from a perspective of justice, we see many patterns of relations that we judge unjust.

To the list of injustices that destroy lives, we now need to add anthropogenic climate change. We also need to make visible the social-structural processes. Furthermore, we need to address connections between what seem at first to be disparate problems. For example, I already noted how climate change places racial groups and indigenous peoples at greater risk. So, we have a long list of serious injustices and complex connections between these injustices. To adequately address the risks of climate change, we must address greenhouse gas emissions, economic inequalities, systematic racism, legacies of colonialism, the role of money in politics, and other issues. These connections raise conceptual, ethical, and strategic questions about whether we should isolate or integrate our responses, but I want to focus on a narrower question: Are we, or at least people who are situated like I am, to take responsibility for addressing all these structural injustices and the connections between them?

I see three possibilities. The first possibility is the heroic response. We could claim that yes, all of us who are implicated in relevant social structures need to take responsibility to address all the serious injustices. I am not sure this would be ethically sound and practically effective. The second possibility is the opposite – to deny that involvement in social structures brings with it any responsibility to address social injustices. This seems ethically unsound and practically disastrous. The third possibility is to accept that ethical life needs to involve selection and emphasis. If we accept this possibility, we will need more discussion of guidelines for selection and better habits to counter the tendency to excuse ourselves from responding.

The second new issue concerns ethical relationships to the rest of nature. Young examines with great care and insight how humans are related, through social structures, to other humans, and she considers how to adjust those relationships. However, we can and should raise questions about our relationship to the rest of nature. Aldo Leopold does exactly that in his famous essay on “The Land Ethic” (4). By land, Leopold means much more than dirt and soil. He writes, “The land ethic simply enlarges the boundaries of the community to include soils, water, plants, and animals, or collectively: the land” (4, p.204). The land includes the whole biotic community that has developed on this earth system. Leopold tries to shift the relationship of humans “from conqueror of the land-community to plain member and citizen of it” (4, p.204). This new relationship requires humility and natural piety – a recognition of our dependence on a much larger community. Leopold’s essay – indeed, his whole book – culminates in his guideline: “A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise” (4, p.225-226). This guideline includes an aesthetic aspect and depends on an emotional response because Leopold does not believe “that an ethical relationship to land can exist without love, respect, and admiration for land” (4, p.223). A study of ecology should help to inform these attitudes, and the attitudes should help to inform our perceptions and actions.

I take it for granted that we can and should examine our relationship to the rest of nature. The issue that I am unsure about is how our relationship to nature connects to justice. Two views come to mind. The first view is that ideas of right and wrong are much broader and more encompassing than justice and injustice. Justice concerns relationships and harms to other people. It is related to fairness, forms of equality, recognition of dignity, and more. Reactions to injustice include resentment, indignation, forms of protest, etc. We can commit and react to injustice to future generations, but these are generations of human beings. In this view, we can ethically mistreat nonhuman members of the biotic community in many ways, but this mistreatment is strictly speaking not injustice. Injustice is narrower than mistreatment, and ethically appropriate treatment is broader than justice. Many ethical dispositions and attitudes extend beyond justice: compassion for non-human animals, gratitude for the earth system that provides a home, and reverence for the complexity, diversity, and workings of the biotic community.

The second view is that justice should extend beyond our relationships to other people, present and future. The evidence is mounting that primates, elephants, and other mammals have a moral sense (35). Mistreatment of these mammals involves not only cruelty, but injustice. Failure to try to understand and communicate with non-human animals is not only narrow behaviour, but a failure of respect that should count as injustice. Furthermore, the way we dominate, deprive, or even eliminate other species should count as injustice. In this view, as we expand our ethical relationships, we should also expand our view of justice.

I do not have enough time and insight to sort out these two views. Instead, I am beginning to think about a more limited question: do these two views overlap enough to support political action to address climate change? I think they do, but I recognize that I need help in addressing the underlying issues.

CONCLUSION

When Van Rensselaer Potter coined the English term “bioethics”, he conceived a field that would bring together biological understanding and ethical values to address global environmental problems. Following Potter’s broad vision of bioethics, I discussed ethical ideas that we need to address climate change. However, I developed and emphasized ideas about justice and responsibility in ways that Potter did not. In particular, I emphasized the need to take political responsibility for the structural injustices of climate change.

My emphasis on political responsibility brings us closer to the problem of social change – closer but not quite far enough. To change how we inhabit the world, we really need more and better ecological citizens. Ecological citizens would bring together ecological understanding and a deep sense of justice, and they would find effective ways to communicate that understanding and sense to their fellow citizens. However, ecological citizens face many obstacles. I’ll mention two that worry me. In our current world, the work of ecological citizens is dangerous. The NGO Global Witness documented that about three environmental defenders were murdered every week in 2018 (36). Many of the murdered activists were indigenous people, defending land and communities from extractive industries, agribusiness, logging, and dams. So, the first obstacle to address is the need to make the world safer for ecological citizens. The second obstacle is more abstract. Influenced by Young’s work (26,37), I think of politics as public engagement that tries to communicate to different people the need to organize our collective life more justly. I realize that this way of thinking about political engagement is somewhat distant from the actual practice of politics. So, the second obstacle to address is the need to change the dominant vision and practice of politics. Climate change shows how enormous the task is, and how short is the time that we have before us.

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