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# On environmental justice, Part II: non-absolute equal division of rights to the natural world

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## Abstract

This article considers whether any interpretation of the idea of equal claims to the natural world can resolve the Canyon Dilemma (i.e. can justify protecting the Grand Canyon but not a small canyon from mining by a poor generation). It first considers and ultimately rejects the idea of subjecting natural resource rights to an intergenerational equal division. It then demonstrates that a pluralist theory of environmental justice committed to both respect for the separateness of persons and to the collective good can justify a type of intergenerational non-absolute equal division of natural resource rights that can navigate the Canyon Dilemma.

**Keywords:** Environmental justice; equal division; fair division; collective good; respect for the separateness of persons

In a companion article (Part I; Mazor 2022), I posed the following intuitive challenge to several prominent theories of environmental justice: A compelling theory of environmental justice should condemn the Grand Canyon's mining, even when those who would benefit from the substantial resulting wealth are relatively poor (e.g. Americans living at the turn of the 20th century). But a compelling theory of environmental justice should not protect all parts of the natural world from destructive use. Had similarly substantial wealth been discovered in an unremarkable small canyon, a compelling theory of environmental justice should condone its mining by a poor generation.<sup>1</sup> I then argued that several prominent theories of environmental justice are unable to navigate this seemingly simple intuitive conservation dilemma.

At the end of Part I, I suggested that recognizing the natural world as something to which every person, present and future, has equal, substantive claims has

<sup>1</sup>For a full statement of this dilemma, see Part I, section 1.

significant potential for navigating this Canyon Dilemma.<sup>2</sup> However, I did not defend a specific interpretation of this equal-claims idea, nor did I explain how this idea can distinguish the Grand Canyon case from the small canyon case. I also did not explain why granting present and future people any type of equal claims to the natural world is justified. These are the tasks I take up in this article.

I will argue that *equally dividing* the natural world among all people, present and future, can serve as a key part of the solution to the Canyon Dilemma. By ‘equal division’, I do not mean dividing the natural world into discrete physical portions. Instead, I propose equally dividing *property rights* to the natural world. I will demonstrate that this type of equal division can grant future people rights to an unmined Grand Canyon but not to an unmined small canyon (due to the Grand Canyon’s greater value to future people in its unmined state).

However, a commitment to equal division cannot solve the Canyon Dilemma by itself. As I will demonstrate, there are cases in which equal division would forbid the small canyon’s mining, even when this mining seems intuitively attractive. Yet this need not lead us to abandoning equal division altogether. I will show that a commitment to *non-absolute* equal division of the natural world (which allows for partial deviation from strict share equality for the sake of alleviating disadvantage) *can* navigate the Canyon Dilemma.

But why should we subject the natural world to non-absolute equal division? I will argue that this allocation rule can be justified by a pluralist theory of environmental justice committed both to respect for the separateness of persons and to the collective good.<sup>3</sup> Respect for the separateness of persons is the liberal idea that each individual’s life should be granted a certain primacy over other-regarding moral considerations (Zwolinski 2008). I will argue that this value can justify equal division of property rights to the natural world. Yet a concern with the collective good can justify a deviation from strict share equality in certain cases (e.g. in the small canyon case but not in the Grand Canyon case). Thus, a pluralist theory of environmental justice committed both to respect for the separateness of persons and to the collective good is capable of navigating the Canyon Dilemma.

## 1. Equal division

A straightforward way of continuing Part I’s quest for a Canyon Dilemma solution would be to search for a theory of environmental justice that can ground compelling judgements in this dilemma’s constitutive cases. However, I will proceed in a different way. Namely, I will search for *a rule* for allocating rights to the natural world that leads to attractive outcomes in the cases constituting the Canyon Dilemma. Only then will I consider the question of why such an allocation rule is justified.

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<sup>2</sup>For a definition of ‘equal, substantive claims’ and for a discussion of this idea’s promise, see Part I, section 9.

<sup>3</sup>For a definition and discussion of the collective good, see section 7.1.

My starting point in this search will be the allocation rule known as *equal division* (or, more tendentiously, as ‘fair division’ in the welfare economics literature).<sup>4</sup> Equal division (as I define it) allocates some pot of goods among a specified set of claimants in a way that satisfies the following desiderata:

- (i) Each claimant should receive an equal share of the pot’s goods.
- (ii) The allocation should be efficient (i.e. exhibit some concern with avoiding the loss of goods or advantage).
- (iii) The standards of share equality and efficiency *should not rely on interpersonal advantage comparisons* (e.g. comparisons of the claimants’ level of advantage or ability to obtain advantage from goods).

Equal division’s proponents disagree about the right standards of share equality and efficiency (a point I will revisit below). But they all agree on what equal division requires when the pot is constituted by homogeneous, perfectly divisible resources.<sup>5</sup> Consider, for example, the following simple allocation problem:

**Dividing the Manna:** A world with only two individuals, Adam and Ben, is endowed with 200 units of homogeneous, perfectly divisible manna – an all-purpose resource that can be transformed into a variety of other goods. All allocations of manna are possible and costless to implement.<sup>6</sup>

Equal division’s proponents would agree that, in this simple case, shares are equal when each person receives *an equal amount of manna* and that the allocation is efficient *when all the manna has been allocated to some claimant*.<sup>7</sup> Thus, equal division’s proponents would agree on *100-manna-each allocation*. Note that this is so even if Adam is worse off than Ben and even if Adam values manna more than Ben does.

Equal division is a good starting point in my search for an allocation rule capable of navigating the Canyon Dilemma for two reasons. First, as I argued in Part I, the idea that all people, present and future, have equal, substantive claims to the natural world shows considerable promise as a solution to the Canyon Dilemma.<sup>8</sup> And since equal division is an intuitively appealing interpretation of this equal-claims idea,<sup>9</sup> it

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<sup>4</sup>For a discussion of fair division, see Brams and Taylor (1996). The name ‘fair division’ is tendentious because there are many contexts (several of which I shall highlight below) in which the outcome recommended by equal division does not seem particularly fair. In addition, the name ‘fair division’ is confusing because ‘fair’ has already been used in the philosophy literature to refer to moral standards very different from the share-equality and efficiency standards that guide equal division.

<sup>5</sup>By ‘perfectly divisible’, I mean resources that can be divided into smaller shares without any resource costs.

<sup>6</sup>A somewhat more complex version of this manna allocation problem can be found in (Ackerman 1980: Ch. 2). Note that I am implicitly assuming in this example that we are committed to allocating physical manna (rather than property rights in manna) among the claimants. I revisit this point below in section 2.2.

<sup>7</sup>Note that this is so even though resource amounts are not generally seen as the *fundamental* standard for judging share equality and efficiency. I discuss share equality and efficiency standards below in section 2.2.

<sup>8</sup>See Part I, section 9.

<sup>9</sup>For a defence of equal division’s attractiveness as an interpretation of the equal-claims idea, see (Mazor 2009: Chs 4 and 5).

is perhaps unsurprising that it is promising for similar reasons. For example, since equal division does not take interpersonal differences in advantage into account, it need not discount the claims of highly advantaged future people to the Grand Canyon, thus making the protection of this natural wonder easier to justify.

A second reason for starting my search with equal division is its impressive array of defenders. Equal division's proponents include well-known historical writers (Paine 2000), contemporary political philosophers, including Hillel Steiner (1994: 235), Ronald Dworkin (2000: Ch. 2), Bruce Ackerman (1980: Ch. 2) and Tim Hayward (2007), as well as several welfare economists (e.g. Helm 2008).

## 2. Is intergenerational equal division practicable?

However, some have dismissed equal division as a patently implausible solution to problems of intergenerational environmental justice by questioning the possibility of equally dividing something as diverse and complex as the natural world and/or by highlighting radical uncertainty regarding the distant future. Before considering whether equal division can navigate the Canyon Dilemma, it is first important to respond to these foundational challenges. Doing so will also furnish me with an opportunity to better explain the type of equal division I have in mind.

