

Future People and Natural Resources¹

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Over the past few decades, political theorists have become increasingly concerned with the current rate of depletion of the Earth's natural resources and long-term environmental damage. Many liberal writers have argued that future people too have a right to these natural resources.² However, the liberal theories of justice that might be used to consider the issue of conservation are often developed in a kind of timeless world where the horizon is limited to a single generation.³ In this paper, I aim to show that liberal theories of justice can generate obligations of conservation for future people, even for those who will only live in the very distant future.

In attempting to set out the rights of members of future generations to natural resources, liberal political theorists have encountered a variety of problems. First, there has been significant controversy over whether members of future generations can have any rights based in some liberal theory of justice. Some theorists have pointed out that these future people do not yet exist and so they cannot be said to currently have interests that can be harmed; and having interests is a precondition for having rights. In addition, the identity of future generations depends on what natural resource policy is pursued. So even if future generations are denied claims to natural resources altogether, it does not appear that they can complain of being harmed since *they* would not have existed under a different policy. Also, if justice is seen as offering fair terms of rational cooperation it does not appear that the obligations to members of distant future generations can be seen as obligations of justice.

Even if members of future generations can be said to have some rights to natural resources, other problems arise. The first is the problem of uncertainty. As we think about the more distant future, our estimates of how many people will exist, what kind of interests they will have, and how our current policies will affect them necessarily become hazier. Second, even when thinking about the rights of the current generation's children to an equal share of resources, many liberals have struggled to balance the respect for the liberty of the parents and the equality-based claims of the children.

² Henry George writes, "If all existing men were to unite to grant away their equal rights [to land], they could not grant away the rights of those who follow them. For what are we but tenants for a day?" See Henry George, *Progress and Poverty* (New York: Robert Schalkenbach Foundation, 1979), 262.

³ For a brief discussion of this issue see the introduction of Peter Laslett and James S. Fishkin, eds., *Justice between Age Groups and Generations, Philosophy, Politics, and Society, Sixth Series* (New Haven: Yale University Press, 1992). Laslett and Fishkin admit that some authors have attempted to extend their theory beyond a single generation. But they argue that these attempts have been generally unsuccessful.

These difficulties have led many thinkers to abandon the framework of a liberal justice as a way of thinking about the problem of future generations. Instead, a variety of thinkers (some of whom are otherwise sympathetic to liberal ideas) have turned to communitarian theories,⁴ democratic stewardship theories,⁵ theories of humanitarian obligations,⁶ theories of human flourishing,⁷ or theories that focus on the inherent value of natural resources⁸ as foundations for the obligation to conserve natural resources for future generations. I do not deny that these other approaches may have merit. However, I want to argue that there are significant obligations for conserving natural resources that can be derived using the framework of liberal justice.

The difficulties that liberal theorists have faced are the result of several shortcomings in their discussion of the rights of future people. First, there has been insufficient distinction drawn between the rights of future people to natural resources as opposed to other forms of wealth. Second, some theorists have tried to think of the rights future people have before they are born. I argue that the proper temporal perspective entails considering the rights of these future people *once they already exist* and working backwards through time to see the consequences of these anticipated rights. Third, the theoretical focus has often been on the obligations of generations rather on the obligations of specific *individuals* within a generation. This focus has led theorists to fail to consider the obligations individuals of the same generation have *to each other* regarding natural resources. In addition, insufficient attention has been paid to the obligations of parents to provide for the natural resource claims of the children they bring into the world. Finally, the crucial fact that generations overlap has all too often been wholly abstracted from or simply given insufficient attention.

By avoiding these pitfalls, I aim in this paper to demonstrate that every person, regardless of when she is born, has a right to a share of natural resources that is equal to

⁴ See for example Avner De-Shalit, *Why Posterity Matters : Environmental Policies and Future Generations*, ed. Andrew Bennan, *Environmental Philosophies Series* (New York: Routledge, 1995).

⁵ See for example Dennis F. Thompson, "Democracy in Time: Popular Sovereignty and Temporal Representation," *Constellations* 12, no. 2 (2005).

⁶ See for example Brian M. Barry, *Democracy, Power, and Justice : Essays in Political Theory* (New York: Clarendon Press, 1989).

⁷ Ronald Dworkin, *Life's Dominion : An Argument About Abortion, Euthanasia, and Individual Freedom* (New York: Knopf, 1993), 78.

⁸ For a review of some examples see Chapter Eight of Wilfred Beckerman and Joanna Pasek, *Justice, Posterity, and the Environment* (New York: Oxford University Press, 2001).

that which anyone else receives (or to equivalent resources), and that current inhabitants of the earth have obligations to conserve natural resources for future generations.

This paper is divided into four sections. I begin in the first section by introducing a simple two generation case. In section two I consider the rights of the members of the second generation once they already exist. I turn in section three to consider the obligations of the members of the first generation to conserve natural resources for the second generation. In section four I extend the argument to multiple generations. I conclude by summarizing the argument and considering directions for future research.

A Simple Two Generation Case

Since the normative controversies surrounding the rights of future generations are so complex, it is useful to begin exploring them in an unrealistically simplified context; one where we can abstract from the problems generated by natural resource development and natural resource heterogeneity. Imagine a group of inter-stellar explorers who have come upon a new planet that has a single, homogeneous, perfectly divisible, useful, and scarce natural resource called manna.⁹ Assume that any claims of the discoverers of the planet to the manna have been respected and that the remaining manna is what I call a purely natural resource.¹⁰

Besides these assumptions also assume that:

1. The explorers can have offspring
2. All new individuals in a particular generation are born at the same time and emerge as fully grown adults.
3. There are no technological advances (either manna related or otherwise).
4. The manna is a non-renewable natural resource whose full quantity is known and which can be immediately harvested in its entirety by the original explorers.

⁹ The interstellar explorers and the example of manna is taken in modified form from Ackerman. See Chapter Two of Bruce Ackerman, *Social Justice in the Liberal State* (New Haven: Yale University Press, 1980).

¹⁰ Purely natural resources are those resources that remain after any individual who can be fairly assessed as contributing to the value of the resource has been appropriately compensated. I discuss future people in greater detail in Chapter One of Mazor, "A Liberal Theory of Natural Resource Property Rights."

5. The manna is not absolutely necessary for the survival of the explorers.¹¹
6. The manna need not be developed in any way through the use of immovable capital improvements.
7. Besides the manna, many other goods and services are produced in the economy some of which, but not all of which, require manna as an input.¹²

I will elaborate on each of these assumptions as they become relevant to the arguments.

Many of the critics of the liberal approach to the rights of future people have focused their attention on criticizing the basis of the rights of members of distant generations; individuals whose lives do not overlap temporally at all with those of the Earth's current inhabitants. Before tackling this difficult issue, a more basic question is whether the newly-born (when they reach the appropriate age)¹³ each have a right to a share of natural resources that is equal to the share enjoyed by each currently living adult. In the next section, I argue for the affirmative answer to this question.

The Natural Resource Rights of the Members of the Second Generation

In order to consider this question, let us make several additional simplifying assumptions. First, assume for now that there are only two generations. The original explorers (which I will refer to as Gen 1ers) and their offspring (Gen 2ers). The Gen 2ers do not themselves have any children. Second, let us assume that the generations' lives overlap. The third (fantastical) assumption is that the Gen 2ers are not born as a result of the actions of the Gen 1ers but simply appear (all at once and fully-grown). This assumption is meant to focus our attention on the rights the Gen 2ers have merely in virtue of their claim to equal concern as opposed to any claims they may have against the Gen 1ers by virtue of the fact that the Gen 1ers choices brought them into existence. Finally, let us assume for simplicity that there is an equal number (N) of Gen 1ers and Gen 2ers (so the total eventual population of the planet is 2N). In this simplified

¹¹ We can imagine that the spaceship can provide for the basic survival needs. Alternatively, we can imagine that there is some other abundant natural resource that can be used for this purpose.

¹² Intuitively, the analogy I have in mind is between manna and a non-renewable natural resource like oil.

¹³ When exactly a newborn or fetus is vested with different rights is a highly controversial topic that I set aside here. I am interested in whether the newly-born have rights to an equal share of manna once they reach the appropriate age.

scenario, do the members of the second generation have any rights with respect to the planet's manna?

Note that I am only concerned here with the rights of the Gen 2ers to natural resources. I am not concerned with their rights to some kind of broader equal start or to a just level of inheritance from the previous generation except insofar as these issues bear on the question of natural resource property rights. In addition, I am assuming for the purposes of this paper that the right way to respect equal natural resource claims (if equal claims can be shown to exist) is through an equal division which grants every person an identical amount of manna.¹⁴ The question I am interested in here is whether they in fact have any sort of claims to the natural resources that are equal to those of the Gen 1ers.

