

## 4 The cry of the earth and the cry of the poor

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Pope Francis's remarkable encyclical Letter *Laudato Si'* has as a central message the need to turn our ears and hearts "so as to hear *both the cry of the earth and the cry of the poor*" (49). A pro-poor environmentalism is very good news indeed. And while the teaching is, of course, a Roman Catholic one and contains elements that many non-Catholics would find objectionable, the central commitment to social justice and ecological concern is ecumenical and has broad appeal. Moreover, it is offered in the spirit of dialogue, not simply as dogma for all to follow. In this chapter, I critically discuss the reasons offered in *Laudato Si'* for the twin condemnation of global poverty and environmental destruction. Additionally, although I reject the idea that human development can and should proceed in harmony with nature, I consider guidelines for a pro-poor social justice agenda if we take seriously the intrinsic value of nature. The kind of reconciliation suggested by the encyclical is, I think, implausible. Still, the pursuit of poverty eradicating human development should seek to limit the destruction of natural value. To fail to do so is to fail to respond adequately to the value of nature. I offer some preliminary suggestions for how to think about the pursuit of both poverty eradication and the preservation of natural value.

### The cry of the earth

The first cry of *Laudato Si'* is the cry of the earth. Industrial production and agriculture as well as mass consumption have exacted a toll in the form of biodiversity loss, pollution, climate change, and other environmental problems. The encyclical recognizes two valid ways to consider this loss of value. The first is at least partially anthropocentric. "Different species contain genes which could be key resources in years ahead for meeting human needs and regulating environmental problems" (32). Indeed, human needs, particularly in agriculture and medicine, provide strong reasons to seek to preserve biodiversity. As the biologist, Edward O. Wilson, reminds us,

Organisms are superb chemists. In a sense they are collectively better than all the world's chemists at synthesizing, organic molecules of

practical use. Through millions of generations each kind of plant, animal, and microorganism has experimented with chemical substances to meet its special needs...The special case of chemicals in which the species became a wizard is precisely determined by the niche it occupies.

(Wilson 1992: 285)

Human usage of plant species in agriculture is remarkably undeveloped. Some 30,000 species of plants may be eaten in whole or in part by humans. Of these less than a third have been collected or grown as food. And a mere 20 species provide 90% of human food. Three, wheat, maize, and rice, provide more than half of the food (Wilson 1992: 287–288). In the case of medicines, the under use is even more dramatic. Although 40% of all medicines are derived from organisms, and 20% from plants alone, only 3% of all known flowering plants have been examined for medicinal properties (Wilson 1992: 285). Our ignorance regarding the possible benefits of natural species—including species that are vanishing—is staggering.

Our witlessness about the utility of organisms to us is exceeded by our inability to even estimate within an order of magnitude the number of species that exist on the planet. A large number of new species are discovered each year. This is not due to their emergence, but to growth in human knowledge. Estimates of the number of currently existing species range from 10 to 100 million (Wilson 1992: 132). And, when it comes to recording extinctions, only those species known to have existed can be counted. It seems safe to assume that in addition to known extinctions many more species, never known to have existed, die off. Considering only rainforest biodiversity Wilson is able to estimate that the natural background rate of species extinction is about one species per one million per year, and human activity has increased this between 1,000-fold and 10,000-fold (Wilson 1992: 280). He conjectures that, "we are in the midst of one of the great extinction spasms of geological history" (Wilson 1992: 132).

The extent of biodiversity destruction is staggering, and the potential loss of utility to humans is enormous. That raises important practical problems. One is whether biodiversity loss can be priced. If we are seeking to use resources efficiently, how much should we spend to preserve the potential benefits of biodiversity? The aim of the Ecosystem Services approach to conservation is to answer questions like these, if not for biodiversity in general then with respect to particular localized ecosystems and perhaps individual species. Ignorance, however, prevents answering that question in regards to total planetary biodiversity in a precise book-keeping way. We can't establish the economic value of species not known to exist. Hence, we can't measure the loss of economic value attributable to overall annual species extinction. But even if we had catalogued all existing species, we would still need to consider their relations, such as predation and mutuality. For when a species goes extinct it has an impact, for better or worse, on other species. The loss of one species causes disruptions that could impose other

costs. And most important for any cost accounting, we would need to know the full use-value of every species to us. Ignorance regarding the existence of species, how they interact with one another, and their full usefulness renders any attempt at book-keeping deeply suspect.