### 2.1. Resource heterogeneity

The most obvious challenge to equal division is resource heterogeneity. Unlike the simplistic example of Dividing the Manna, the natural world is constituted by many different types of natural resources which are valued in different ways by different people. Since giving every person an equal fraction of every identifiable natural resource is patently unattractive (Dworkin 2000: 67), some scholars have argued that there is simply no plausible way to implement equal division in the face of natural resource heterogeneity (Narveson 1998: 15; Armstrong 2017: 62).

Resource heterogeneity admittedly poses a particularly thorny problem for equal division. Welfarist allocation rules can compare heterogeneous resources by considering the welfare that different resources generate for different individuals. But this solution cannot be used by equal division due to equal division's commitment to eschewing interpersonal advantage comparisons. To attractively allocate heterogeneous resources, equal division's proponents must find a way to take into account people's preferences for heterogeneous resources without comparing the advantage that one person receives from resources with the advantage those resources would generate for another.

However, equal division's proponents have long ago proposed plausible solutions to this problem. For example, many (e.g. Varian 1974: 63) have argued that, when the resources to be allocated are heterogeneous, share equality should be evaluated using the *envy-free standard*. This standard judges shares to be equal when no person would strictly prefer another person's share to her own. Note that evaluating 'envy' (in this sense) only requires comparing one person's welfare from her share to *that same* person's welfare from others' shares. It never requires comparing one person's advantage to another's. As for efficiency, the Pareto standard has been proposed (e.g. Varian 1974: 63). This standard rejects

an allocation as inefficient when there is a different allocation that would make at least one person better off without making anyone else worse off. Note that this only requires comparing each person's welfare in one allocation to *that same person's* welfare in other allocations. It never requires comparing one person's advantage to another's.

Admittedly, controversies remain regarding which share-equality standard and efficiency should be used (the envy-free and Pareto standards are not the only possibilities),<sup>10</sup> and I cannot defend a particular standard of share equality and efficiency here. But the range of plausible standards undermines critics' claim that equal division simply cannot cope with resource heterogeneity.<sup>11</sup>

Another response to those who view resource heterogeneity as an insuperable problem is that equal division is routinely used in other allocation problems involving heterogeneous resources. Consider, for example, the problem of dividing an estate among a set of equal heirs in the case of intestacy (no will). Estates are not always (and indeed not even typically) constituted only by money that can be straightforwardly divided into equal amounts. Yet estates are nevertheless equally divided among heirs, sometimes using mechanisms that aim to achieve precisely the type of share-equality standards (e.g. envy-freeness) described above.<sup>12</sup> If the heterogeneous goods constituting an estate can be equally divided among heirs, it is unclear why resource heterogeneity constitutes an insuperable obstacle to equally dividing the natural world.

## 2.2. Property-right heterogeneity

However, equal-division approaches to environmental justice must contend with another, more complex type of heterogeneity – *property-right heterogeneity*. For each of the various resources in the natural world, there are numerous plausible property rights regimes, including collective ownership, restricted ownership, full ownership (Armstrong 2017: section 1.3.1). And granting all individuals, present and future, full ownership of discrete natural resources is not always attractive or even feasible (Mazor and Vallentyne 2018: section 6.5.4).

Yet equal division can plausibly meet this challenge as well by adopting a more capacious understanding of the goods to be allocated. Rather than understanding these goods as *physical natural resources* (e.g. Risse 2012: 111), the goods to be allocated can instead be understood as *property rights in natural resources*. On this broader understanding of what is to be allocated, equal division need not preclude, say, common ownership or *restricted* ownership of certain natural resources (e.g. canyons). Instead, the appropriate allocation of property rights will depend on which property-right allocation best satisfies equal division's share-equality and efficiency desiderata.

<sup>10</sup>For example, Steiner (1994: 271) endorses market value as the right standard of share equality. Some scholars (e.g. Toma 2011) have endorsed a Kaldor–Hicks standard of efficiency.

<sup>11</sup>Neither Narveson nor Armstrong acknowledge the possibility of the envy-free standard as a way of evaluating share equality in the face of heterogeneity.

<sup>12</sup>A common solution for allocating items in an inheritance is to use a 'monopoly money' auction, where equal heirs receive the same amount of bidding money (e.g. Hachfeld *et al.* 2017). Equal-bidding-income auctions are an important way of generating an envy-free solution (Dworkin 2000: 68).

Note that standards such as envy-freeness and Pareto efficiency can be used to evaluate allocations of property rights as well as allocations of physical resources. For example, we can coherently ask whether anyone would prefer someone else's bundle of *property rights* to her own. And we can coherently ask whether there is a different allocation of *property rights* that would make at least one person better off without making anyone else worse off. Conceiving of the goods to be allocated as property rights rather than physical resources admittedly makes the allocation problem more complex.<sup>13</sup> But it also makes equal-division approaches to environmental justice substantially more plausible.

Readers sceptical about the idea of equally dividing property rights might again usefully consider the problem of dividing an estate. Although estates are sometimes divided into physical portions, this is unattractive in certain cases. For example, if part of the estate is a vacation home that the heirs are happy to share, it seems unappealing to divide the home into physical portions or to sell the home and divide the proceeds equally. Instead, *rights to use* the vacation home (along with rights against other heirs' destructive use of the home) could attractively form part of each heir's share of the estate. Since equal division of an estate sometimes involves allocating property rights rather than physical goods, I see little reason why equal division of the natural world cannot also be conceived of in this broader way.

### 2.3. Insufficient information

The final problem that has led some scholars to dismiss equal-division approaches to intergenerational environmental justice is insufficient information. Equally dividing the natural world among all current and future people admittedly requires knowledge of (inter alia):

- (a) Current and future people's preferences for different property rights in different natural resources,
- (b) The number of future people, and
- (c) The future states of the natural world.

Yet our knowledge of these matters is hazy at best, especially when it comes to the distant future. Some have argued that, rather than making educated guesses in such cases, we should simply keep future people's environmental options open and/or avoid actions that will lead to obvious humanitarian disasters (Dworkin 1993: 78; de-Shalit 1995: 126–129).

Let me offer three responses to this objection. First, the refusal to admit *any* guesses about distant future people's preferences for non-essential parts of the natural world is implausible. Such a position implies that we must make the same efforts to preserve one nondescript rock as we do to protect the Grand

<sup>13</sup>If we see what is to be allocated as property rights, we will obviously have a far greater number of possible allocations to consider, increasing the frequency of cases in which it is impossible to simultaneously achieve full share equality and full efficiency. This makes the problem (which I set aside in this article) of determining the appropriate tradeoffs between share equality and efficiency more pressing.

Canyon. Yet I take it that we should expend far greater efforts to preserve the Grand Canyon for distant future people, even though the Grand Canyon is not necessary for meeting future people's needs and even though we cannot be *sure* that distant future people will value the Grand Canyon more than a single (currently) nondescript rock.

Second, there is substantial scholarly work that can be used to tackle the epistemic problem. For example, work on how equal division can be implemented given imperfect information (e.g. Leroux and Leroux 2004) could be applied to intergenerational environmental problems. Moreover, welfarists (whose approach to intergenerational environmental justice must contend with similar epistemic challenges) have developed sophisticated methods for contending with uncertainty (e.g. Heal and Millner 2013), which could be adapted to addressing the problem of uncertainty in equal division.

My final response to epistemic concerns is that allocators routinely overcome similar challenges in the case of other equal division problems. Consider again the problem of equally dividing an estate. In some cases, the heirs may be minors at the time of the estate's division, and the allocator would thus face uncertainty regarding which part of the estate they will prefer. In other cases, the bequestor might leave an estate to an unspecified number of future heirs by allowing for the possibility of currently unborn grandchildren inheriting. Estate allocators generally respond to these problems, not by abandoning equal division, but rather by making educated guesses about the future as best they can.

Admittedly, both problems of information and problems of heterogeneity are orders of magnitude simpler in the case of estate division compared with intergenerational equal division of rights to the natural world. But the objections to equal division considered in this section appeal, not to complexity, but rather to the fundamental impracticability of equally dividing goods given heterogeneity and uncertainty. The use of equal division for allocating estates, even when their constitutive goods are heterogeneous, division of assets into individually owned portions is unattractive, and/or when some heirs are young children (or as yet unborn), suggests that the challenges facing equal-division approaches to intergenerational environmental justice are not so grave so as to justify dismissing this allocation rule as impracticable.