NORMATIVE SIGNIFICANCE OF EARLIER ARRIVAL

The first question is whether the Gen 1ers should receive possession of the manna simply by virtue of their earlier arrival time on the planet. To focus on the early arrival time, it is useful to consider an analogy suggested by Casal and Williams between future people and late-arriving individuals.¹⁵ Imagine that instead of two generations, we have two groups of explorers: early-explorers and late-explorers. The early-explorers know that the late-explorers (whose spaceship, let us imagine, had veered off course through no fault of their own) will be arriving at the planet in 10 years. Casal and Williams suggest that once these late-explorers arrive, they should each receive a share of natural resources that is equal to the share appropriated by each of the early-explorers. They then draw an analogy between these hypothetical late-arriving individuals and children.

While the case of the Gen 2ers is different in important ways from the late-explorers case, the early arrival time of one group of individuals is common to both. In order to hone in on the issue of late-arrival, assume that even though the late-arriving explorers will not be able to make any use of the manna until they arrive, they can monitor the planet, communicate with the original explorers, and even have a weapon

¹⁴ I have argued for this elsewhere. See Chapter Five of Mazor, "A Liberal Theory of Natural Resource Property Rights." I argued that the ideal distribution is one which eliminates any unjustified discrepancies in benefits individuals receive from their manna. However, given practical and philosophical difficulties with meeting this standard, an giving each person an equal amount of natural resources is *in practice* the best we can do.

¹⁵ Paula Casal and Andrew Williams, "Rights, Equality and Procreation," *Analyse & Kritik* 17, no. 1 (1995): 99-100.

that can reach the planet in a matter of hours (and the original explorers have a similar weapon that can reach the late-arriving explorers.) These assumptions are meant to ensure the circumstances of justice (on most liberal account of these circumstances)¹⁶ and the general preconditions required for having rights are met for both the early-explorers and the late-explorers from the moment the original explorers land on the planet.

The earlier arrival time might serve as a reason for unequal manna shares in two ways. First, it might be seen as generating special (i.e. greater) claims to natural resources. For example, some right-libertarian might argue that the early-explorers have special rights in virtue of being the first to be in the process of executing a rational plan of action with the manna.¹⁷

However, elsewhere I argued against such a right-libertarian notion.¹⁸ I also provided a libertarian and liberal egalitarian argument for the view that individuals ought to have equal claims to natural resources.¹⁹ There is nothing about early arrival which challenges either of those arguments since early arrival (as separate from discovery) does not give any of the original explorers any labor-based or effort-based claims to the manna.

Now, one could concede that the late-explorers have equal natural resource claims, but argue that the best way to respect equal claims is through a first possession system. I dismissed the possibility elsewhere.²⁰ And note that in the case at hand, even the most plausible (but still unconvincing) arguments for first possession seem inapplicable. The late-arriving explorers (though no fault of their own) clearly do not have any kind of equality of opportunity to appropriate the manna.²¹ In addition, though they cannot use the manna until they arrive at the planet, the late-explorers are clearly not

¹⁶ Note that I am not taking a position here on the validity of the Humean position that the threat of mutual harm is one of the circumstances of justice. I am simply allowing for this possibility.

¹⁷ Jan Narveson, "Libertarianism Vs. Marxism: Reflections on G.A. Cohen's Self-Ownership, Freedom, and Equality," *The Journal of Ethics* 2, no. 1 (1998).

¹⁸ See Chapter Two of Mazor, "A Liberal Theory of Natural Resource Property Rights." I point out in response to Narveson that second-arrivers also have plans for natural resources. And the main obstacle that second arrivers face in Narveson's story to carrying out their rational plans is the property rights of the first arrivers. But it is question begging to appeal to the status of being in the process of carrying out plans in order to ground the first arrivers' property rights when it is those property rights which are preventing the second-arrivers to do what is needed to gain property rights themselves.

¹⁹ See Chapter Two and Chapter Three of Ibid.

²⁰ See Chapter Four of Ibid.

²¹ Hillel Steiner, "The Rights of Future Generations," in *Energy and the Future*, ed. Douglas MacLean and Peter Brown (Totowa, NJ: Rowman and Littlefield, 1983), 163.

indifferent over the original explorers' manna appropriation as might be true of some natural resources which someone is the first to possess.

Given that the early arrival time does not generate special claims to natural resources and given that equal division is the proper way to respect equal claims, each of the explorers (whether early-arriving or late-arriving) ought to have rights to an equal share of the planet's manna. Since the Gen 2ers did not choose to be born late, their late appearance on the planet is morally arbitrary from a liberal egalitarian perspective. Although the case of the Gen 2ers is not fully analogous to that of the late-arriving explorers, the thought experiment of the early and late explorers does suggest that an early arrival time, by itself, is not a sufficient reason to give Gen 1ers more manna than the Gen 2ers.

THE NON-EXISTENCE PROBLEM

However, even if we agree that the late-arriving explorers should receive an equal share of manna, we cannot necessarily infer from this that the Gen 2ers ought to receive an equal share. Though Casal and Williams try to draw a general analogy between late-arriving individuals and children,²² there are a variety of important distinctions between the cases. One crucial difference is that the late-arriving explorers *already exist*, and ex hypothesi have the characteristics and powers needed to have rights, when the *original* decision is made about how to divide the manna. The Gen 2ers, on the other hand, do not exist when this decision is made, and, on basically all liberal accounts of the preconditions required for an entity to have rights,²³ thus cannot be said to have any rights when the manna is originally divided. Steiner, recognizing this point, writes, "Future persons have no rights against present persons. And [future persons] can therefore have no rights that present persons conserve anything for them."²⁴

²² Among the differences which I have assumed away here are that children are created as a result of their parents' actions. I will return to this difference later.

²³ Beckermann and Pasek argue that individuals must have interests in order for them to have rights. Beckerman and Pasek, *Justice, Posterity, and the Environment*, 15-23. Steiner argues that they must be able to demand or decline their right to something in order to have rights. Steiner, "The Rights of Future Generations," 154-56. Ackerman argues that an individual must be able to demand justification from others and to defend her own pretension to power in order to be a full-fledged member of the political community. Ackerman, *Social Justice in the Liberal State*, 73.

²⁴ Steiner, "The Rights of Future Generations," 156.

I concede in this chapter without argument that the Gen 2ers can have no “pre-existence rights.”²⁵ However, the Gen 2ers can press justice-based claims against the Gen 1ers *once they exist*. Admittedly, it is not clear what rights the Gen 2ers have once they appear. We might hold that they have a right to an equal share of natural resources. But does this mean a right to an equal portion of the *total original* manna of the planet or merely a right to an equal portion of the manna that remains *once they appear*? And what if there is no manna left at all once they appear? Do they have a right to anything in that case?

To begin answering these difficult questions, imagine that at the point when the Gen 2ers appear, the Gen 1ers have already consumed half of the planet’s manna. What should be done with the remaining manna? One possibility is that it should be divided equally among everyone who currently exists, with the Gen 1ers receiving half of the remaining manna (on top of the manna they already consumed) while the Gen 2ers receive the other half of this remaining manna. Another possibility is that the Gen 2ers should be entitled to *the entirety* of the remaining manna.

I contend that dividing the remaining manna among the Gen 1ers and the Gen 2ers would be unjust. As I argued elsewhere²⁶, we should not aim at achieving equal division *at every particular point in time*. Rather, I argued in line with Dworkin that we should evaluate equality of shares from a synoptic point of view; ensuring that each person has an equal share of natural resources with which to lead her life. And there is no reason to insist that a person’s lifetime share should be equal only to the share received by members of that person’s generation. Rather, it seems as though it should be equal to the share that *any* of a person’s contemporaries receive (whether in an earlier generation or a later generation.) Even though their lives do not *fully* overlap temporally, once the Gen 2ers exist, they each stand in relations of justice to all of their contemporaries (including the Gen 1ers) and can ask that their life be treated with a concern that is equal to the concern shown to Gen 1ers lives

So if the Gen 1ers tried to claim half of the remaining manna, the Gen 2ers could rightly complain. They could argue that this would provide each of the Gen 1ers $3/(4N)$

²⁵ For an argument for this position and for a discussion of theorists who hold the opposite view, see Chapter Two of Beckerman and Pasek, *Justice, Posterity, and the Environment*.