These problems of measuring value on a planetary scale ramify across ecosystem and species. In the case of a particular ecosystem, depending on how thoroughly it has been studied, there is to a greater or lesser extent uncertainty about the number of species it contains. And even for the known species we often possess limited knowledge regarding both their interactions with other species and their utility to humans. Hence, even when it comes to pricing the services of particular ecosystems and species, limitations of knowledge present major problems. It seems safe to say, that given limits on knowledge, any book-keeping exercise will underestimate, probably massively. As long as there are opportunity costs incurred by environmental protection and restoration, there will be a demand to price the service of the natural item preserved or restored. But there is little reason to assume that the estimated price is accurate.

The encyclical could not keep faith with its own tradition if it considered only loss of economic value when reflecting on ecological destruction. At various points in the first creation story in Genesis 1, the Creator pauses to behold the creation and then judges it good (Genesis 1: 4,10, 12, 18, 21, and 25). It would be utterly implausible to interpret those judgments in terms of economic benefits. So it is not surprising the encyclical says that "[it] is not enough, however, to think of different species merely as potential 'resources' to be exploited, while overlooking the fact that they have value in themselves" (33).

The second way that the encyclical considers the loss of value that occurs in ecological destruction is in term of loss of intrinsic value. The cry of the earth is not simply a grief stricken human response to mounting losses in some accounting ledger. It's not a painful lament for an economic setback. The locution "value in themselves" in Paragraph 33 refers to the value of a species that is not dependent on the species serving some others purpose, either in the ecosystem or for humans. If species also have intrinsic value, then extinction is a loss regardless of whatever diminution to human well-being occurs or whatever harm to ecosystems comes to pass. Insofar as we have reason to regret the loss value, then extinction is regrettable to some extent regardless of whether it diminishes human well-being or ecosystem functioning.

The use of the term "species" rather than "organism" in Paragraph 33 also suggests that the relevant value is not reducible to the value of individuals. When the last organism of a species dies, there is a loss that is other than whatever loss occurs from the loss of the organism itself. This claim is of course consistent with also valuing the organism itself. The encyclical seems also to take the view that individual organisms are valuable, for it refers to the intrinsic value of "lesser beings" (118). This is not an unfamiliar

combination of views. A music lover can enjoy a genre of music, and enjoy individual songs or compositions within the genre. We may even admire a particular piece of literature, despite the fact that we generally dislike the genre. The point here is that valuing the class is distinct from valuing its members. But since the class exists only insofar as the members exist, we have an additional reason to value members of an endangered valuable class. Alan Carter offers an illuminating comparison. We care about species as we care about artistic genres; species extinction is analogous to the loss of an entire genre of valuable art (Carter 2010).

The encyclical takes species then as valuable instrumentally, for human purposes, but also intrinsically. We value many things both instrumentally and intrinsically. Education can be valued as a means to pursuing a rewarding career and it can be valued for its own sake. Because instrumental value derives its importance from what it promotes, and instrumental disvalue derives its disvalue from what it threatens, the weight of the value or disvalue is a function of that which is promoted or threatened. In the context of species preservation, it is especially important to note that something's intrinsic value is not necessarily weightier than its instrumental disvalue. So, even if a species of bacteria has intrinsic value, the threat that it poses to the health of other organisms might be significant enough to merit eradicating it. Hence, we might not have reason to regret a species extinction all-things-considered.

The encyclical's affirmation of the intrinsic value of species and organisms entails a non-anthropocentric view of the value of nature. Organisms and species are valuable apart from their utility to humans. The encyclical often expresses non-anthropocentrism in theistic terms. It appeals, for example, to experiences of value in nature as experiences of God in nature.

[T]he mystic experiences the intimate connection between God and all beings, and thus feels that 'all things are God.' Standing awestruck before a mountain, he or she cannot separate this experience from God, and perceives that the interior awe being lived has to be entrusted to the Lord.