### 3. Equal division: a simple intergenerational case

Having argued that equally dividing rights to the natural world is feasible, I now turn to considering whether it is attractive. Ultimately, I wish to evaluate equal division's attractiveness by considering the outcomes it recommends in the cases that constitute the Canyon Dilemma. However, since these cases involve a very large number of individuals across multiple generations, and since many readers will be unfamiliar with the dynamics of equal division, especially in intergenerational contexts in which the goods to be allocated are property rights, it seems sensible to first consider equal division in the following, simpler case:

**Rights to a Canyon:** The world has only two individuals: Al and Bea. Al will live in the first period followed by Bea in the second, non-overlapping period.

The only natural resource is a canyon that can be used in only two ways. It can be visited in order to enjoy its scenic beauty or it can be mined for gold nuggets – an action that destroys its scenic beauty.

Assume also:

- The canyon can only be mined productively in the first period.
- If Al mines the canyon, he can enjoy its scenic beauty before it is mined.
- Gold nuggets can be transferred from Al to Bea (but not from Bea to Al).

My aim in this section is to explore the basic dynamics of an intergenerational equal division of property rights by evaluating the equal division allocation in several variations of this case.

### 3.1. Two simplifying assumptions

To further simplify my analysis, I will rely on two assumptions:

- (1) The allocator has perfect information.
- (2) The *relative* value of all property rights is uncontroversial.

To better understand the role of assumption (2), consider again the problem of dividing an estate. When the heirs disagree about the relative value of the property rights in question, the allocation problem is quite complex (e.g. requiring standards like envy-freeness to evaluate share equality). However, if the relative value of the property rights is uncontroversial (i.e. if the heirs agree on the dollar value of all of these rights and are not mistaken), then evaluating share equality and efficiency becomes far simpler. The value of each property right can be expressed in terms of a *numeraire good* (e.g. dollars). Share equality can then be straightforwardly achieved by giving each heir a share of property rights with an equal dollar value. And efficiency can be achieved by ensuring that the dollar value of the property allocated to the heirs is as high as possible. This greatly simplifies the problem of determining the equal-division allocation.

Note that, in assuming that the *relative* value of all property rights is uncontroversial, I am *not* assuming that the absolute value of the property rights is the same for all the heirs. It is perfectly possible that Heir 1 and Heir 2 agree on the *relative* value of all of an estate's property rights, even though Heir 1 values these rights much more highly than Heir 2 (e.g. because Heir 1 is poorer). The greater value Heir 1 places on the estate does not affect the equal division allocation. Each heir would still receive a share of equal dollar value. Thus, we can understand assumption (2) as a way of turning a complex problem of equally dividing heterogeneous goods into something more akin to the simple



Dividing the Manna problem considered above. It allows us to sidestep problems related to resource and property-right heterogeneity. But it does not eliminate equal division's distinctive commitment to eschew favouring the less advantaged or those able to obtain more advantage from resources when allocating some set of goods.

Assumption (2) also simplifies the estate-allocation problem in a second way: It enables the straightforward use of *side-payments*. Side payments are transfers of goods (that are not part of the initial pot) from one claimant to another that can be used to achieve an attractive equal division when some good cannot be easily divided. So, for example, if an estate is a house that cannot be divided or shared, assumption (2) makes the following solution possible in the two-heir case: Heir 2 can be given ownership of the house while making a side payment equal to half the house's dollar value to Heir 1. This solution achieves both efficiency and share equality (where each heir's share is evaluated by considering the dollar value of the share *net of side payments*).

Assumption (2) simplifies the Rights to Canyon problem in analogous ways. Using (ownership of) gold nuggets as the numeraire good, I will evaluate share equality using gold-nugget amounts and efficiency using the gold-nugget value of all the property rights allocated. I will also consider the possibility of gold-nugget side payments from Al to Bea when evaluating different potential allocations.

### 3.2. High Scenic Value

With all this in mind, let us return to Rights to a Canyon. What is the equal-division allocation in this case? The answer will clearly depend on the value of the rights to mine the canyon relative to rights to access the unmined canyon. Consider first the following variation of the case:

**High Scenic Value:** The value of access rights to an unmined canyon is (uncontroversially accepted to be) 2,000 gold nuggets. The value of the canyon mining rights is 1,500 gold nuggets.

I wish to examine three possible allocations of property rights to the canyon:

- (1) Al is granted access rights *and* mining rights to the canyon.
- (2) Al is granted access rights and mining rights to the canyon along with an obligation to make a gold-nugget payment to Bea equal to half the value of these rights.
- (3) Al is granted access rights but no mining rights to the canyon. Bea is granted rights to an unmined canyon (access rights to the canyon in the second period and claim-rights against Al's mining of the canyon in the first period).<sup>14</sup>

Table 1 summarizes the value of each person's share of property rights and the total value of the allocated property rights in terms of (ownership of) gold nuggets.

<sup>14</sup>I am using claim-rights here in the Hohfeldian sense. For an explication, see Wenar (2015: section 2.1).

**Table 1.** Scenic Value = 2,000 gold nuggets

Possible Rights Allocations	Al	Bea	Total
Allocation 1: <b>Al:</b> Access and mining rights <b>Bea:</b> Rights to useless mined canyon	<b>3,500</b> (2,000 access + 1,500 mining)	<b>0</b>	<b>3,500</b>
Allocation 2: <b>Al:</b> Access & mining rights and a side payment obligation <b>Bea:</b> Gold-nugget side payment	<b>1,750</b> (2,000 access + 1,500 mining - 1,750 side payment)	<b>1,750</b> (side payment)	<b>3,500</b>
Allocation 3: <b>Al:</b> Access rights (and no mining rights) <b>Bea:</b> Rights to unmined canyon	<b>2,000</b> (access)	<b>2,000</b> (access)	<b>4,000</b>

The equal-division allocation is Allocation 3 (in which Al's rights to the canyon are restricted so that both Al and Bea can enjoy the canyon's scenic beauty). Allocation 1 (in which Al is granted mining rights and no obligations to make side payments to Bea) is the least desirable, since it is both inefficient and unequal. Allocation 2 (in which Al is granted mining rights but must make a gold-nugget payment to Bea) is equal but inefficient. Allocation 3, by contrast, achieves both efficiency and share equality.

As this simple example demonstrates, if we accept that future people have claims to an equal share of the natural world, and if we understand these shares as bundles of property rights, then equal division can justify restrictions on current people's rights to destructively use the natural world. In High Scenic Value, equal division prohibits Al from mining the canyon.

This result is not particularly surprising if we consider an analogous estate-allocation problem in which the estate is, say, a vacation home with substantial sentimental value to the heirs. If the dollar value of access to the vacation home to each heir is greater than the dollar value of their share of the proceeds from the home's sale, it seems attractive to require the vacation home to be left intact, with each heir receiving equal access rights to the home (and rights against others' destruction of the vacation home). This is analogous to the solution in High Scenic Value.

### 3.3. Low Scenic Value

However, there are variations of Rights to a Canyon in which equal division would grant Al rights to mine the canyon. Consider, for example, the following variation:

**Low Scenic Value:** The value of access rights to an unmined canyon is equal to 500 gold nuggets. The value of the mining rights is equal to 1,500 gold nuggets.

Consider again the three possible property-right allocations described above, whose consequences are summarized in Table 2.

The equal-division allocation in this case is clearly Allocation 5 (in which Al is granted mining rights but must make a gold nugget payment of 1,000 gold nuggets to Bea). Allocation 4 (in which Al is granted mining rights and no side payment obligation) is efficient but unequal. Allocation 6 (in which both Al and Bea enjoy access to the unmined canyon) is equal but inefficient. By contrast, Allocation 5 is both efficient and equal. Thus, when the value of rights to access the unmined small canyon is low relative to the value of the mining rights, equal division will allow Al to mine the canyon, as long as he makes the appropriate gold-nugget payment to Bea.