²⁶ See Chapter Five of Mazor, "A Liberal Theory of Natural Resource Property Rights."

of the planet's original manna with which to lead their lives while each of the Gen 2ers would only receive $1/(4N)$. If equal concern implies equal natural resource claims and equal natural resource claims are best respected through equal division, and equal division requires (assuming away sources of unjustified discrepancies in incremental manna share benefits) that each person receive an equal amount of manna with which to lead her life, then the Gen 2ers can rightly argue that not granting them all of the remaining manna would fail to treat them with equal concern. The conclusion that the remaining half of the planet's manna should go to the Gen 2ers critically relies on the claim that equal shares should be viewed synoptically and the claim that a person's life should be treated with a concern equal to that given to the lives of any of her contemporaries, even those of a different generation.

A more difficult case arises if we imagine that the Gen 1ers consume *all* of the planet's manna before the Gen 2ers are born. Again, I have already conceded that the Gen 2ers have no rights to the manna before they are born. After they are born, I have argued that they have equal claims to natural resources. But in this example, there simply are no natural resources left once the Gen 2ers already exist. Thus, it seems (counter-intuitively) that if the Gen 1ers are voracious enough in their consumption of manna, they can avoid sharing any of it with the Gen 2ers.

One response to this kind of problem, taken by Steiner, has been to call into question the property rights of the Gen 1ers to any objects which still exist when the Gen 2ers appear that have been created with the manna. Since the Gen 2ers did not consent to the Gen 1ers appropriation of the manna, Steiner argues they have no reason to respect the titles to the property in the objects that the Gen 1ers created with the manna.²⁷ Presumably, to get the Gen 2ers' consent to respect this property, the Gen 1ers' would have somehow to compensate the Gen 2ers, perhaps even by giving them something equivalent to an original share of the manna.

But even if we accept Steiner's controversial argument, it does not lead to a principled commitment to compensation by the Gen 1ers to the Gen 2ers. Imagine that the Gen 1ers simply burn all the manna in order to enjoy the spectacle before any of the Gen 2ers come into being. Since this does not generate any physical property, on

²⁷ Steiner, "The Rights of Future Generations," 159-64.

Steiner's account there are no grounds for the Gen 2ers to complain. Yet this seems implausible. Intuitively, it seems as though the Gen 2ers should nevertheless receive some resources from the Gen 1ers in this case.

To focus on the fundamental issue at hand, let us assume that though all the manna is gone, the Gen 1ers have, through their labor but without using any manna, created other goods (call them *widgets*). Further assume that both the Gen 1ers and the Gen 2ers agree that a widget is equivalent in value to one unit of manna. In addition, let us assume for now that each Gen 1er has widgets worth at least as much as $1/(2N)$ of the planet's original manna when the Gen 1ers appear. The question I want to ask is whether any transfer of widgets is justified from the Gen 1ers to the Gen 2ers even though all of the manna is gone and the Gen 2ers did not exist when it was originally consumed.

This is a particularly difficult question and is one which I cannot discuss in full detail in this paper since it requires a more detailed discussion of the foundation of the proposition that people have equal claims to natural resources than can be given here.²⁸ Briefly, what is important about equal claims to natural resources is that every person should receive an equal amount of resources which they did not labor to create with which to lead their life. In a world where both the Gen 1ers and the Gen 2ers agree that a widget is just as valuable as a unit of manna, we could achieve this result by insisting that the Gen 1ers transfer to each of the Gen 2ers widgets equivalent to $1/(2N)$ of the original planet's manna.²⁹

Generalizing from the widget example, if no natural resources are available once the Gen 2ers appear, then the Gen 1ers have justice-based obligations to provide the Gen 2ers with property rights to **equivalent resources**. While there are some libertarian objections to this conclusion that I will not consider here, note that a variety of practical obstacles make real world situations far more similar to the case where half the planet's

²⁸ I discuss it more detail in the chapter from which this paper is drawn. See Chapter Eight of Mazor, "A Liberal Theory of Natural Resource Property Rights."

²⁹ Each Gen 1er would receive $1/N$ of the manna minus widgets that each finds equivalent to $1/(2N)$ of the planet's manna, and so each would receive *net* labor-free resources equal to $1/(2N)$ of the planet's manna. The Gen 2ers would receive widgets they each find equivalent to $1/(2N)$ of the planet's manna.

manna is left over.³⁰ And in this case it is far less controversial that the Gen 2ers should receive the remaining manna.

So *once they exist* the Gen 2ers have a right to either manna or (if manna is unavailable) to other resources sufficient to equalize the share of labor-free resources that are devoted to the life of each. However, I have not yet shown that liberal justice can generate obligations of *natural resource conservation*. After all, I have not discussed any justice-based prohibitions on the Gen 1ers consuming all of the planet's manna before the appearance of the Gen 2ers. Disagreement has only arisen over whether or not the Gen 1ers must then provide the Gen 2ers with equivalent resources. I intend to argue that there can be justice-based obligations of manna conservation *before* the Gen 2ers are born. The discussion of such obligations will have to wait until I have said more about the obligations of the Gen 1ers to each other.

EQUIVALENT RESOURCES

The next issue I want to discuss is how to determine what constitutes being given equivalent resources when there is insufficient manna left and people cannot agree on what resources count as equivalent. As I argue in this section, the envy-free condition I appeal to elsewhere³¹ to solve a similar problem cannot be used in the multi-generational context because the consumed manna is obviously non-transferable. I make the case in this section that since the Gen 1ers have the option to ensure that the Gen 2ers get appropriate resources by leaving sufficient manna for them, the Gen 1ers ought to provide the Gen 2ers with resources that the Gen 1ers could have reasonably anticipated would equalize the share of labor-free resources devoted to the life of each person.

It is important to emphasize that in many cases, granting the Gen 2ers equivalent resources in the homogeneous natural resource case will be straightforward. If there is manna available for sale, a person can simply be given sufficient wealth to buy (if she wants) the amount of manna that she is entitled to (i.e. enough to buy $1/(2N)$ of the

³⁰ These include the sheer difficulty of consuming all the resources at once, the fact that greater extraction is increasingly costly, the financial incentive for producers not to saturate the market at any particular point in time, and the fact that not all natural resources have even been discovered.

³¹ See Chapter Six of Mazon, "A Liberal Theory of Natural Resource Property Rights."

original stock).³² Of course, if the Gen 1ers consume a great deal of manna, the remaining manna is likely to be relatively expensive, and so giving each of the Gen 2ers equivalent resources will be very costly. However, *determining* what resources would count as equivalent is not difficult in this case.

The real problem arises when there is not enough manna available to provide for all the Gen 2ers who want to actually own $1/(2N)$ of the original manna. As long as there is some manna left, this problem is unlikely to occur since the price of manna will keep rising in response to the Gen 2ers attempts to buy it. But if we imagine that there are a large number of people who are **manna-adorers**, that is, who would value receiving a portion of manna more than any amount of wealth,³³ a manna shortage could occur even while there is still some manna remaining.

This problem can also occur a fortiori in the extreme case where the Gen 1ers have consumed all the manna before the Gen 2ers appear. In this case, it will clearly be impossible to simply use the price at which manna is available for sale to determine what constitutes equivalent resources. In earlier sections I avoided this problem by assuming that everyone can agree that some resources (widgets) are exactly equivalent to manna. But it is far more realistic (and problematic) to assume that the Gen 1ers and Gen 2ers will not all agree on a single resource that is exactly as valuable as the manna, especially in the absence of a market for manna.

Elsewhere I argued for envy-freeness as the right standard for determining equality of resource shares.³⁴ The problem with extending the envy-free requirement to this case is that the appropriate transfer of resources is not possible. Imagine that the Gen 2ers place a far greater value on manna than the Gen 1ers placed on it, and that otherwise their desire for other resources (e.g. the widgets) are the same. After the Gen 1ers consume all the manna, it is impossible to achieve a result where no one envies the labor-free resource share of someone else. We could aim at making the Gen 2ers unenvious by requiring a transfer of widgets sufficiently large to ensure that the Gen 2ers

³² Note that if not everyone actually wants to buy $1/(2N)$ of the manna, it is possible to give all the Gen 2ers equivalent resources even when significantly less than half of the planet's original manna stock remains.

³³ This might seem like an extreme assumption. However, it is meant to model the kind of value certain people place on natural resources like the Grand Canyon or certain types of animals. For some people, I think the assumption that they would not accept any amount of money instead of being able to enjoy these natural resources is not so unreasonable.