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In the spirit of the ecumenical pursuit of the concerns of environmentalism that the encyclical values, it should be pointed out that non-anthropocentrism need not rely on theism. Non-anthropocentrism is the view that valuable items need not serve some human purpose in order to be valuable. One way to non-anthropocentric natural value might be via theism. The mystic interprets the awe of a mountain as being awe before God. But those who don't experience God need not deny the awe. There may also be awe in the face of the grandeur of the mountain. Likewise, experiences such as the wonder and intrigue of seeing a single-celled organism under

the microscope or the breathtaking delight of viewing the Grand Canyon may be aesthetic experiences of just those things, not of a deity in them. They may be experiences of valuing the object intrinsically, not for its propensity to serve human or other aims (Moellendorf 2014: 69–70, 2017). Our experiences of valuing natural items, then, evince the possibility of the theist and the atheist agreeing that intrinsic value is found in nature.

The pleasing properties we perceive when experiencing natural items is the basis of our valuing them intrinsically. But we also value these things because they are not entirely artefactual, even when they are profoundly affected by us through accident or good management. Their origin and constitution also matter to us (Moellendorf 2017). The mystic who sees God in the mountain might believe that the origin of natural value derives from an original act of divine creation; other people might be agnostic about that derivation. In order to value natural items for their non-artefactual character, there is no need to have a belief about the origin of the universe. If the ultimate origin of all that exists is mysterious to us, that does not in any way diminish its value.

There is no reason to think that the theist has the upper hand in providing support for the intrinsic value of nature. Settling the origin of nature one way or another settles nothing at all about its intrinsic value. Claims about nature's origin—whether they involve a deity or not—simply don't determine its value. The claim that the maker of the universe is to be found in the mountain gives us a reason to value the mountain only if we have a reason to value the places in which the maker resides. In order for a claim that we ought to value something to follow from other claims, these other claims must also include claims about what we should value. Ronald Dworkin makes the point nicely:

There is no direct bridge from any story about the creation of the firmament, of the heavens and earth, or the animals of the sea and the land, of the delights of heaven, or the fires of hell, of the parting of any sea or the raising of dead, to the enduring value of friendship and family or the importance of charity or the sublimity of a sunset or the appropriateness of awe in the face of the universe....

(Dworkin 2013: 25)

Ultimately, any argument that we should value nature can appeal only to arguments from within our normative concerns, not to empirical claims of its provenance.

We can't step outside of our normative concerns to attempt to justify one or all of them. When it comes to natural value, there will always be a logical normative gap between facts about an item's properties, whether intrinsic or relational, and our valuing of those properties. To take a familiar example within environmental ethics, the fact that an organism has a good of its own entails nothing about how we should act vis-à-vis it (Moellendorf

2014: 46). A claim about how we ought to value natural entities will have to be made from within a normative account; it can't be drawn from claims about their origin or their properties. If the mystic values the mountain because God is in it, then she must value God since the value of the mountain does not follow just from the claim that God is in it. An atheist appreciator of the mountain may simply value it for the pleasing properties she perceives.

The encyclical identifies "an excessive anthropocentrism" (116) as a fundamental cause of environmental problems. Indeed, this excess, according to the encyclical, is the source of a great many social problems:

Neglecting to monitor the harm done to nature and the environmental impact of our decisions is only the most striking sign of a disregard for the message contained in the structures of nature itself. When we fail to acknowledge as part of reality the worth of a poor person, a human embryo, a person with disabilities – to offer just a few examples – it becomes difficult to hear the cry of nature itself; everything is connected. Once the human being declares independence from reality and behaves with absolute dominion, the very foundations of our life begin to crumble, for 'instead of carrying out his role as a cooperator with God in the work of creation, man sets himself up in place of God and thus ends up provoking a rebellion on the part of nature.'

(117)

This is a confusing and deeply controversial set of claims without clear warrant. As I argued earlier, nothing follows about the weight of the valuable item from the claim that it is intrinsically valuable. Even if we should value something intrinsically, we may still have a reason in light of its instrumental disvalue to destroy it. In a world in which trade-offs must be made, even if we accept that an organism is intrinsically valuable, nothing follows all-things-considered about whether that organism should be preserved. Medical science surely depends upon, among other things, exercising a measure of dominion over nature. Through advances in medical science, we are capable of extending and improving human life far beyond what were once thought of as natural limits. We surely have not merited a rebellion by nature by seeking to exterminate or at least subdue deadly viruses and bacteria.