Again, there is nothing surprising about this result once we consider an analogous estate-allocation problem. If rather than a vacation home with high sentimental value, we think of a vacation home that is not particularly personally valuable for the heirs, it seems attractive to permit the vacation home's sale by one of the heirs, followed by sharing of the proceeds with all of the heirs. This is similar to the equal division solution in Low Scenic Value.

**Table 2.** Scenic Value = 500 gold nuggets

Possible Rights Allocations	Al	Bea	Total
Allocation 4: <b>Al:</b> Access and mining rights <b>Bea:</b> Rights to useless mined canyon	<b>2,000</b> (500 access + 1,500 mining)	<b>0</b>	<b>2,000</b>
Allocation 5: <b>Al:</b> Access & mining rights and side payment obligation <b>Bea:</b> Gold-nugget side payment	<b>1,000</b> (500 access + 1,500 mining – 1,000 side payment)	<b>1,000</b> (side payment)	<b>2,000</b>
Allocation 6: <b>Al:</b> Access to canyon with prohibition on mining <b>Bea:</b> Rights to unmined canyon	<b>500</b> (access)	<b>500</b> (access)	<b>1,000</b>

### 3.4. Low Scenic Value with several generations

Consider next what happens if we introduce multiple generations:

**Low Scenic Value with Five Generations:** This case is similar to Low Scenic Value except that there are four succeeding generations after Al (with one person in each generation).

What is the equal division allocation in this case?

Although access rights to an unmined canyon still have a low gold-nugget value for each person, equal division would *deny* Al rights to mine the canyon in this five-generation case. After all, the total value of rights to the unmined small canyon is now 2,000 gold nuggets (500 for each of the four individuals living after Al).<sup>15</sup> This is greater than the 1,500 gold-nugget value of the mining rights. Thus, keeping the canyon intact achieves share equality (each person enjoys access rights to an unmined small canyon) and is more efficient than allowing Al to mine the canyon.

## 4. Equal division and the Canyon Dilemma

Having worked through these simple examples, I turn now to considering the implications of equal division in the cases that constitute the Canyon Dilemma. However, to do so in a tractable way, I will need one final set of simplifying assumptions:<sup>16</sup>

- (1) Property rights to all natural resources besides the canyon in question are allocated justly and cannot be altered.
- (2) Besides what may happen to the canyon in question, natural wealth is constant over time.
- (3) Wealth transfers are possible from current people to future people (with a real interest rate equal to 0) but not from future people to current people.
- (4) Humanity's lifespan is equal to that of the canyon in question.
- (5) If a canyon is mined, the mining generation can enjoy its scenic beauty before mining it.
- (6) With the exception of the provision of side payments and actions relating to the canyon, the wealth of each generation is independent of the actions of previous generations.
- (7) The relative value of all property rights is uncontroversial for the members of each generation.

Assumption (7)'s elimination of the controversy regarding the relative value of property rights will once again greatly simplify the allocation problem. It will allow us to use a numeraire good (in this case, I will use rights to mine the canyon in question as the numeraire) for the purposes of evaluating share equality and efficiency.

<sup>15</sup>Remember that Al would be able to enjoy access to the canyon whether or not it is mined.

<sup>16</sup>These assumptions are in addition to those made when the canyon cases were introduced. For these assumptions, see Part I, section 1.

#### 4.1. Equal division and the Grand Canyon

Consider first the standard case of Mining the Grand Canyon, in which the Americans alive at the turn of the 20th century (the 1900ers) mine the Grand Canyon for their own benefit, destroying a scenic majesty that would otherwise have lasted 1,000 years. Assume now that the value of *yearly* access rights to an unmined Grand Canyon is uncontroversially equal to 1/50th the value of the Grand Canyon mining rights.<sup>17</sup> What is the equal-division allocation in this case?

Equal division would clearly *deny* the 1900ers rights to mine the Grand Canyon in this case. The reasons are analogous to those for denying AI rights to mine the canyon in High Scenic Value above. Mining the Grand Canyon is enormously inefficient. Since the value of *one year* of access to the Grand Canyon is 1/50th the value of the mining rights, the aggregate value of keeping the Grand Canyon intact for 1,000 years is 20 times (i.e. 1000/50) the value of mining the Grand Canyon. And if the 1900ers keep the wealth for themselves, the result also violates share equality. By contrast, keeping the Grand Canyon intact achieves both share equality and efficiency and is therefore the equal-division allocation.

Note that, given the assumptions above, the equal-division allocation is unaffected by a time delay in the Grand Canyon's destruction (as long as the Grand Canyon's total lifespan remains the same), the advantage level of future people, or the disadvantage level of the 1900ers. Equal division would therefore condemn the Grand Canyon's mining, even when there is a long delay between its mining and its destruction and even when the lives of 100 destitute miners can only be saved by the Grand Canyon's mining (i.e. in the key variations of the Grand Canyon case considered in Part I).

Note also that the reason why the Grand Canyon is valuable in its unmined state is not important to the protection it is granted by equal division. Equal division would offer identical protections to the Grand Canyon if it were valuable, not due to its awesome natural majesty, but due to, say, its capacity to filter the Colorado River's water. What is important to the mining prohibition is the high value of unmined Grand Canyon's relative to the value of the mining wealth.

#### 4.2. Equal division and the Small Canyon

Consider next the small canyon case. Remember that this case is identical to the Grand Canyon case, except that the small canyon has a far more modest scenic beauty. Assume now that yearly access rights to the unmined small canyon are only 1/2000ths times as valuable as the rights to mine the small canyon. What is the equal-division allocation in this case?

Equal division would *permit* the small canyon's mining in this case. The reasons are similar to those for allowing AI to mine the canyon in Low Scenic Value above. Though keeping the small canyon in its unmined state would ensure equality of shares (all people will be able to access an unmined small canyon), it is

<sup>17</sup>The assumption that the 1900ers' poverty would not affect the equal-division allocation is admittedly unrealistic because a poor generation would almost surely place a higher relative value than a rich generation on mining wealth when compared with scenic beauty. However, addressing such heterogeneity in property-right valuation is beyond the scope of this article.

inefficient. Even with the small canyon's lengthy one-thousand-year lifespan, the total value of access rights to an unmined small canyon intact is only half (i.e. 1000/2000ths) the value of the small canyon mining rights.

## 5. The problems with equal division

So far, so good for equal division. It can protect the Grand Canyon while permitting the 1900ers to mine the small canyon. However, as I will argue in this section, equal division cannot avoid the small canyon horn of the Canyon Dilemma.

One problem with equal division is that, even when it permits the small canyon to be mined, its implications for the distribution of the resulting wealth are unattractive. Equal division would require the 1900ers to *equally share* the wealth obtained from mining the small canyon (net of mining costs) with all future people via side payments. And since there are a large number of future generations, equal division would only permit the 1900ers to keep a miniscule fraction of the small canyon's mining wealth for themselves. Yet the demand that the impoverished 1900ers must share the vast majority of the small canyon's mining wealth with far wealthier future people seems difficult to accept. Given the 1900ers' pressing poverty, it seems considerably more attractive to allow the 1900ers to keep the small canyon's mining wealth for themselves.

Equal division can also problematically forbid the 1900ers from mining the small canyon in certain cases, even when this mining seems intuitively permissible. Consider now a case in which the value of yearly access rights to the small canyon is somewhat higher but still fairly modest: 1/900ths of the value of the mining rights. In this case, equal division would *deny* the 1900ers rights to mine the small canyon. The reasons are similar to those underlying the mining prohibition in Low Scenic Value with Five Generations above. Although the yearly value of access to the small canyon's scenic beauty is relatively low, the value of 1,000 years of this access is 1000/900ths greater than the value of the mining rights in this case. Since keeping the small canyon intact is (slightly) more efficient than mining it and achieves full share equality, equal division would require the small canyon to be kept intact.

Yet this outcome is unattractive. As I suggested in Part I, the demand that the impoverished 1900ers must forbear from mining a fairly unremarkable small canyon so that incredibly well-off future people can enjoy its modest scenic beauty seems to entail a failure to take the 1900ers' plight seriously enough, especially when the lives of 100 destitute miners are at stake.

