

The Anthropocene, Ethics, and the Nature of Nature

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Environmentalists have always valued the idea of thinking globally – and the idea of the Anthropocene is certainly a planetary thought. The thought, of course, is that Earth has entered a new geological epoch, characterized by human activity. To speak precisely, the geophysical proposal is that at this moment (geologically speaking) human activity is marking the rock that constitutes Earth’s “permanent record,” and observers in the distant future will be able to interpret that “signal” as a boundary between two broadly distinct conditions of the Earth system: the Holocene coming before, and the Anthropocene coming after. [12,13] But the significance of the Anthropocene goes well beyond its interest as a geological hypothesis. I wish to explore one particular sort of significance: the implications of the Anthropocene for ethical thinking about human activity in the environment.

From an ethical perspective the Anthropocene can provoke a sense of moral discomfort. That discomfort rests, I believe, on an attitude regarding human activity in nature, namely that it tends to disrupt otherwise intact natural systems – causing harm to people, other creatures, or the natural systems themselves. The status quo, prior to human intervention, has a normative status: it would be morally right to allow natural systems to continue in their given conditions. Because it involves interference with

natural systems, that is, human beings' transformations of the physical environment involves environmental wrong. The Anthropocene represents the aggregation of human interference, to a global scale. That the Earth is no longer natural in itself seems morally distressing – and the projected effects, climate change being simply the most familiar, make us imagine that our children will condemn us for what we have left them.

In this paper I want to explore the moral concern I've just sketched, with the aim of suggesting that it is misdirected. Obviously human beings will face vital moral choices stemming from the pervasive changes wrought by human activity. But to my mind the significance of the Anthropocene includes the opportunity it makes vivid to us for clarifying the human place in nature, indeed for revising how we understand nature itself. Thus I will consider the conception of nature, and the human place in it, that seems to be presumed by the moral concern about the Anthropocene: the conception that though human life is embedded in natural systems, there is a sharp conceptual boundary between nature and humanity that entails that they be understood as distinct. I will suggest that that view of nature is misleading, and observe that it is currently under substantial revision across a number of fields. I will sketch out an alternative view, according to which the conceptual boundary between nature and human activity is much less sharp; this alternative recognizes the pervasiveness of human influence even in areas that have been imagined as purely natural. And I will conclude by considering how such an understanding of nature can inform our moral understanding of the Anthropocene.

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Let us begin by quickly reviewing the standard picture of moral evaluation of human action in nature. On a very general understanding, a person's action is morally right or wrong to the extent that the action advances or compromises an ethical value. (I mean this understanding to be neutral as between formal ethical theories which identify the right with the attainment of good consequences, and theories which stress adherence to moral principles – I take both alternatives to be encompassed by the notion of ethical value.) Thus, actions bearing on the natural environment are evaluated in light of an understanding of the moral value associated with nature: specifically, if an action works against the value, the action is morally wrong.

I take it that the moral concern about the Anthropocene emerges from one (or perhaps both) of two standard beliefs about the kind of value attributable to nature; I will present what I hope is not too oversimplified an account. [10] On the one hand, nature can be taken to have “instrumental” value: it can be seen as valuable for what it provides to human beings. On this view nature's value is only indirect; what is directly valuable is the human good, which in turn can be interpreted, for example, as human wellbeing, or as the ability for people to exercise autonomy, or to fulfill their capabilities. On this view nature has value precisely to the extent that it can be used to help people reach the directly valuable condition. It is not relevant to consider the range of ways nature can be instrumentally valuable; for our purposes the case of natural services is most important. The services provided by ecological and strictly a-biotic processes are the foundation of human social systems, hence of human good on any

conception, and thus are valuable in this instrumental way. Disruption of those vital natural systems impedes the ability of people to attain that good, therefore is morally wrong.

The concern about the Anthropocene, of course, is that it brings with it massive disruption of the planet-wide systems which have enabled human civilization to emerge and grow throughout the Holocene epoch. Human-induced climate change, perhaps the most familiar feature of the Anthropocene, illustrates the point best: effects such as sea-level rise, changing weather patterns, and habitat change pose just this risk of limiting the ability of human societies to provide for the human good. Thus the threats associated with the Anthropocene can be understood as moral wrongs from the purely instrumental perspective on nature.