Appealing to non-anthropocentrism does not solve the problem of how to make trade-offs amongst what is valuable. On the contrary, the existence of a plurality of intrinsically valuable items, in addition to humans, raises the prospect of multiple conflicts. There is no short cut to employing careful moral reasoning about the relative weight of that which we value, when we cannot and should not preserve and care for everything that is valuable.

The passage above also errs in suggesting that "the structures of nature itself" can provide normative guidance for human relations. Tennyson

observed that nature is "red in tooth and claw" (Tennyson 1849). And John Stuart Mill developed the point for purposes of moral argument:

People who pride themselves on being able to read the Creator's purposes in his works ought to have seen in the animal kingdom grounds for inferences to conclusions that they hate. If there are any marks at all of special design in creation, one of the things most obviously designed is that a large proportion of all animals should spend their lives tormenting and devouring other animals. They have been well equipped with the instruments needed for that purpose; their strongest instincts push them towards it; and many of them seem to have been so constructed as to be incapable of supporting themselves by any other food. (Mill 1904)

Any appeal to the normative lessons to be found in "the structures of nature" will either have to overlook the immense suffering to be found in nature or endorse cruel forms of human interaction. Since neither option is tenable, such appeals are better left unmade.

The cry of the earth is a powerful way to think about ecological destruction. There is much to mourn. So many opportunities for human improvement lost, and so many items of wonder, awe, and delight destroyed. But deriding anthropocentrism is more a trope than a solution for the problems of practical deliberation. Certainly, no broad-based agreement can be derived from sectarian religious beliefs. To its credit, the encyclical seeks to go beyond that. Admirably, it seeks ecumenical dialogue. At some points, the encyclical engages, albeit incompletely, in a more promising kind of reasoning about values, such as in drawing a distinction between valuing things intrinsically and valuing them for human purposes. This is where practical deliberation might make progress independent of a sectarian basis. Valuing nature is distinct, however, from seeking normative guidance for human conduct in the structures of nature. No normative guidance can be found in the direction that the encyclical points, namely to nature itself.

### The cry of humanity

The second cry recognized in the encyclical is the cry of humanity suffering under grinding poverty. Poverty is an assault on human dignity. The eradication of poverty is a morally mandatory aim of states and the global community. The encyclical admirably proclaims that environmentalism must be guided by a pro-poor agenda. It declares that, "a true ecological approach *always* becomes a social approach; it must integrate questions of justice in debates on the environment" (49). The encyclical continues by invoking the idea of an ecological debt that the global rich owe the global poor:

A true 'ecological debt' exists, particularly between the global north and south, connected to commercial imbalances with effects on the

environment, and the disproportionate use of natural resources by certain countries over long periods of time...There is a pressing need to calculate the use of environmental space throughout the world for depositing gas residues which have been accumulating for two centuries and have created a situation which currently affects all the countries of the world.

(51)

Attempts to base climate diplomacy on precise metrics of allotted environmental space would likely be a diplomatic nightmare. Any metric would be hugely controversial and invite controversy and resistance. However, a less precise, but no less categorical, requirement that climate policy should safeguard the Right to Sustainable Development of developing and least developed countries is reasonable. And the reasons derive from the importance of energy in achieving poverty eradicating human development and from the capacity of industrialized countries to assume responsibility for a transition to a sustainable global economy without harming the well-being of their citizens.

Hundreds of millions of deaths due to the disease, malnutrition, and physical assaults that are associated with poverty are preventable. Recently, human development strategies in several East Asian countries have made significant progress in eradicating poverty. That progress is partially measurable by improvements in a state's Human Development Index (HDI), compiled by the United Nations Human Development Programme (UNDP). The HDI ranks states on a scale of 0–1. According to the UNDP, the HDI is "a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living" (UNDP 2019). More precisely, the HDI of a country is the geometric mean of the following three measures: life expectancy at birth, per capita national income, and the combination of the mean years of schooling for adults and the expected years of schooling for children just starting school. The HDI groups countries into four quartiles, very high human development (0.800 and above), high human development (0.700–0.799), medium human development (0.550–0.699), and low human development (below 0.550) (UNDP 2018).