Equal division's proponents might argue that the problem here lies, not with equal division, but rather with in the highly unrealistic simplifying assumptions made above. They might point out that the wealth of future Americans in fact depends heavily on the actions of the 1900ers (e.g. their building of schools, factories, etc.). And these contributions could plausibly be seen as a kind of side payment that might substitute for future people's rightful share of the small canyon's mining wealth. Alternatively, equal division's proponents might point out that America's natural wealth grew prodigiously in the 20th century (due to the discovery of new

natural resources). And equal division would almost surely permit the 1900ers to mine the small canyon (and keep the wealth for themselves) once we assume high growth in natural wealth. After all, permitting a generation to use more than an equal share of the natural wealth *available at a particular time* could easily constitute the best way to foster overall intergenerational share equality as long as future people will have access to considerable natural wealth that is unavailable to earlier generations. Perhaps, then, our conviction that the 1900ers should be allowed to mine the small canyon and keep the wealth for themselves is due, not to some problem with equal division, but to our inability to genuinely accept the highly unrealistic simplifying assumptions made above.

I freely concede that both the 1900ers' investments in goods that benefit future people and the growth of natural wealth could justify allowing them to mine the small canyon and keep the wealth for themselves within an equal-division framework.<sup>18</sup> But I deny that equal division's intuitively unappealing implications in the small canyon case can be entirely attributed to our failure to imagine away these possibilities. After all, similar intuitive problems for equal division can arise in simple intra-generational allocation problems in which these complexities do not arise.

Consider, for example, the following variation of the Dividing the Manna:

**Dividing the Manna Given Desperate Poverty:** In this variation of the case:

- Ben has a great deal of human-made wealth and is highly advantaged simply due natural talent. He would obtain a moderate increase in advantage from manna.
- Adam is facing desperate poverty through no fault or choice of his own. He *will die* unless he receives at least 120 manna.
- The only way to help Adam is via the manna's allocation (i.e. it is impossible to transfer human-made wealth between Ben and Adam). Ben will not voluntarily share any manna with Adam.

A commitment to equal division of the natural world would require allocating Adam and Ben 100 manna each in this case. But letting Adam die in order to maintain strict manna equality does not seem sufficiently sensitive to Adam's plight (for a similar example, see Otsuka 2003: 21). If so, this suggests that the fundamental problem with equal division in the small canyon case is not due to the artificial simplifying assumptions made above but is instead due to the *unacceptable harshness to the disadvantaged* of a strict commitment to equal division of the natural world.

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<sup>18</sup>A full analysis of the case in which there is newly discovered natural wealth would require considering share-equality/efficiency tradeoffs. To see why, consider the case in which the value of yearly access to an unmined small canyon is 1/900ths the value of the mining rights. The small canyon's mining is inefficient in this case. And as long as growing natural wealth does not affect individuals' small canyon valuation, it will not change the mining's inefficiency. However, growing natural wealth could easily make it the case that the best way to foster intergenerational share equality is to allow the 1900ers to mine the small canyon. This case thus presents us with a conflict between share equality and efficiency – a conflict whose resolution is beyond the scope of this article.



## 6. Non-absolute equal division

One response to equal division's insufficient sensitivity to disadvantage is to abandon it altogether in favour of traditional aggregative, sufficientarian or egalitarian allocation rules (e.g. Otsuka 2003: 24–29). However, as I argued in Part I, these rules face their own intuitive difficulties (e.g. some would implausibly permit the 1900ers to mine the Grand Canyon). Fortunately, there is a way out of this impasse: a hybrid allocation rule. Rather than viewing the equal-division allocation as absolute, we could instead see it as negotiable, where:

- (i) The weightier the moral values that would be advanced by deviating from equal division, the stronger the case for deviation.
- (ii) The more important the rights that constitute the equal-division allocation are to the right-holder, the weaker the case for deviation.

I call this hybrid allocation rule *non-absolute equal division* (NED).

A commitment to NED can avoid the intuitive problem posed by Dividing the Manna Given Desperate Poverty. Equal division would grant Adam and Ben 100 manna each. However, since 20 units of manna are presumably not particularly important to Ben (assuming decreasing marginal advantage from manna), and since Adam would die with only 100 manna, a variety of plausible NED rules could endorse giving Adam the 20 manna from Ben's share that Adam needs to survive. Note, however, that NED would not necessarily redistribute all of Ben's manna to Adam. The extent of the redistribution would depend on our conception of NED, the importance of the remaining 80 manna to Ben, and what the additional 80 manna could do for Adam. It is perfectly possible that NED would permit Ben to keep a substantial portion of his manna, even if giving all of the manna to Adam would better achieve traditional egalitarian or aggregative objectives.

With this example in mind, it is not difficult to see how non-absolute equal division could navigate the Canyon Dilemma. Remember that the problem with equal division was its insistence that (at least in certain cases) the small canyon must either remain unmined or that the 1900ers must share the small canyon's wealth with far wealthier distant future people. NED can solve this problem by permitting the 1900ers to mine the small canyon and keep the resulting wealth for themselves. After all, future people's rights to one unremarkable small canyon are unlikely to be particularly important to them. And since future people are predicted to be much wealthier than the 1900ers are, their rights to the proceeds of the small canyon's mining will likely be of even less importance to them. In addition, alleviating the 1900ers poverty is a pressing moral goal, especially when the lives of the 100 destitute miners are on the line. Thus, just as NED could justify infringing on 20 of Ben's manna for Adam's sake, plausible versions of NED could endorse infringing on future people's rights to the unmined small canyon (or to a portion of its mining wealth) for the sake of the impoverished 1900ers.

However, non-absolute equal division would not necessarily permit the 1900ers to mine the Grand Canyon. After all, future people's rights to an unmined Grand

Canyon can straightforwardly be assumed to be far more important to them compared with rights to an unmined small canyon (or to a portion of its metallurgical wealth) due to the Grand Canyon's distinctive natural majesty. Thus, the type of non-absolute equal division rule described above could plausibly justify deviating from the equal division allocation in the small canyon case but not in the Grand Canyon case. This allocation rule can therefore navigate the Canyon Dilemma.

Some readers might dismiss NED as an ad hoc allocation rule invented specifically to navigate the Canyon Dilemma. But non-absolute equal division is in fact familiar from everyday life. It is the rule used to allocate estates among equal heirs. Although estates are *initially* equally divided among the heirs, this allocation is not final. Some portion of each heir's share is eventually redistributed to achieve broader social goals (e.g. helping the disadvantaged) via inheritance taxation. Moreover, the extent of the redistribution is often greater when the moral weightiness of what the redistribution can accomplish is greater, in line with feature (i) proposed above. For example, during the Great Depression, the American government increased inheritance tax rates significantly (Jacobson *et al.* 1994), presumably in part due to the greater plight of those who could be helped with the proceeds.

Moreover, extent of the deviation from equal division in the case of inheritances depends on the importance of the relevant rights to the right-holders. For example, many states exempt family homes from inheritance taxation, at least to some extent (e.g. Gov. UK 2016), presumably to protect heirs from having to liquidate property that may have deep personal importance to them. This is so despite the fact that the wealth that could be obtained from taxing family homes would very likely alleviate more disadvantage than is suffered by heirs who are compelled to sell the home. In protecting family homes from inheritance taxation, the state is effectively granting the heirs' rights to the family home *greater strength* (compared with their rights to, say, equivalent inheritance wealth in another form) in the face of competing moral demands. This is in line with feature (ii) of NED proposed above.

Thus, the allocation rule I am proposing for the natural world is not some philosophical fancy. It asks us to divide rights to the natural world among all people (present and future) using the type of allocation rule that societies already use to allocate rights to an estate among equal heirs when there is no will: equal division followed by a *partial* infringement of the rights constituting individuals' equal shares to address other moral goals (e.g. alleviating disadvantage). What I am proposing here, then, is seeing the natural world as *humanity's common inheritance* – an analogy that seems to have considerable intuitive appeal and that other thinkers have already made (e.g. Thatcher 1990).<sup>19</sup>

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<sup>19</sup>Admittedly, I have not defended the cosmopolitan view of the natural world as *humanity's* common inheritance here. I take up this task elsewhere (Mazor 2009: Ch. 9). Moreover, in characterizing the natural world as *humanity's* common inheritance, I am ignoring the ways in which the natural world may be valuable in non-anthropocentric ways, which I shall briefly revisit in fn. 33.