³⁴ See Chapter Six of Mazor, "A Liberal Theory of Natural Resource Property Rights."

do not prefer the Gen 1ers' bundle ($1/N$ of the manna minus the widgets) to their bundle (the widgets). But this would leave the Gen 1ers envious of the share of the Gen 2ers.³⁵ We run into an analogous problem if we try to make the Gen 1ers unenvious through insisting on a small transfer of widgets. The difficulty arises because different individuals place a different value on manna (relative to other resources) and the transfer of manna is not possible in this case (since the manna has already been consumed).

What then should be the right standard for equality of labor-free resource shares in this case? One consideration is that the Gen 1ers are in far greater control of the distributive outcome than the Gen 2ers are. While the Gen 1ers can ensure if they want that each of the Gen 2ers will get $1/(2N)$ of manna, the Gen 2ers do not exercise a similar control over the quantity of manna that will be available for the Gen 1ers. So if we are interested in increasing the likelihood that each person will receive an equal share of labor-free resources, it is better to make the party that can better control the outcome responsible for transferring enough resources to make the other envy-free. After all, the Gen 1ers can completely avoid any danger of ending up envious by simply leaving half of the planet's manna for the Gen 2ers.

On the other hand, it seems unappealing to insist that the Gen 2ers should *always* receive enough resources to ensure that they do not envy the Gen 1ers' labor-free resource shares. This would have the effect of strongly discouraging the Gen 1ers from *ever* consuming more than half of the planet's manna, even when their doing so seems intuitively appealing. Imagine that when thinking about how much manna to consume before the Gen 2ers appear, the Gen 1ers have very good reason to expect that the Gen 2ers will benefit from the manna far *less* (relative to other resources) than the Gen 1ers would. If so, then the Gen 1ers would be better off by consuming the manna and giving the Gen 2ers equivalent resources. And the Gen 2ers would be no worse off. It might then seem intuitively appealing to allow the Gen 1ers to consume more than half of the planet's manna in this case.

However, there is always the *possibility* that the Gen 2ers will actually turn out to be manna-adorers. If this turned out to be the case, the Gen 1ers would be reduced to

³⁵ Since the Gen 1ers place a lower value on the manna than the Gen 2ers and they value the widgets the same, the Gen 1ers would prefer (in retrospect) the bundle of resources received by the Gen 2ers (the widgets) to their bundle ($1/N$ of the planet's manna minus the widgets)

penury by having to transfer enough resources to at least try to make the Gen 2ers unenvious of them.³⁶ So even if the Gen 1ers could reasonably place a tiny probability on the outcome that the Gen 2ers would turn out to be manna-adorers, they would nonetheless have a prudential incentive based on risk aversion to never consume more than half of the planet's manna. And note that so far I have implicitly assumed here that the Gen 2ers would be truthful about how highly they valued the manna. In fact, the Gen 2ers will have an enormous incentive to inflate the value they would have gotten from a physical manna share.³⁷

To avoid these problems while still favoring the Gen 2ers, I suggest that the Gen 1ers have an obligation (once the Gen 2ers exist) to provide them with resources that the Gen 1ers *could have reasonably anticipated while they were consuming the manna* would make the Gen 2ers unenvious of the Gen 1ers' share of labor-free resources. This ensures that the Gen 1ers will have every incentive to only consume more than half the planet's manna if they could reasonably anticipate that they will be able to provide the Gen 2ers with sufficient resources so that they will not be envious. While more could be said about the topic of equivalent resources (e.g. what counts as "reasonable" anticipation), such issues touch on broader philosophical problems, and so I will not explore them in greater detail here.³⁸

THE NON-IDENTITY PROBLEM

There is an important further challenge to the Gen 2ers claims to resources (whether manna itself or equivalent resources) that must be considered. The assumption that the Gen 2ers simply appear independently of the actions of the Gen 1ers, an assumption which was meant to set aside obligations of parents to their own particular children, has also abstracted from a different problem. Namely, in a more realistic world,

³⁶ Imagining that the Gen 1ers buy insurance against the possibility of the Gen 2ers being manna adorers might help. But no insurance (even if we ignore the various problems with this insurance market) would be sufficient to fully protect the Gen 1ers in case the Gen 2ers turn out to be manna-adorers.

³⁷ Similar problems would arise if we required that individuals receive full compensation for the full sentimental value they placed on objects that were damaged in tort cases. In such a case, taking any action which might cause damage to such a strongly sentimentally valued object could reduce a person to penury. It would place unreasonable and highly costly restrictions on people's actions.

³⁸ One reason for not devoting more space to this problem here is that in the vast majority of real world cases, a significant portion of the natural resource will remain in which case it will be perfectly clear what constitutes equivalent resources (giving each of the Gen 2ers enough wealth to buy, if they wanted, an equal portion of the resource).

the policy that the Gen 1ers pursue may well affect *who* will be born. Since the pscho-physical makeup of new individuals critically depends on which egg is fertilized and which sperm does the fertilizing, very small change in the chain of events (including a policy change) can affect the identity of the Gen 2ers.

The Gen 1ers could seize on this possibility to challenge the analogy between the late-arriving explorers and the Gen 2ers, and thus to call into question the claims of the *particular* Gen 2ers who are born to manna or equivalent resources. After all, the late-arriving explorers' identity does not depend on what policy the early-explorers pursue. So we can straightforwardly think about how different policies will affect the late-explorers' lives and can intelligibly say that the original explorers' over-consumption of manna harms the late-arriving explorers. However, since different policies may lead to the birth of different individuals, it seems difficult to argue that a depletive policy carried out by the Gen 1ers harms the particular Gen 2ers who end up being born. After all, *those particular* Gen 2ers might well not exist under a different policy. So assuming a life without manna is worth living, The Gen 1ers might argue that the Gen 2ers have no way of claiming to have been made worse off by the depletive policy. If they are not harmed by the policy of total manna depletion, it is difficult to see how they can legitimately claim that they the Gen 1ers ought to give them any resources. This is an example of Parfit's well-known "non-identity problem."³⁹ In fact, Parfit himself considers this problem in the context of evaluating the justice of a policy that depletes natural resources.⁴⁰

When Parfit discusses the non-identity problem in this context, he focuses on the effects on members of distant generations. The reason seems to be a doubt about whether policy changes would necessarily change the identity of *everyone* born in, say, 10 years. Parfit argues that we can, however, be reasonably certain that the cumulative effects of the small differences created by a policy change would ensure that the identity of virtually everyone, say, two hundred years from now will be different.⁴¹ Dworkin echoes Parfit's focus on the distant future by holding that, although claims of justice apply

³⁹ Derek Parfit, *Reasons and Persons* (Oxford: Clarendon Press, 1984), 351-79.

⁴⁰ Derek Parfit, "Energy Policy and the Further Future: The Identity Problem," in *Energy and the Future*, ed. Douglas MacLean and Peter Brown (Totowa, NJ: Rowman and Littlefield, 1983).

⁴¹ *Ibid.*, 170.

among contemporaries, the non-identity problem implies that there cannot be obligations of justice among distant generations.⁴²

How long it would take for a particular policy change to affect the identity of *everyone* who is born is a controversial empirical question that is virtually impossible to answer. Fundamentally, however, there is nothing about the non-identity problem that requires that *everyone's* identity be different. Even a small policy change today can lead to thousands if not millions of wholly different people being born a year from now.⁴³ As long as we (hypothetically) have information about who is affected and who is not, we could make an argument for denying the rights to an equal share of manna (or equivalent resources) of those who would not otherwise exist. The non-identity problem can thus be relevant even when considering the natural resource claims of those born a few years or even a few months from now. It thus seems perfectly plausible for the Gen 1ers to appeal to the non-identity problem in order to attempt to deny the resource claims of at least some of the Gen 2ers (those whose sperm and egg combination was influenced by the Gen 1ers manna consumption policy).

In order to consider this argument, let us imagine that the Gen 2ers still simply appear, but that due to some unspecified causal mechanism, the exact psycho-physical make-up of *all the* Gen 2ers is affected by the policy that the Gen 1ers choose with regard to how much manna is consumed. This allows us to consider the non-identity problem while avoiding the complications of the parent/child relationship and the epistemic difficulty of isolating whose identity was in fact affected by the policy.

With this in mind, imagine once again that the Gen 1ers have consumed all of the planet's manna before the Gen 2ers are born, and consider the claims of the Gen 2ers. Parfit would argue the Gen 2ers cannot criticize the Gen 1ers actions by appealing to the effects of the Gen 1ers depletive policy on the Gen 2ers' lives. He argues that the only objection to the policy can come by thinking about the hypothetical individuals who *would have been* born under a less depletive policy.⁴⁴

⁴² Dworkin, *Life's Dominion : An Argument About Abortion, Euthanasia, and Individual Freedom*, 77-78.