The Nobel Prize winning economist, Amartya Sen, argues for taking "development as a process of expanding the real freedoms that people enjoy" (Sen 1999: 36). The items measured by the HDI, according to this view, are constituents of human freedom. So, when a country makes progress with respect to the indices of education, income, and health, the citizens are substantively freer. Insofar as real freedom consists, not only in the absence of constraints on action but also the power to act, Sen's view that real freedom is enhanced by human development is highly plausible, but nonetheless incomplete. There may be value to health, income, and education apart from being constituents of freedom. For example, health

projects. But it also seems valuable for its own sake. A person in confinement with very limited freedom and sharply restricted aims still has reason to value her health. Education is instrumentally valuable in pursuit of ends and projects. The knowledge that education yields serves to promote other values. But knowledge is also valuable for its own sake, regardless of the use to which it is put. By contrast, apart from being a constituent of human freedom, income is limited to instrumental value. Still a great deal of what we have reason to value in modern societies is traded for money. An increase in income for most people permits them to have more of what they value. In sum, the value of human development consists not only in the expansion of human freedom but also in the independently valuable increases in health, educational outcomes, and personal income.

The experience of the last several decades makes it clear that poverty reducing national development strategies involve huge increases in energy consumption. In 1990, China's Human Development level was low. China had an HDI of 0.499. By 2015, China's HDI had risen to the high category and was 0.738 (UNDP 2015). The developmental progress that occurred involved an eight-fold increase in per capita electricity consumption from 0.51 MWh/person to 4.05 MWh/person (IEA China). A similar story can be told for most other countries that have made significant Human Development gains. In 1991, Thailand's HDI was 0.574; by 2015, it had risen to 0.740, a less dramatic rise than China's but still impressive (UNDP 2015). Fueling the HDI improvement was an over three-fold increase in electricity consumption from 0.71 MWh/person to 2.62 MWh/person (IEA Thailand). More broadly, the International Energy Association (IEA 2012) has developed an Energy Development Index (EDI) composed of the following four measures: the percentage of the population with access to electricity and per capita residential consumption, the percentage of modern fuels (excluding electricity in residential fuel consumption, per capita public sector electricity consumption, and the percentage of economic activities in the total final consumption. Each factor is scored on a 0–1 scale, and the EDI is the arithmetic mean of all four (IEA 2012). That scale is devised for ease of comparison with the HDI. And, comparison reveals a strong correlation between HDI value and EDI value (IEA 2012, 547). The evidence is strong that massive increases in energy consumption accompany the promotion of human development and the eradication of poverty.

Human development uses electricity, and the main means by which electricity is generated is through the burning of fossil fuels. Nearly 40% of all electricity currently produced in the world comes by way of burning coal, around 15% by natural gas, and about 5% by oil. It's not surprising then that countries making significant human development gains in the last several decades have also seen a significant increase in fossil fuel consumption and CO<sub>2</sub> emissions. China's per capita CO<sub>2</sub> emissions rose from 1.83 tons in 1990 to 6.59 tons in 2015 (IEA). In Thailand over that same time period emissions rose from 1.43 tons per person to 3.64 (IEA). For countries

seeking to make poverty eradicating developmental gains, the use of fossil fuels has been especially attractive.

The experience of the end of the twentieth century and the beginning of the twenty-first century suggests that the pursuit of intelligent national development strategies can make significant human development gains. That experience also makes clear that human development uses massive amounts of energy. Schools, hospitals, and industrial employment all require energy. Human development requires not only intelligent national development strategies but also an international context in which there is reliable access to inexpensive forms of energy.

One plausible interpretation of the "ecological debt" that the encyclical speaks of has to do with the importance of the international context for access to inexpensive forms of energy. The idea is that responsibility for achieving the pressing aim of transitioning to a zero carbon global economy in a matter of decades should be assigned primarily to highly developed countries. They are moral debtors and developing and least developed countries are the moral creditors regarding climate change policy (Moellendorf 2011, 2014). This idea is partially captured in Article 3, Paragraph 4 of the United Nations Framework Convention on Climate Change.