## 7. Justifying non-absolute equal division of the natural world

Having argued that a commitment to a certain type of non-absolute equal division of rights to the natural world can navigate the Canyon Dilemma, the key remaining question is this: Why is allocating rights to the natural world in this way justified? I will argue in this final section that non-absolute equal division can be justified by a pluralist theory of environmental justice committed to both the collective good and respect for the separateness of persons. Respect for the separateness of persons, properly understood, grants each person an equal share of rights to the natural world. And a concern with the collective good can justify a deviation from strict share equality in cases in which this can alleviate sufficiently severe disadvantage.

### 7.1. The collective good

Although the term ‘collective good’ may evoke utilitarianism for some, the term as I use it here can refer to a variety of conceptions of the overall good of society, including various forms of egalitarianism and sufficientarianism. A defining feature of collective-good conceptions is their willingness to interfere in the life of one person in order to benefit others when doing so generates a greater overall good. For utilitarians, such interference is justified whenever the welfare gains from it are greater than the welfare losses. For egalitarians, the interference is justified whenever the result is greater equality of advantage.

I will not take a position here on which conception of the collective good is most compelling. However, I will assume that the collective good would be significantly advanced by granting the impoverished 1900ers permission to mine both the small canyon *and* the Grand Canyon (and to keep the resulting wealth for themselves) in at least some variations of these cases. As I argued in Part I, a variety of collective-good conceptions (e.g. egalitarian, sufficientarian, aggregative) would grant the 1900ers this permission.<sup>20</sup>

### 7.2. Respect for the separateness of persons

The second key principle in my proposed theory is respect for the separateness of persons (RSP). RSP is a commitment to granting each individual’s life a certain moral primacy. As Warren Quinn (1989: 309–310) writes:

A person [should have] primary say over [his life], not because such an arrangement best promotes overall human welfare, but because any arrangement that denied him that say would be a grave indignity. In giving him this authority, morality recognizes his existence as an individual with ends of his own – an independent *being*. Since that is what he is, he deserves this recognition. Were morality to withhold it, were it to allow us to kill or

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<sup>20</sup>The only collective-good principle considered in Part I that never grants the 1900ers permission to mine the Grand Canyon is non-time-discounting utilitarianism.

injure him whenever that would be collectively best, it would picture him not as a being in his own right but as a [mere] cell in the collective whole.<sup>21</sup>

For example, though killing a healthy person in order to distribute her organs to save five others would foster the collective good understood in a variety of ways, such an action would unacceptably deny the sacrificed individual the primacy she is due as a separate, independent being with her own mind, body, identity, projects, attachments and life to lead (Timmons 2012: 71, 144–145).

There is disagreement about what exactly RSP requires. Some theorists view RSP as requiring nothing more than a rejection of the interchangeability of welfare across people. On this view, prioritarianism (which gives more weight to the welfare of the less well off) respects the separateness of persons (e.g. Adler 2012: 316–317).

However, as others have compellingly argued, this understanding of RSP is implausibly thin (e.g. Mack 2006: section 2). Although I will not rehearse the arguments in full here, we can see the problem by noting that simply giving more weight to the welfare of the less advantaged in an aggregative calculation would not protect the healthy person from being sacrificed for the sake of the five people dying from organ failure.

In line with many thinkers (e.g. Mack 2006: section 2; Zwolinski 2008), I view RSP as offering individuals more robust protections. Specifically, I see RSP as granting each individual a special sphere of moral authority (that I call a *personal domain*) constituted by a set of negative rights<sup>22</sup> that I call *domain rights*. These domain rights protect the individual from being sacrificed for the collective good. The healthy person above, for example, could be understood to have domain rights to her body that protect her from being killed for the sake of saving five others.

This way of understanding RSP requires further specification. First, it is necessary to specify *the scope* of the personal domain (i.e. how far each individual's personal domain extends). Second, it is necessary to specify *the strength* of domain rights – the weight individuals' claims against interference in their personal domain should be granted relative to competing moral considerations.

For the purposes of this article,<sup>23</sup> I will take the following three positions endorsed by Quinn as given:

- (i) The scope of an individual's personal domain extends *at least* to her entire body (Quinn 1989: 309).

<sup>21</sup>Quinn himself does not use the term respect for the separateness of persons, even though it is straightforward to interpret him as writing about this concept.

<sup>22</sup>For a discussion of negative rights, see (Wenar 2015: section 2.1.8). The reason why the personal domain is constituted by negative rights rather than by positive rights (i.e. rights to be given goods) has to do with the nature of respect for the separateness of persons. If you are starving and I do not give you food, I may be wronging you in various ways. But I am not disrespecting your separateness as a person. RSP is only violated when I *interfere in your life in certain ways* for the sake of advancing some greater good for others.

<sup>23</sup>I have defended these positions in some detail elsewhere (Mazor 2019: section 6).

- (ii) Domain rights have a variable strength, ranging from weak to near-absolute (Quinn 1989: 310).
- (iii) A key determinant of a domain right's strength is the right's *importance* to the right-holder.

Quinn (1989: 310–311) defines ‘importance’ in terms of the effects on personal identity. However, I will not commit to this controversial position here.<sup>24</sup> As will become apparent, a commitment to RSP can help navigate the Canyon Dilemma for a wide range of conceptions of the type of ‘importance’ to the right-holder that determines a domain right’s strength.

I will also make one assumption about RSP that is not defended by Quinn. Namely, I will assume that RSP grants equal protection to both current *and future* people. So, if some supernatural entity offered to cure five Americans from a deadly disease today as long as the American government bindingly agreed to sacrifice some particular person to the entity 100 years hence, I assume that this would be no more permissible than killing the healthy patient to save the five others in the case above.<sup>25</sup>

### 7.3. An analogous dilemma: rights to body parts

Theories of distributive justice concerned only with the collective good are commonplace. And theories concerned only with respect for the separateness of persons are also not difficult to find. This is one way of characterizing orthodox libertarianism (Mack 2006: section 2). However, a theory that combines both commitments may be less familiar to many readers. To better explain this type of theory, to support its plausibility, and to lay the foundation for explaining how it can justify a commitment to non-absolute equal division of the natural world, I wish to briefly consider the way in which this type of theory can navigate a dilemma relating to the allocation of body parts.

Consider first the following case:

**Taking A Kidney:** Sick is suffering from kidney failure through no fault of his own and will die soon without a transplant. Healthy, who has two well-functioning kidneys, is a match for Sick but refuses to donate one of her kidneys. To save Sick’s life, the state permits Sick’s doctors to seize one of Healthy’s kidneys.

I submit that this is impermissible.

However, taking one person’s body part to save another is not always impermissible. Consider, for example, the following case:

**Taking A Hair:** The case is identical to the one above with the following exception: Sick’s doctors have found a way to quickly grow a kidney from

<sup>24</sup>In leaving the notion of ‘importance’ unspecified, I am *not* committing to a notion of importance that is purely subjective. For a discussion, see Mazor (2019: section 3.2).

<sup>25</sup>For a discussion of the controversy over granting future people rights, see Meyer (2016).

one of Healthy's shed hairs. Healthy has some shed hairs on a hairbrush but refuses to surrender even one of these hairs to Sick's doctors. To save Sick's life, the state allows Sick's doctors to seize one of Healthy's shed hairs.

I submit that this action is permissible.<sup>26</sup>

Taken together, this pair of cases presents us with a quandary that I call the Body-Part Dilemma. A compelling theory of distributive justice should be able to explain why forcing a person to surrender a kidney in order to save another's life is impermissible while forcing a person to surrender a single shed hair to save another's life is permissible.

Theories of distributive justice concerned solely with the collective good cannot avoid the kidney-taking horn of this dilemma. Since Sick is very badly off (and is much worse off than Healthy), and since Sick's gain from Healthy's kidney (i.e. avoiding death) is greater than Healthy's loss from losing a kidney, the kidney's taking would clearly foster the collective good, whether understood in utilitarian, egalitarian, or sufficientarian ways.