⁴³ Although a significant change might be required to ensure that a different egg is fertilized the change required to affect which particular sperm does the fertilizing seems miniscule.

⁴⁴ Parfit, "Energy Policy and the Further Future: The Identity Problem," 174-75.

One could attack Parfit's argument here by showing that it has intuitively implausible implications.⁴⁵ However, Parfit might argue that our intuitions are simply not reliable guides in thinking about the paradoxical non-identity problem. Another way to attack Parfit's argument is to show that in that harm in the sense that Parfit defines it is not what we should be concerned about. Several papers have been written attempting to make this case.⁴⁶ In this section, however, I aim to show that the non-identity problem simply does not arise in this case because Gen 2ers claim to manna or equivalent resources does not rely on an argument that they *have been harmed by the depletive policy*. Instead, their claim is that they *are being harmed* by not being given manna or equivalent resources. And the claim of current harm is not susceptible to the non-identity problem.

In order to evaluate whether the Gen 2ers have been harmed, we have to answer the question, harmed relative to what? Answering this question requires taking up the proper temporal perspective. We might be tempted to start thinking about the problem at the point where the Gen 1ers are deciding whether or not to pursue the depletive policy and asking if pursuing the depletive policy will harm the Gen 2ers. But this is the wrong temporal perspective. After all, at the point when the Gen 1ers are deciding whether or not to pursue the depletive policy, the Gen 2ers do not exist and as I have conceded, cannot have any rights that can be violated in any way. They thus cannot be harmed in the relevant sense at this point. To think about the question of harm, we need to start at a later point, one at which the Gen 2ers (whoever *they* turn out to be) already exist.

Consider the justice-based claims of *particular* Gen 2ers who have *already been born after the depletive manna policy* and who are not given any resources by the Gen

⁴⁵ Consider the situation where the Gen 1ers come to the planet as couples each of which has two children, and that they do not plan to have any more children given current policies. Now imagine that someone suggests a new policy that any child born beyond the second can rightly be made the slave of her parents (with the caveat that her life must be at least barely worth living.) Given this policy, the couples each decide to have a third child (and assume that under any different policy, they would not have had the third child.) One cannot appeal to the well-being of a different child that *would have been born under a different policy* in criticizing the slavery of the third children. Ex hypothesi, no other children would have been born. So if there is something objectionable about this outcome, the source of the objection must primarily be in how the policy affects the lives of the third children. And if an objection could be made based only on the effects on these third children, then it seems generally that, contrary to Parfit's argument, objections *can* be made that appeal only to the effects on the lives of people who, admittedly, would not have otherwise lived.

⁴⁶ See for example Rahul Kumar, "Who Can Be Wronged?," *Philosophy & Public Affairs* (2003).

1ers. These Gen 2ers can concede that they have not been harmed by the depletive policy. But they could rightly point out that they are *not asking for compensation or restitution for a past harm*. Rather, their claim to resources from the Gen 1ers is based on the idea that they *now* have a claim to an equal share of labor-free resources with which to lead their lives. Though they can concede that they have not been harmed by the depletive policy, they can rightly claim that they are *being harmed now* by not being given the resources they are due on the basis of equal concern. While the non-identity problem can call into question claims for restitution or compensation by those who otherwise would not have existed, it cannot be used to dismiss complaints of *current harm*. And this, I argue, is exactly how the Gen 1ers' refusal to provide equivalent resources to the Gen 2ers should be seen. So the non-identity problem cannot be used by the Gen 1ers to deny the Gen 2ers' resource claims.

There is, however, a nagging problem that arises once we consider the possibility that the Gen 1ers might alter their depletive policy choice *in anticipation* of the Gen 2ers' rightful claims to equivalent resources. As I will argue below, providing equivalent resources can sometimes be very costly. If so, then at the very least the Gen 1ers might have prudential incentives to conserve some of the manna. But if the Gen 1ers conserve some of the manna in anticipation of the Gen 2ers' claims, then the *particular* Gen 2ers who would have made the claims to equivalent resources under the wholly depletive policy will not be born. We might think that this places a limit on how strongly the Gen 2ers could press their claims. We might view the particular Gen 2ers who would be born under the depletive policy as *hypothetically consenting* to not pressing their claims to equivalent resources to the point where the Gen 1ers would have had an incentive to actually change the depletive policy that was responsible for those particular Gen 2ers' very existence.

But this idea of hypothetical consent is based on exactly the kind of mistake that Parfit accuses those who ignore the non-identity problem of making. Namely, it requires us to think of individuals as somehow "out there" waiting to be born and able to grant or withhold consent.⁴⁷ Consider *when* this hypothetical consent would have to be given.

⁴⁷ See Parfit, "Energy Policy and the Further Future: The Identity Problem." Barry echoes this when he writes of a misguided "tendency to think of [the unborn as] inhabiting 'never never land' while waiting

Once the individuals already exist, they have no reason to consent to limit their claims. They only have a reason to consent to limit their claims *before they are born*. But unless we think of them as being in some realm waiting to be conceived, then it is not at all clear how we can think of them as giving any kind of consent to limiting their future claims. So although the Gen 2ers identity may well be affected by the policy pursued by the Gen 1ers, this does not undermine the claims of the particular Gen 2ers who are born to an equal amount of manna or equivalent resources.

The Obligation to Conserve

I turn now to considering the obligation of the Gen 1ers to conserve manna for the Gen 2ers. It might seem as though this obligation would straightforwardly follow from the requirement to provide equivalent resources. If the Gen 1ers could reasonably anticipate that a large portion of the Gen 2ers will be manna-adorers for whom no amount of resources would be sufficient to compensate for not having manna, it might seem as though they would have a justice-based obligation to conserve manna for them. But, as I argue in this section, this is not correct. The reason is that the choice of whether to conserve or not occurs *before* the Gen 2ers exist. Since the Gen 2ers have no rights at this point, there cannot be a justice-based obligation *to the Gen 2ers* conserve manna. However, I argue that once we think of the Gen 1ers individually and carefully delineate each of their obligations to the Gen 2ers after they appear, it becomes apparent that the Gen 1ers can have justice-based obligations *to other Gen 1ers* to conserve natural resources for the Gen 2ers even before the Gen 2ers exist.

PROHIBITORY INJUNCTIONS AND THE OBLIGATION TO CONSERVE

Imagine that at the point when the Gen 1ers are choosing how much manna to consume, they know that a good portion of the Gen 2ers will be manna-adorers. They thus know that if they consume all the manna, they will not be able to provide these Gen 2ers with equivalent resources. Do they have a justice-based obligation to the Gen 2ers to conserve the manna?

anxiously for the chance to be born.” Barry, *Democracy, Power, and Justice : Essays in Political Theory*, 507.

It is clear that once the Gen 2ers are born, the Gen 1ers will be unable to meet their full justice-based obligations if they consume all the manna. It also seems clear that the Gen 1ers are acting reprehensibly by knowingly taking an action which will make them unable to meet a justice-based obligation later on. But is this enough to generate a justice-based obligation to conserve the manna?

The problem, as I have mentioned, is that the Gen 2ers have no right to the manna or equivalent resources before they exist. However, someone might argue this is not a problem by appealing to the following seemingly analogous situation: Imagine that A enters into a contract to provide B with a certain piece of property to B in 10 years. B does not have a right to the property *until after 10 years are up*. But at the end of 10 years, if A does not have the property, he is properly required to give B equivalent resources. Now, if it is determined that there would be no equivalent resource that A could give B if he fails to deliver the property, A might be rightly prevented from destroying or using the property *before* the end of 10 years. This idea forms the basis for the contemporary legal practice of a prohibitory injunction.⁴⁸ The injunction against A forcing him to refrain from destroying or consuming the property is *not* based on any rights to the property B has *before* the end of 10 years. Rather, it is justified because 1) it can be foreseen that B *will have* the right to the property and 2) it can be foreseen that A will be *unable* to provide B with appropriately equivalent resources if A destroys or consumes the property before the end of 10 years. We might think that Gen 1ers can be properly prohibited from consuming more than an equal original share of manna on the basis of an analogous argument.

While this analogy has some initial plausibility, it is ultimately flawed. Although it is true that the prohibitory injunction against A is not based on the current *property* rights B has, it is still an obligation grounded in justice that is ultimately based on *some broader right of B's* to the protection of her legitimate interests. Since unlike B the Gen 2ers do not yet exist and have no current interests, they cannot be said (on most liberal accounts of the preconditions for rights) to have even the rights necessary to generate this prohibitory injunction against the Gen 1ers. So while both B and the Gen 2ers lack the

⁴⁸ Microsoft® Encarta® Online Encyclopedia 2009, "*Injunction*" ([cited April 23 2009]); available from <http://encarta.msn.com>

appropriate *property* rights at the appropriate time, the Gen 2ers, unlike B, have *no rights at all* at that time.