The Parties have a right to, and should, promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programs, taking into account that economic development is essential for adopting measures to address climate change.

The Right to Sustainable Development can be understood as a claim that developing and least developed countries have on highly developed ones to construct or maintain an international institutional and policy arrangement in which developing and least developed states do not have their prospect for pursuing policies of human development diminished.

In the context of climate change mitigation, such a claim is particularly important. Any successful mitigation policy will require rapid transition to global net zero emissions, by mid-century if warming is to be limited to 1.5°C, and only a couple of decades later to limit warming to 2°C. To effect such a transition, an increase in the cost of fossil fuels in comparison to renewable energy must occur. The energy market is more and more taking care of that as the price of renewable energy falls. Still, in many cases, policy measures will be required to increase the comparative costs of fossil fuels. These will include ending subsidies for and putting a price on fossil fuels. Doing so risks driving up the absolute costs of energy, thereby slowing human development. So, a mitigation regime that respects the Right to Sustainable Development will protect the human development prospects of developing and least developed countries by maintaining access

to inexpensive forms of energy. This can include a slower schedule for the phase out of fossil fuels, allowing time for renewable energy technology to mature. But it may also need to include subsidizing the purchase of renewable energy and the development of renewable energy generation facilities in developing and least developed countries because these countries must also transition away from the use of fossil fuels.

The Right to Sustainable Development can be plausibly interpreted as an account of the moral creditors in the context of climate change policy. If developing and least developed countries are the creditors, the debtors are most highly developed countries. Their debt derives from their special capacities to pursue accelerated emissions reductions, to develop and employ carbon dioxide removal technologies, and to subsidize the purchase and development of renewable energy in developing and least developed countries. What is special about their capacity to pursue these aims is that they can do so without diminishing the well-being of their citizenry. Hence, the account of the moral debtors that fits with the understanding of the creditors, as expressed in the above interpretation of the Right to Sustainable Development, is based on the capacity of highly developed countries to assume primary responsibility for climate change without damaging the morally mandatory project of eradicating global poverty.

The account of the rights of developing and least developed countries and the responsibility of highly developed countries that I am defending seems consistent with the claims of the encyclical:

We must continue to be aware that, regarding climate change, there are *differentiated responsibilities*. As the United States bishops have said, greater attention must be given to 'the needs of the poor, the weak and the vulnerable, in a debate often dominated by more powerful interests'. We need to strengthen the conviction that we are one single human family. There are no frontiers or barriers, political or social, behind which we can hide, still less is there room for the globalization of indifference.

(52)

Taking seriously the Right to Sustainable Development as a constraint on international climate change policy, and holding highly developed states as primarily responsible as a result of the constraint, is one way that climate policy can recognize that "we are one single human family."

Climate change is a problem of global scope, and addressing it appropriately requires international cooperation. Fairness in cooperative burden sharing requires that parties not be made to sacrifice something of fundamental moral importance in order that other parties can be relieved of sacrificing something comparatively far less important. Involuntary poverty is an assault on human dignity and is something that everyone has reason to avoid (Moellendorf 2014). And, the exacerbation of severe poverty is

one of the most fundamental threats posed to humans by climate change. Insofar as everyone has reason to avoid such poverty, reasonable agreement that policy should seek to avoid it is possible (Moellendorf 2014). A policy to address climate change that would prevent states from pursuing poverty eradicating human development would be unreasonable. That is one reason to take seriously the Right to Sustainable Development (Moellendorf 2011, 2014). And it is in light of that right that the encyclical's claim that "a true ecological approach *always* becomes a social approach" seems correct.

### Prospects for reconciliation

The encyclical seems to suggest the possibility of a kind of reconciliation between humanity and nature.

Men and women have constantly intervened in nature, but for a long time this meant being in tune with and respecting the possibilities offered by the things themselves. It was a matter of receiving what nature itself allowed, as if from its own hand. Now, by contrast, we are the ones to lay our hands on things, attempting to extract everything possible from them while frequently ignoring or forgetting the reality in front of us. Human beings and material objects no longer extend a friendly hand to one another; the relationship has become confrontational.