Orthodox libertarian theories, on the other hand, are unable to avoid the hair-taking horn of this dilemma. On the orthodox libertarian view, even a single shed hair is protected by absolute self-ownership rights. Orthodox libertarians are thus committed to condemning the taking of one of Healthy's shed hairs, even if it is the only way to save Sick's life (and, indeed, even if this is the only way to save one thousand lives).

One obvious way to navigate this Body-Part Dilemma is to endorse *strong but non-absolute self-ownership*. And the pluralist theory proposed above can justify precisely such a commitment. RSP (as conceptualized above) would grant Healthy domain rights to her entire body, including both her kidney and her shed hair. However, the commitment to the collective good could justify partial infringements of these rights. And since Healthy's shed hair strand is of relatively little importance to her, the far greater good that this hair strand can do for Sick could plausibly justify infringing Healthy's domain rights in this case. By contrast, since Healthy's kidney (qua major organ whose taking would require cutting deep into Healthy's body) is clearly more important to Healthy than is a single shed hair,<sup>27</sup> Healthy's rights against the taking of her kidney would be accorded far greater strength by the pluralist theory proposed above. Thus, for a range of relative weights for RSP and the collective good, this pluralist theory can protect Healthy from the taking of a kidney but not a single shed hair when Sick's life is on the line.

#### 7.4. The personal domain and an equal share of the natural world

I will now argue that the way in which this pluralist theory can navigate the Body-Part Dilemma (by justifying non-absolute self-ownership) is analogous to the way in

<sup>26</sup>Readers who do not share this judgement can increase the number of lives at stake in the kidney and hair-taking cases. Presumably, there is some number of lives for which the kidney taking is impermissible but the hair taking is permissible.

<sup>27</sup>I discuss a kidney's importance in Mazor (2019: 209–210).

which it can navigate the Canyon Dilemma (by justifying non-absolute equal division of the natural world). This analogy critically depends on the claim, which I now turn to defending, that each individual's personal domain includes, not only her body, but also an equal share of the natural world.

The first step in defending this claim is establishing that each individual's personal domain extends beyond her body to include *at least some* rights to the natural world. To see the plausibility of this position, consider the following variation of Life-Saving Kidney Taking:

**Air Rights or a Kidney:** Healthy is granted full ownership rights over her body. However, Healthy's right to breathe air is made conditional on her transferring one of her kidneys to Sick.

I submit that the policy in Air Rights or a Kidney imposes an intuitively unacceptable sacrifice on Healthy. However, if Healthy's personal domain includes only her body, then it is difficult to explain why this is so. After all, the policy in Air Rights or a Kidney would foster the collective good (since Healthy's kidney would do more good for Sick than it does for Healthy). Thus, if we want to protect Healthy in this case by appealing to RSP, we will have to recognize that Healthy's personal domain includes *at least some* rights to the natural world.

How far into the natural world, then, does each individual's personal domain extend? This question is difficult to answer. A person's body can straightforwardly be included in her personal domain on the grounds that the body is constitutive of her person (Vallentyne 1998: 613–614). However, since the natural world is not part of any person, we need different principles to determine which parts of the natural world fall within which individual's personal domain.

One approach, suggested by Otsuka's (2003: 32) work,<sup>28</sup> is granting each individual domain rights to *just enough* of the natural world to ensure that no one is forced by necessity to come to the aid of others via certain uses or sacrifices of her body. This would clearly protect Healthy from the policy in Air Rights or a Kidney.

However, this view of the personal domain's scope is implausibly narrow. To see why, consider the following policy:

**Sufficientarian Limits on Air Rights or a Kidney:** Healthy is given the following choice:

- (a) She can either turn over a kidney to Sick and have unlimited rights to breathe air, or
- (b) She can keep both of her kidneys and be granted rights to breathe the air that leave her *just above* a sufficientarian minimum (e.g. she is constantly moderately tired from oxygen deprivation).

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<sup>28</sup>Note that Otsuka frames this proposal, not in terms of RSP, but rather as the foundation for a novel type of substantive self-ownership.

Faced with this choice, Healthy turns over a kidney to Sick.

In this example, Healthy is granted domain rights to the natural world sufficient to ensure that she is not forced *by necessity* to surrender body parts to others. Yet I submit that this air property-right regime nevertheless imposes an intuitively unacceptable sacrifice on Healthy for the sake of the collective good. This suggests that sufficientarian accounts of the personal domain's scope are implausibly narrow.

An alternative account, suggested by Narveson's (1998: 11) work,<sup>29</sup> is that an individual's personal domain extends to any unclaimed natural resource that she consciously includes in her life plans. This proposal appears to attractively grant Healthy full domain rights over the air she needs to breathe.

However, this approach is also unattractive. Note first that it does not guarantee that Healthy will receive domain rights to the air she needs to breathe. If Sick can form life plans before Healthy can, then Sick could incorporate rights to the air that Healthy needs to breathe into *his* life plans (e.g. by planning to trade these rights for Healthy's kidney). In this case, the rights to the air that Healthy needs to breathe would implausibly constitute part of Sick's personal domain.<sup>30</sup>

Perhaps, then, we should allocate domain rights on the basis of traditional distributive principles (e.g. egalitarian or utilitarian). This would treat people's life plans equally in a much more attractive way than Narveson's first-come approach.

However, allocating domain rights on the basis of traditional collective good principles is inconsistent with the aims of RSP because it would make the scope of each individual's personal domain *fundamentally dependent on the plight of others*. For example, if we allocate rights to the air to maximize aggregate advantage or to achieve equality of advantage, we would be led to granting Sick rights to the air sufficient to force Healthy to give him a kidney. But the whole point of respect for the separateness of persons is to grant each person a sphere of moral authority *that is protected from other-regarding moral demands*. Traditional collective good principles are thus implausible when it comes to allocating domain rights.

A much more compelling approach is offered by equal division.<sup>31</sup> Equal division grants every person an equal share of rights to the natural world with which to lead her life, *where the standard of equality is independent of differences in individuals' advantage and capacity to obtain advantage from goods*. It is thus fundamentally consistent with RSP.<sup>32</sup> Equal division ensures that Healthy will be granted an

<sup>29</sup>Note that Narveson also does not frame his proposal in terms of the scope of RSP but rather as an account of all-things-considered rights to the natural world.

<sup>30</sup>For additional criticisms of the first-come idea, see Otsuka (2003: 23).

<sup>31</sup>Admittedly, other interpretations of the equal-claims idea besides equal division could also be defended by the arguments in this section. For example, granting individuals domain rights over any natural resource they appropriate as long as their appropriation does not harm others would also make Healthy's personal domain independent of Sick's disadvantage-based claims to assistance. However, I have criticized these alternatives in detail elsewhere (Mazor 2009: Ch. 4) and shall not rehearse these criticisms here.

<sup>32</sup>Equal division was initially proposed by economists as a way of avoiding having to make interpersonal welfare comparisons due to *epistemic* concerns. The worry was that the allocator did not have enough



equal share of rights to the air, despite the fact that granting Sick these rights would better foster the collective good.

Allocating domain rights to the natural world using equal division is subject to two objections. First, some might argue that equal division should be used to allocate domain rights to all types of wealth, not just to natural resources. If so, then RSP would not justify equal division of rights to the natural world specifically.

In response, I agree that the personal domain should extend to human-made wealth. But I reject the appropriateness of equal division for determining what portion of human-made wealth falls within which individual's personal domain. Instead, as I argue elsewhere (Mazor 2019: sec. 6.2), each individual's personal domain should include the wealth that she laboured to create and/or obtained through just exchanges with others. And though I will not provide a detailed defence of this claim here, it is not difficult to see why, say, the vegetables that I grew with my own hands should fall in my personal domain (rather than being subjected to equal division). It is the status of natural resources as goods that are both external to the human body and not created by human labour that makes equal division a uniquely appropriate domain-right allocation rule.