This is a disappointing conclusion for those interested in securing a liberal justice-based obligation for conservation. However, there are two reasons to be hopeful. First, the difficulty of providing the Gen 2ers with resources that are appropriately equivalent to an equal original share of manna can generate a strong prudential motivation for the Gen 1ers to conserve the manna. By consuming all the manna now, the Gen 1ers will generate obligations that will be enormously expensive to meet (i.e. trying to provide equivalent resources to the manna-adoring Gen 2ers once they are born).⁴⁹ More importantly, I argue below that the Gen 1ers may well have a justice-based obligation *to each other* to conserve the manna. This argument, however, requires a more detailed account of the obligations of the individual Gen 1ers to the Gen 2ers and in particular, what happens when a particular Gen 1er fails to meet his obligation to the Gen 2ers.

THE RESIDUAL LIABILITY TO MEET GEN 2ERS' CLAIMS

So far in this paper I have followed the lead of most other political theorists writing on the topic of intergenerational justice who tend to regard generations as monolithic. To be fair, at some points in an argument, thinking in terms of generations is a useful abstraction to make. Although I have been careful to refer to individuals (e.g. Gen 1ers or members of the first generation) I too have been assuming that the Gen 1ers are acting in some kind of unity (e.g. pursuing a depletive policy). But this kind of talk, though useful in abstracting from certain complications, is inconsistent with the liberal focus on the individual. It is *individuals* who have rights to use natural resources and it is individuals who have particular obligations. When political theorists worry about the *first generation* consuming all the natural resources, they often do not actually mean there was some collective policy binding on all the members of the first generation that individuals must consume all natural resources. Rather, they are talking about the ways

⁴⁹ Simply because it is impossible to fully provide equivalent resources to the Gen 2ers does not release the Gen 1ers from the obligation to try. There may in fact be side constraints that provide a limit to the obligations of the Gen 1ers to the Gen 2ers (e.g. prohibitions against slavery, concerns about abject poverty). However, it seems clear that if the Gen 1ers knowingly consumed the manna while knowing that the manna-adorers with rights to equivalent resources that they will not be able to meet are going to appear, they will certainly not lead a comfortable life.

in which individuals choose to exercise their natural resource property rights. Similarly, when they speak about the obligation of the *first generation*, they mean do not mean some obligation of some collective body, but rather they are referring to the obligations of each of the individuals making up the first generation. While talking in terms of generations may be initially useful, eventually it is necessary to examine the rights, incentives, and obligations of each of the individuals who make up a particular generation. Doing so can illuminate certain obligations that cannot be seen simply by looking at intergenerational obligations.

Once we consider the Gen 1ers as individuals, the first questions that arise are who exactly has an obligation to which Gen 2er, and what is the content of these obligations? If Gen 2er are *not* born to particular parents (as we have been assuming so far), there seems to be no reason why any particular Gen 1er should a special obligation to a *particular* Gen 2er. It seems uncontroversial to hold that each of the Gen 1ers has an obligation to contribute equally towards meeting the legitimate claims of each of the Gen 2ers once they are born.⁵⁰ Since each of the Gen 1ers received an equal amount of manna (1/N of the planet's original manna), the ultimate goal of ensuring that each person receives an equal share of labor-free resources with which to lead their lives will best be met by equally sharing the burden of providing for the Gen 2ers. Otherwise, we might have one Gen 1er responsible for providing equivalent resources for a manna-adoring Gen 2er while another Gen 1er is responsible for providing resources for a Gen 2er who does not particularly value manna. These two Gen 1ers will clearly not have receive an amount of net labor-free resources with which to lead their lives.

The next question is what happens when one of the Gen 1ers fails to meet her obligation to the Gen 2ers? I argue that the other Gen 1ers bear a responsibility for making up at least part of the shortfall for the Gen 2ers. That is, Gen 1ers bear a *residual liability* for the Gen 2ers claims even after contributing their equal amount to meeting these claims.

⁵⁰ One could argue that those with more wealth generally should contribute more. The reply to this argument would be similar to the reply the argument that those with more wealth should receive a smaller amount of manna to begin with. Namely, if the differences in wealth is just (e.g. based on more effort by one person), then it seems wrong to penalize the wealthier person by making her contribute more manna. For a fuller discussion of this point, see Chapter Five of Mazor, "A Liberal Theory of Natural Resource Property Rights."

Imagine that there are only two Gen 1ers, Anthony and Agnes and to avoid using fractions throughout this long example, let us assume there are 24 units of manna on the planet. Initially, Anthony and Agnes each receive 12 units of manna. Anthony decides to save 6 units in order to ensure be able to meet his portion of the obligation to the Gen 2ers. He also decides to turn the other 6 units into a manna preserve for his personal enjoyment. Agnes on the other hand, decides to consume all of her manna. When the Gen 2ers appear (call them Ben and Beatrice), they each rightly demand 6 units of manna or equivalent resources. Anthony dutifully turns 3 units of manna to Ben and the other 3 units of manna to Beatrice. So Beatrice and Ben now each have half of their claims. When they ask Agnes for the other half or equivalent resources, she points out that she has no manna and directs them back to Anthony. Anthony objects that he has already borne his equal share of the obligation to the Gen 2ers. If Agnes has no manna, he argues, she needs to contribute resources equivalent to 3 units of manna to both Ben and Beatrice.

As long as Agnes can do this, there is no particular problem. But imagine that Agnes does not have sufficient resources to meet Ben and Beatrice's demand for equivalent resources. This generates an interesting situation that pits legitimate claims against each other. Anthony can rightly argue that he has already contributed half of Ben and Beatrice's share and that the other half should be contributed by Agnes. Beatrice and Ben can argue that equal concern requires that they each should also receive 6 units of the original planet's manna, not 3. Clearly, Agnes is to blame in this situation. But ex hypothesi there may simply no morally acceptable way of making Agnes provide equivalent resources to Ben and Beatrice.⁵¹

Deciding how *exactly* to resolve this situation is beyond the scope of this paper. But I want to argue that Anthony should be forced to provide at least *some* more manna to Ben and Beatrice. The general situation where individuals have legitimate claims to resources that cannot be met by the person with the duty to provide for these claims is not so unusual. For example, it often happens that though someone suffers harm through no fault of their own in a tort case, they cannot receive sufficient compensation because the

⁵¹ We may be unwilling to violate some moral side constraints (e.g. we are unwilling to force Agnes into servitude to Beatrice and Ben.) And it is possible that even if there were no moral side constraints, Agnes would still be unable to meet Ben and Beatrice's claims.

person who was responsible for the harm simply has insufficient funds to meet their legitimate claims. There is a case to be made that in such cases, the rest of society should contribute at least part of the shortfall.

There are, however, important objections to this proposal. First, we often cannot be sure that the victim could not have avoided the harm by taking greater care either to protect herself or to avoid dealings with those who do not have sufficient means to compensate her in case of harm. Second, without a very clear account of what is due to the victim, those making the determination of compensation might be tempted to overcompensate the victim (especially since for some harms, no amount of money can make a person whole again). If Agnes were to commit a general tort against Ben and Beatrice, Anthony might appeal to these arguments to justify not contributing to compensating Ben and Beatrice even though Agnes cannot compensate them.

But in the case at hand, Anthony cannot appeal to such arguments. First, at least in this case when there is manna left (Anthony's manna preserve), what is required to meet Ben and Beatrice's obligations is very well-defined. More importantly, unlike the tort case, Ben and Beatrice could not have in any way avoided the current situation in which there is a shortfall in what they are rightly owed. Their (unsatisfied) claim was generated simply by virtue of their being born.

In fact, Ben and Beatrice's case for manna from Anthony may be even stronger if it is the case that Anthony had the duty and the power to prevent Agnes from wasting her manna. However, since it is not clear what Anthony's obligations would be in this case, I will ignore this line of argument for now (since it is complicated and even without it, it seems as though Ben and Beatrice have a strong case for Anthony sharing some more manna with them.)

This does not necessarily mean, however, that Anthony should give up his entire remaining manna to Ben and Beatrice. After all, this would mean that Anthony would have less manna to lead his life than Ben and Beatrice do. But Ben and Beatrice may well be justified in asking Anthony to give up to another 2 units of manna of the planet's original manna (on top of the 6 units he has already given up.) This would ensure that Anthony, Ben, and Beatrice each receive 4 units of the planet's manna to lead their lives (while the profligate Agnes receives 12 units of the planet's manna.)