(106)

This passage seems to advocate an alternative to a "confrontational" relationship to nature that involves "being in tune" with it and "receiving what nature itself allows." Still, the passage also seems to allow that such harmony with nature is fully consistent with intervening in it.

The encyclical's suggestion for reconciliation is too vague to offer any practical guidance. The view seems to allow interventions in the natural order of things. It explicitly refuses to categorically reject genetically modified crops, seeking instead a case-by-case evaluation (133). And surely modern medicine is not ruled out. But when do our practices stop being a matter of receiving what nature allows and begin to be confrontational? Is eradicating a virus a matter of merely receiving what nature allows or is it being confrontational? If eradication is not confrontational, then it's unclear what would be. But if eradication of a virus is confrontational and nonetheless allowed, then the distinguishing criterion of permissible from impermissible intervention cannot be whether the intervention is confrontational. Hence, there is no clear and plausible criterion for living in tune with nature suggested in the passage.

Humans survive and thrive by transforming nature into habitable environments. And a criterion of being in tune with nature is incapable of guiding our transformative work. Human development proceeds only by massively transforming the natural environment. Humans are certainly not

the only species that transform nature into habitable environments, but we have the capacity to do it much more extensively than other species, and making development progress seems to require us to do so. Wilson, with the insight that only a biologist can have, offers a vivid account of how drastic the impact of human development is on the planet:

Human demographic success has brought the world to the crisis of biodiversity. Human beings—mammals of the 50 kilogram weight class and members of a group, the primates, otherwise noted for scarcity—have become a hundred times more numerous than any other land animal of comparative size in the history of life. By every conceivable measure, humanity is ecologically abnormal. Our species appropriates between 20 and 40 percent of the solar energy captured in organic material by land plants. There is no way that we can draw upon the resources of the planet to such a degree without drastically reducing the state of most other species.

(Wilson 1992: 272)

If this picture of things is basically accurate, then living in tune with nature is simply not a plausible normative criterion for judging human development efforts.

If there is to be some kind of re-calibrating of our thinking about human development efforts in light of damage to the natural environment, it should not be based on a norm of living in tune with nature. A more plausible idea would be to proceed as if the intrinsic value of nature mattered, as surely it does. This is not to suggest any precise limits or constraints to development. One thing seems clear: we should not think that the only way to value the loss of biodiversity that occurs is in terms of a loss in the services that ecosystems provide humans.

Compare valuing nature to valuing art. If we were to wonder whether it makes sense to stop maintaining masterpieces of art we would certainly not think that question is answered by the amount of revenue that can be gained from maintaining them. There may be circumstances in which people might have to make such decisions simply on financial grounds, but surely these circumstances are regrettable. And the circumstances are regrettable because in deciding on that basis we are not fully considering the value of the art allowed to deteriorate. If a masterpiece of art has intrinsic value, then any valuation of it solely in terms of the artwork's promotion of human well-being is a mis-valuation of it. For the intrinsic value that it has is precisely its value apart from the promotion of other valuable matters.

There is also no reason to suppose that the intrinsic value of natural items or systems can be given an accurate monetary value (Moellendorf 2017). Money is the common denominator of items that have use value to human beings. But a comparison of the intrinsic value of natural items or systems

point of valuing nature intrinsically. Karl Marx made this point rather more pointedly: "The view of nature that has obtained under the dominion of private property and money is the actual despising and degrading of nature" (Marx 1977: 60). Even if the reality of limited budgets forces us to decide how much we are willing to spend to preserve an intrinsically valuable item, our willingness-to-spend is not necessarily the metric according to which the value of the item is measured. Our willingness-to-spend is influenced by factors that have nothing to do with the properties of the item. It is influenced by how much money is available, by the opportunity costs of spending, and so on. None of these considerations speak to valuable properties of the item.