We can now see how a pluralist theory committed to both RSP and to the collective good can justify a commitment to a non-absolute equal division of rights to the natural world. RSP grants each individual an equal share of rights to the natural world. And just as the collective good can justify infringement of individuals' self-ownership rights in some cases (e.g. Taking a Hair) but not others (e.g. Taking a Kidney), so, too, the collective good can justify a partial deviation from strict equality in shares of rights to the natural world. For example, in *Dividing the Manna Given Desperate Poverty*, since the 20 manna of Ben's share needed to keep Adam alive would do far greater good for Adam than it does for Ben, and since the 20 manna is not of great importance to Ben, the pluralist theory endorsed here could endorse giving Adam at least the 120 manna that he needs to survive (by infringing on Ben's rights to 20 manna in his share). More generally, the pluralist theory proposed here can justify a commitment to non-absolute equal division of rights to the natural world.

### 7.5. Navigating the Canyon Dilemma

The final step of the argument is establishing that the type of non-absolute equal division justified by the pluralist theory proposed above can indeed navigate the Canyon Dilemma. Let us begin with the small canyon case. Since RSP justifies an intergenerational equal division of rights to the natural world, it would grant future people rights to either an unmined small canyon or to an equal share of its metallurgical wealth, depending on the specifics of the case (see section 4.2).

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knowledge to compare different people's welfare (at least, not with sufficient certitude). My justification for equal division, by contrast, is moral rather than epistemic. It is not that the allocator does not know enough to compare welfare across people. Rather, making the scope of an individual's personal domain fundamentally dependent on the welfare of another person is inconsistent with RSP – with the idea that each individual should have a sphere of individual moral authority that is protected from other-regarding moral demands.

The question, then, is whether the collective good could plausibly justify infringing on future people's equal share of the natural world in this case.

An affirmative answer is plausible for two reasons. First, the economic plight of the 1900ers is grave, especially in the case in which the lives of the 100 destitute miners are at stake. Thus, the collective good would be substantially advanced by allowing the impoverished 1900ers to mine the small canyon and keep the wealth for themselves (on a variety of conceptions of the collective good). Second, both the unmined small canyon and its metallurgical wealth can be predicted to be of fairly minor importance to future people. After all, future people are likely to have many near-substitutes for one fairly unremarkable small canyon. And since future people can be predicted to be very wealthy, they will barely miss their share of the small canyon's metallurgical wealth. Thus, just as Adam's plight could plausibly justify infringing on Ben's rights to 20 manna, so, too the 1900ers' plight could plausibly justify infringing on future people's domain rights to either an unremarkable unmined small canyon or to a share of its metallurgical wealth.

Consider next the Grand Canyon horn. Since RSP justifies equal division, it would grant future people rights to an unmined Grand Canyon (see section 4.1). The question, then, is whether the collective good would justify an infringement of future people's domain rights in this case.

A negative answer to this question is plausible for two reasons. First, although the plight of the 1900ers is the same in the small canyon and the Grand Canyon cases, on any conception of the collective good besides strict egalitarianism, sufficientarianism, or maximin, mining the Grand Canyon advances the collective good to a substantially lesser extent compared with mining the small canyon (e.g. because future people can be predicted to obtain far greater welfare from the Grand Canyon compared with the small canyon).

Second, future people's domain rights to the unmined Grand Canyon are substantially stronger than their domain rights to an unmined small canyon. After all, the Grand Canyon not only has arresting scenic beauty. For many, visiting the Grand Canyon provides a distinctive experience of nature's majesty, thus helping them make sense of their place in the universe (Crawford 2014). For others, meeting the challenge of hiking this awe-inspiring part of the natural world can be a life-changing experience (Mishev 2017). Thus, if domain-right strength depends on the importance of the right to the right-holder, then future people's rights to an unmined Grand Canyon will clearly be stronger than their rights to an unmined small canyon (on a variety of conceptions of importance).

But could future people's domain rights to an unmined Grand Canyon really be sufficiently strong to resist the 1900ers' claims to assistance when the lives of the 100 destitute miners are on the line? To see why an affirmative answer is plausible, consider again the case of Taking a Kidney. I suggested above that RSP can protect Healthy from having her kidney seized, despite the fact the kidney would save Sick's life, and despite the fact that the loss of one kidney has no more than moderate negative consequences for the functioning of Healthy's body. This suggests that domain rights have considerable strength, even when the competing claims to assistance are pressing, and even when the domain rights at stake are not of the utmost importance to the right-holder.

Moreover, note that resisting the demands of the destitute miners to mine the Grand Canyon does not require viewing *any one* future person's rights to an unmined Grand Canyon as having the importance of rights to a kidney. After all, for every destitute miner whose life would be saved by the Grand Canyon's mining, an *enormous number* of future people's domain rights to an unmined Grand Canyon would need to be infringed. In aggregate, then, future people's domain rights to an unmined Grand Canyon (but not to an unmined small canyon) can plausibly be seen as sufficiently robust to resist the 1900ers' claims to assistance. Thus, the pluralist theory of environmental justice proposed here can justify the type of non-absolute equal division of the natural world that is capable of navigating the Canyon Dilemma.

## 8. Conclusion

I began this pair of articles by posing a seemingly simple intuitive challenge for theories of environmental justice: Protect the Grand Canyon but not a small canyon from mining by a disadvantaged generation. I argued in Part I that not one of several prominent theories of environmental justice can navigate this Canyon Dilemma.

In this article (Part II), I argued that a pluralist theory of environmental justice committed to both respect for the separateness of persons and the collective good can navigate this Canyon Dilemma. Respect for the separateness of persons grants each person, present and future, advantaged and disadvantaged, an equal share of rights to the natural world. I argued that this can require that the Grand Canyon be kept unmined so that it can be enjoyed by future people, even when current people are disadvantaged.

Admittedly, equal division can sometimes also require the small canyon to remain unmined. Thus, a theory only committed to respect for the separateness of person cannot navigate the Canyon Dilemma. However, endorsing a theory that is also committed to the collective good offers a way out of this dilemma. Just as even our rights to our bodies are not absolute in the face of others' claims to assistance, so, too, the collective good can sometimes justify deviation from strict equality of shares of rights to the natural world, at least when the deviation would infringe on a right of minor importance and when a large amount of collective good could be fostered by the deviation. Since an unmined small canyon can be expected to be of minor importance to future people, and since the economic plight of the early 20th century Americans was acute, the pluralist theory proposed here could plausibly permit these impoverished Americans to mine a small canyon and keep the resulting wealth for themselves. However, since rights to the Grand Canyon are likely to be of great personal importance to future people, the Grand Canyon's mining can be rejected, even though the collective good (understood, say, in egalitarian terms) would be fostered by the Grand Canyon's mining.

Admittedly, an enormous number of issues remain as areas for future research. These include the theoretical and practical challenges that intergenerational environmental problems pose for equal division, controversies over the right

conceptions of the collective good and respect for the separateness of persons, and questions regarding how deep-ecological considerations interact with the anthropocentric theory of environmental justice proposed here.<sup>33</sup> These questions are well worth answering because of this theory's merits. Unlike certain highly demanding theories of environmental justice, this theory can permit certain destructive uses of the natural world, especially when this can alleviate substantial poverty. However, in line with Teddy Roosevelt's impassioned plea for the Grand Canyon's preservation, it can also justify asking even an impoverished generation to preserve important parts of humanity's common natural inheritance for the sake of this treasure's future heirs.

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<sup>33</sup>There are at least three ways in which deep-ecological considerations might be combined with the anthropocentric theory of environmental justice proposed here. First (and most radically), certain non-human entities (e.g. great apes) could be seen as persons (or quasi-persons) and thus morally entitled to rights to a certain share of the natural world with which to lead their lives (on the basis of RSP). Second, certain non-human entities might have a moral status that precludes them from falling within any human being's personal domain (and thus would not be part of what is to be equally divided). Third, just as considerations of the human collective good might sometimes justify infringing on individuals' domain rights to the natural world, so, too, certain deep ecological considerations might be sufficiently weighty to justify infringing on these rights (i.e. as part of a broader conception of the collective good that also includes the good of non-human entities). Precisely how deep-ecological considerations should be combined with the theory of environmental justice proposed here is a pressing question for future research.

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