I will not take a position on exactly how much manna Anthony should have to give up. For my purposes, it is enough that he should have to give up something. And I think the case for him giving up something is strong. After all, although it may not be Anthony's fault that Agnes did not save her manna, it is certainly not Ben or Beatrice's fault either. So it does not seem right that they alone should bear the full burden of the consequences of Agnes's irresponsibility (by receiving only 3 units of the planet's manna each while Anthony enjoys 6). Rather, it seems that Anthony should bear some *residual liability* in case that other Gen 1ers (such as Agnes) do not meet their responsibility to the Gen 2ers.

RESIDUAL LIABILITY AND THE OBLIGATION TO CONSERVE

This residual liability on the part of each of the Gen 1ers to meet at least part of the shortfall in the claims of the Gen 2ers forms the basis of an overlooked justice-based obligation on the part of Gen 1ers to conserve natural resources for the Gen 2ers. Although it is an obligation to conserve resources *for the Gen 2ers*, it is not an obligation which is owed *to the Gen 2ers*. Rather it is owed to other Gen 1ers who can rightly demand that they not be put in a situation where they are forced to enjoy fewer natural resources than their potentially profligate fellow Gen 1ers.

In the example discussed above, Anthony can rightly demand that Agnes bear her fair share of the obligation to the Gen 2ers. Anthony could make the following argument:

- 1) Beatrice and Ben will appear and will have legitimate demands for manna or equivalent resources
- 2) Each person should only bear an equal portion of the burden for providing for the legitimate claims of the Gen 2ers
- 3) If Agnes fails to provide manna or equivalent resources to Ben and Beatrice, Anthony will have to bear more than his equal portion of the burden for providing for the Gen 2ers.
- 4) Therefore, Agnes must either refrain from using one half of her manna or must set aside sufficient equivalent resources in order to ensure that Anthony does not bear more than his fair share of the burden.

This argument can generate obligations of *manna conservation* if we assume that Anthony and Agnes can predict that Ben and Beatrice will be manna-adorers and so there

would simply be no resources that are equivalent (in the envy-free sense) to manna. In this case, there would be no way for Agnes to provide appropriately equivalent resources to Ben and Beatrice and so Anthony would have the right to insist that Agnes refrain from consuming half of her manna share (i.e. that she conserve 6 units of manna for Ben and Beatrice.) Generalizing this argument to the case of the Gen 1ers and Gen 2ers, assuming every the Gen 2ers can be predicted to be a manna-adorer, the Gen 1ers would have obligations to each other to each conserve $1/(2N)$ for the each of the Gen 2ers (i.e. half the planet's manna in total.)

There are several things to note about this conclusion. First, I have shown there can in fact be justice-based duties on the parts of members of earlier generations to conserve natural resources for members of future generations. The content of these duties involves conservation for future people but the obligations themselves are owed to contemporaries. Second, a person can always meet these obligations by forbearing from consuming an appropriate portion of her manna so there is no concern that I have introduced obligations that are impossible to fulfill. Third, these obligations of conservation are sensitive to the expected preferences of the future people. If it can somehow be predicted that Beatrice and Ben will value manna in purely economic terms, there is no need for Anthony to insist that Agnes save actual physical manna. She can also save some resources that can be predicted to be equivalent for Beatrice and Ben. This is intuitively appealing. We would not to force the first generation to conserve natural resources that they might find extremely valuable if it is likely that the next generation would be perfectly satisfied with some equivalent resources.

There is, however, an important problem. If we imagine that there is only one Gen 1er, she will have no obligation to conserve manna. More importantly, in the case of multiple Gen 1ers, they can all mutually agree to release each other from the obligation to conserve. It thus seems that the obligation to conserve that I have developed is an obligation to the wrong party.

There are several responses to this objection. First, and most importantly, I by no means deny that even the single Gen 1er has a *moral* obligation to conserve manna for the Gen 2ers. And she also has a more general moral obligation not to put herself (through profligate behavior) in a situation where she will not be able to meet her justice-

based obligations. Second, by not conserving any manna for the manna-adoring Gen 2ers, she condemns herself to a future life of near penury since any extra wealth she accumulates above some moral minimum would go to the Gen 2ers. This gives her strong prudential motivations to conserve. In the more realistic case of the multiple Gen 1ers, *every* Gen 1er would have to be willing to accept this life of penury and be willing to commit these moral wrongs in order for the justice-based obligations to be mutually renounced. And this would never occur in the real world. So while I have not derived an obligation to conserve natural resources that applies in all possible cases, this may be the best that can be done given the liberal ideas about the circumstances of justice. And it is more of a justice-based obligation of conservation than liberals have previously acknowledged.

Multiple Generations

So far I have developed the theory in the context of a simple two-generation case. In this case, I have argued both that future people have rights, once they exist, to an equal share of natural resources or equivalent resources and that under certain circumstances, current people have an obligation (to each other) to conserve natural resources for future people. However, one of the thorniest problems in addressing the question of the rights of future people from the liberal perspective has been showing why a particular collection of individuals has any obligations to respect the rights of those whose lives do not overlap with theirs temporally. I refer to these individuals as members of distant generations or **distant future people**. Many theorists have concluded that there can only be broader moral obligations (e.g. humanitarian ones) to these distant future people, not obligations of justice.⁵² However, I argue that once the fact of overlapping generations is taken into account, it can be shown that contemporaries have justice-based claims to each other to conserve resources for even members of distant generations.

Brian Barry uses a powerful analogy to discuss the question of intergenerational justice. He sees generations as analogous to individuals placed on islands which are situated along an ocean current. Goods can be dispatched only down-current. Barry

⁵² For example, see Beckerman and Pasek, *Justice, Posterity, and the Environment*, 107-08.

rightly questions whether obligations of liberal justice can apply in such a situation.⁵³

Indeed, if generations were like individuals on the islands that Barry describes, then it might be plausible to think that there are no intergenerational obligations of justice (at least not on many liberal accounts of the circumstances of justice.) But generations overlap, and though Barry as well as Beckerman and Pasek think they can safely abstract from this important fact, I argue that this overlap is crucial for evaluating whether or not current individuals have justice-based obligations to conserve resources for members of distant generations.

Not all theorists have abstracted from the fact that generations overlap. For example, contractarian libertarians like David Gauthier have appealed to the overlap between generations as a key reason for why members of distant generations can hope to have natural resources when they are born as a matter of justice. Gauthier argues that there is an agreement about (among other things) natural resources between all the generations that overlap at a particular time. He then argues that this agreement would be stable over time and gets extended to the members of the new generation as they reach the proper age. This agreement ensures that the oldest generation does not take too many natural resources relative to the currently alive youngest generation. And since it is stable over time, it ensures that generations continue to conserve natural resources. It thus ensures that even distant generations will have natural resources once they become the youngest generation.⁵⁴

However, Avner de-Shalit rightly criticizes this theory. He points out that if we merely rely on power (as Gauthier does), it is unlikely that the agreement would work in the way Gauthier describes. Although de-Shalit has several criticisms of Gauthier's view, the most powerful is that there is no reason why all the currently alive people could not agree to simply use up all the planet's resources (e.g. simply burn the manna for the spectacle). It may be true that previous generations have saved the manna for them. But these previous generations are dead and have no more power. It is also true that the current generations will have to face future generations in a bargain over the planet's remaining meager resources. But at that point the burned manna will be gone and no

⁵³ Barry, *Democracy, Power, and Justice : Essays in Political Theory*, 499.

⁵⁴ For a summary of Gauthier's position and a criticism of it, see De-Shalit, *Why Posterity Matters : Environmental Policies and Future Generations*, 89-99.

longer “on the table” so to speak. If the relative power of the parties is what rightly determines how the remaining meager resources should be allocated, then it is unclear that the newly born individuals (who were not around when the manna was used up) would receive any compensation for the fact that the manna was gone.⁵⁵ Although I think Gauthier is right to think about the fact that generations overlap, overlapping generations will not be sufficient to lead to conservation in a theory which uses the bargaining power of the different parties to determine the requirements of justice.

However, I do think within more principled liberal framework, the fact of overlapping generations combined with the other liberal theoretical commitments can protect the rights of distant generations. To see this, imagine that there will be four generations on the manna planet, the Gen 1ers, the Gen 2ers, the Gen 3ers, and the Gen 4ers. Also assume that each generation overlaps temporally only with the adjacent generation(s). So for the Gen 1ers, both the Gen 3ers and the Gen 4ers are “distant”. Again, I will continue to assume for now that all members of a generation simply appear fully grown at the same time (rather than being born to particular parents).⁵⁶ I will continue to assume that there are an equal number (N) of individuals in each generation.