Suppose that human development required destroying masterpieces of art. We would have reasons to regret the loss of value involved and we would seek ways to minimize it. Certain guidelines, such as the following, would seem reasonable: Seek development projects that are least costly in artistic terms; seek projects that preserve genres of art as much as possible; seek to maintain variety; seek not to cause destruction that has widespread knock on effects. We cannot capture well relationships of mutuality and predation by analogy to art, but some pieces might lose much of their significance as pieces of art if other pieces which they reference or cite are destroyed. Urgency may force us in some circumstances to make development decisions neglecting all of the above considerations and thinking only about financial costs, but certainly that would be regrettable and ordinarily not in keeping with valuing the masterpieces intrinsically.

The analogy offered above does not suppose that we have moral duties to the works of art. Rather, it supposes that care and maintenance are appropriate responses to the intrinsic aesthetic value of masterpieces. Likewise with nature, we need not suppose we owe anything to species for us to have good reasons in light of their intrinsic value to preserve them. And if in fact we do not owe anything to species, human development necessary to eradicate poverty may continue without conflicting moral duties, as long as it is appropriately constrained. Just as we would fail to value great works of art appropriately if we were to destroy them without following guidelines similar to the ones I mentioned, so would our destruction of natural items constitute a failure to respond appropriately to their value if we did not follow analogous guidelines. We have good reasons deriving from the treasure of intrinsic value in nature to seek means of development that are least damaging.

One objection to the position I am defending might be developed along the following lines. If we could take the perspective of the global planner of human development, she would always have a reason based in the moral duty to eradicate poverty to direct funding toward development, even at the regrettable cost of not securing funding to preserve natural value and indeed of permitting projects that destroy such value. Proceeding in this way would eventually destroy all natural value. Hence, the view that I am defending offers no secure defense of the conservation of nature. Indeed, it

The objection, I think, fails for two main reasons. First, not all human development is morally mandatory. Once the blight of poverty is eradicated, I doubt that there is such a weighty reason to continue to pursue human development. The specter of a case for development without end seems illusory. Second, practically we cannot adopt the perspective suggested above, and the fact that we are not in that position can affect our reasons to act. The practical question will always be limited in scope. Should we proceed with this particular development project or some one of several other possible projects? There won't be a global accounting, but only an accounting based on some limited set of possible projects. And when choosing from that set, the evidence of prospective loss of intrinsic value can play a role in addressing the question of which to choose. Within a budget applied only to a limited set of choices, there may be good reason to make the more expensive choice that preserves natural value because the money that would be saved by pursuing the less expensive choice would not be deployed to pursue some other development projects in any case. My first response assumes the terms of the objection and argues that the conclusion does not in any case follow. My second response denies that for practical purposes we find ourselves in a circumstance relevantly similar to one envisaged by the objection. Taken together, I think that these responses undercut the force of the objection.

### Concluding remarks

*Laudato Si'* is offered in the spirit of dialogue. Pope Francis admirably makes an appeal for "a new dialogue about how we are shaping the future of our planet" (14). My chapter is offered in the same spirit. But my response is quite limited, and there are many interesting points of discussion that I simply could not address. For example, I say nothing at all about the document's rejection of a "culture of relativism" (123), or its condemnation of "the technological paradigm" (108). Nor do I address any of the controversies in the text that are relevant to Christian theology. The encyclical is a rich and complex document. No single response can do it justice. Mine is one of many pieces in this volume that attempts to engage with the encyclical, and each of these responses, being modest in length, will select just a small number of passages to which to respond. No response can presume to judge the encyclical in its entirety. By engaging with the chapters of this volume, the reader may, however, develop a broader understanding of the encyclical than any one of these chapters offers.

I praise the encyclical for maintaining that environmental problems must be addressed as social problems, and in particular must be considered in relationship to the urgent moral demand to eradicate poverty. But in asserting that both the earth and humanity are crying out under the weight of environmental problems, the encyclical does not reduce the

value of nature to its value for human beings. The document asserts the intrinsic value of natural items and systems. I argue that there are good reasons to agree. But the encyclical is more optimistic about reconciliation between the projects of poverty eradication and living in tune with nature than I think we should be. Human development is destructive of natural value, yet eradicating poverty requires that we pursue development. Taking seriously the intrinsic value of natural items and systems requires us to think carefully about how to proceed. Without presuming to offer detailed practical advice, I suggest that thinking about the kinds of trade-offs that might be made in preserving masterpieces of art provides some guidance in that regard.

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