To focus on the issue of conservation, let us assume for now that it can be anticipated that every individual born will manna-adoring. In the two-generation case, each of the Gen 1ers was required to conserve half of her original share of manna (i.e. consume $1/(2N)$ and save $1/(2N)$ for the next generation). The extension to four generations seems straightforward. The Gen 1ers divide the manna among themselves but now they each only consume $1/(4N)$ of the manna and pass on the other $3/4^{\text{th}}$ s to the Gen 2ers who each consume $1/(4N)$ and pass on the remaining portion to the Gen 3ers who each consume $1/(4N)$ and pass the final quarter to the Gen 4ers who each also consume $1/(4N)$ of the manna. This solution is suggested by the requirement of transitivity. If each generation’s members are entitled to the same amount of manna received by the members of the previous generation, then it seems that, by transitivity, the Gen 4ers will be entitled to the same amount of manna as the Gen 1ers.

⁵⁵ Ibid., 96.

⁵⁶ Alternatively, one could assume that parents have particular children but hold the position that everyone ought to be equally responsible to provide for the claims of future people. I continue to make the spontaneous generation assumption both for simplicity and because I generally support the parental responsibility position.

But there is an important objection here. Each generation only overlaps with temporally adjacent generations. So the circumstances of justice (on at least the Humean account) only ever apply between adjacent generations. It is not immediately obvious what obligations the Gen 1ers could have to the Gen 3ers since their lives do not overlap.

Imagine that one of the Gen 1ers suggests that he and his fellow Gen 1ers should each consume $1/(2N)$ of the manna instead of $1/(4N)$. They will still, he argues, be able to provide an equal share to anyone who lives at the same time as them (i.e. the Gen 2ers). They will thus be able to meet their obligation of justice.

However, there is an important flaw in this logic. To see the problem, imagine that the Gen 1ers proceed to turn “their” $1/(2N)$ of planet’s manna into beautiful manna preserves for their own exclusive personal use which they plan to destroy at the end of their life. When the Gen 2ers appear, the Gen 1ers dutifully hand over to each of them $1/(2N)$ of the planet’s manna (i.e. the same share as they used themselves.) The Gen 2ers, however, could rightly complain. They could rightly point out despite appearances, they have not been given an equal share of manna with which to lead their lives. After all, they could point out that when the Gen 3ers arrive, the Gen 3ers are going to rightly demand from the Gen 2ers a part of the manna that the Gen 2ers received (or equivalent resources), and this is a demand that the Gen 1ers will not have to face since they will already be dead. Since the Gen 2ers will have to share some of their manna with the Gen 3ers they will not be able to enjoy the full half of the planet’s original manna that the Gen 1ers left them and thus will have less manna with which to lead their lives than the Gen 1ers did.

Faced with this complaint, the Gen 1ers might offer to hand over an additional $1/(6N)$ of the manna to each of the Gen 2ers. This way the Gen 2ers could each keep $1/(3N)$ for themselves and give $1/(3N)$ to the Gen 3ers when they appear to satisfy the Gen 3ers’ demands. But the far-sighted Gen 2ers would rightly point out that this is not sufficient. This is because the Gen 3ers will not only demand $1/(3N)$ of the manna. After all, the Gen 3ers will have the legitimate demands of the Gen 4ers to contend with. The Gen 2ers would rightly argue that in addition to the $1/2$ of the planet’s original manna that the Gen 1ers were planning on giving them, they need another $1/4$. This would allow them to consume a fourth themselves (which is what the Gen 1ers would then consume)

while meeting the legitimate needs of the Gen 3ers who would rightly demand 1/2 of the original planet's manna so that they could consume 1/4th and give the Gen 4ers 1/4th as well. This is exactly the original solution suggested by the requirement of transitivity.

So the Gen 1ers have an obligation *to the Gen 2ers once they appear* to provide enough manna (or equivalent resources) to ensure that *all the remaining generations* are able to consume a share that is as large as each of the Gen 1ers. Although the Gen 1ers will never directly have to confront the demands of the Gen 4ers, they will have to confront the demands of the Gen 2ers who can anticipate that they will have to confront the demands of the Gen 3ers who can anticipate that they will have to confront the demands of the Gen 4ers. If we assume that individuals in all generations are manna-adorers, and we consider the obligations of the individual Gen 1ers to each other, we can, as before, derive duties on the part of the Gen 1ers to conserve manna for the Gen 4ers. The logic used in this four generation example could be extended to any number of generations as long as we the generations are connected by a chain of overlapping generations.

Now there is an objection that once we consider a very large number of generations (approaching infinity), each generation's members is only able to use a miniscule amount of natural resources.⁵⁷ One possible response to this problem is that it is a particular artifact of assuming that the individuals simply appear rather than being born to particular parents. As I argue elsewhere⁵⁸, this objection does not apply to the case where children are born to particular parents and we hold that there is parental responsibility for meeting the natural resource claims of children.

However, a second response is that there is nothing particularly disturbing about this outcome from the perspective of justice. If a new batch of individuals simply appear over time for a very long time independently of anyone's actions, it is indeed true that each individual will only be able to consume a very small amount of manna. But since arrival time has no normative significance in terms of justifying differential shares of manna (as I argued in an earlier section) this situation does not seem to be different

⁵⁷ Michael Otsuka is one of the many theorists to point out this problem. See Michael Otsuka, "Self-Ownership and Equality," in *Left-Libertarianism and Its Critics : The Contemporary Debate* ed. Peter Vallentyne and Hillel Steiner (New York: Palgrave, 2000), 164.

⁵⁸ I examine the case of parental responsibility in the full chapter from which this paper is drawn. See Chapter Eight of Mazon, "A Liberal Theory of Natural Resource Property Rights."

normatively from one where there are simply a very large number of initial explorers on the planet but no future individuals come into being. In such a situation, each individual would rightly be entitled to an equal (though miniscule) portion of natural resources. Although the paltriness of individual manna shares is unfortunate, there is nothing particularly unjust about this outcome.

Another objection is that we have to predict the number of future people in order to know how much manna each person can use today. And this is something that is nearly impossible to predict. The first response is that we will simply have to take our best estimate. Surely, the response cannot be to simply ignore our obligations to conserve altogether or pretend that these obligations do not exist. The second response is that this problem too is an artifact of the unrealistic assumption that children simply appear. One of the conclusions that I draw when considering the case of parental responsibility elsewhere⁵⁹ is that the need to predict the total number of future people is far less pressing when parents are viewed as having the core obligation to meet the natural resource claims of their children. Unfortunately, I cannot discuss the parental responsibility case in the context of this paper.

Conclusion

Clearly, much more needs to be said both about natural resource property rights and about intergenerational justice in order to be able to analyze the real-world conservation problems facing the world.⁶⁰ Although these questions remain unanswered here, several important controversies have been considered in this chapter. I began by arguing that once individuals exist, they have rights to shares of natural resources (or to resources more generally) that are equivalent to those of the members of the previous generation. Late arrival time is no reason for an unequal share, nor is the fact of initial non-existence, nor is the fact that one's identity often depends on the natural resource property rights regime pursued by the previous generation. Resources should generally be judged to be equivalent from the perspective of what earlier generations could have reasonably anticipated would be equivalent resources for later generations.

⁵⁹ Ibid.

⁶⁰ I explore some of the issues surrounding natural resource property rights in my dissertation. See Ibid. I also raise broader questions of intergenerational justice there.

I then argued that by considering the *intragenerational* obligations, it is possible to derive an obligation to conserve natural resources for future people. All adults have a residual liability to children when those who are supposed to provide for them fail to do so. Those who wish to avoid being asked to shoulder more than their fair share can thus rightly insist that their contemporaries put aside appropriate resources for the next generation. When future generations place a special value on natural resources, this can translate into justice-based obligations of conservation.

I also considered the case of several generations. I argued that even distant future people ought to have a share of natural resources (or equivalent resources) that is equal to that of current individuals. This is due to the fact of overlapping generations, a commitment to the equality of natural resource claims among contemporaries, and an application of transitivity. The current people will be confronted with the demands of the members of the next generation who can anticipate being confronted with the demands of the members of the following generation and so on. Once we assume proper foresight, it becomes clear that current individuals cannot avoid respecting the natural resource claims of distant people through a policy of over-depletion. Thus, principles of liberal justice need not be abandoned when thinking of the problem of future generations, and in particular equal natural resource claims are due to both contemporaries and to future people.

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