On the other hand, nature can be taken to have “intrinsic” value: it can be seen as valuable for its own sake. On this view nature’s value is direct; nature itself is the valuable entity, independent of any good it may provide to people. Indeed, on this view, nature’s intrinsic value is independent of the human activity of valuation: nature has its value whether or not human beings acknowledge it. Value is not created by the human beings’ subjective appreciation of nature, either for its utility regarding human purposes, or for its own inherent properties: human beings may or may not recognize nature’s value, but that value is there as an objective moral fact.

The belief that nature has intrinsic value is typically associated with a concern that, morally speaking, nature is subject to human domination, which in turn is seen as the result of the belief that nature’s value is strictly instrumental. If nature has intrinsic

value, the argument goes, then its independent moral status determines the rightness or wrongness of relevant human action, i.e. action that affects the natural environment. But, licensed by the belief that nature has instrumental value, human beings tend to treat nature instrumentally, i.e. as a resource, or means, to be exploited for their own ends. The disruption of natural systems this exploitation involves necessarily compromises nature's own proper value – hence is a direct moral wrong. The Anthropocene can be seen as the culmination of this wrongful process. Independent of any consideration of its consequences, the wholesale alteration of Earth's systems manifests a blindness to their value just as they were. As the result of the conversion of nature into human dominion, the Anthropocene epitomizes the attitude of human domination, and represents a moral wrong of planetary scale.

Despite their important differences, then, on both beliefs about the value of nature – that it is instrumental, that it is intrinsic – the anthropogenic transformations in Earth systems that have yielded the Anthropocene involve moral wrongs. Thus, both views of value can be enlisted to support the claim that there is a moral imperative to address those changes. The range of responses is obviously vast. But I take it that, considerations of practicality aside, the strongest form of that imperative includes a demand to counteract the forces that are producing the Anthropocene, with the goal of moving back toward less compromised conditions, i.e. the state of Earth systems at an earlier stage of human intervention. Though complete restoration to natural conditions is no doubt impossible from a practical point of view, from a moral point of view it is an

appropriate goal. Though we are certain not to reach it, at least it will help as get as close as we can to a morally justifiable situation. [1]

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Let me make two observations about the standard moral views I have just summarized. First, both views rest on a conceptual separation of humanity and nature. [3] This claim might be contentious, because environmentalists have long criticized the separation of humanity from nature, in a host of different ways that that separation can be interpreted. Some conventional (if not banal) tropes are that our lives, as individuals and as societies, should be closer to nature, or be led in harmony with nature, or should respect natural patterns or limits, or should recognize our dependence on nature. At a more conceptual level, environmentalists have attacked what they have taken to be the prevalent view, at least in the West, that humanity occupies a higher level of creation than non-human nature, and that the distinction grounds the human entitlement to domination. Thus, the intrinsic value position we just reviewed seems geared to undercut the notion that humanity and nature are meaningfully distinct – at least insofar as the claim that nature has intrinsic value is an assertion that nature’s value is on par with humanity’s.

But in my view the intrinsic value position in fact recapitulates a fairly strict conceptual separation between humanity and nature. For precisely because nature’s value is taken to be objective, i.e. not the product of the process of valuation by humans, this understanding of valuation categorizes nature as an object, distinct and independent of the human subjects who engage in valuation. That distinct object has an

intrinsic characteristic – its value – which the human subject is capable of recognizing, perhaps through some form of moral intuition. Nonetheless, this value is a feature of nature in and of itself, not in virtue of any relationship with the human subject. On this view, that is, the separation of humanity and nature is a conceptual necessity.

What about the instrumental value position? Rather than making a conceptual argument, I will suggest that this view internalizes an metaphor of the relation between humanity and nature that expresses the conceptual separation I have in mind. On this metaphor, nature is pictured as a stage onto which humanity has entered, and whose various systems are the infrastructure we rely on to support the way of life we value. Human activity typically defaces this stage, through pollution, or more radical transformations of its very fabric, at the risk of damaging the systems on which we depend. Hence, for purely prudential reasons we must limit our activities: our stage must keep as much of its original integrity as possible if the human drama is to be sustained. This metaphor encodes the understanding of nature as the condition of human life, but at the same time highlights its otherness: the metaphor allows us to imagine the stage as empty, i.e. to conceive of nature without the human presence – the most vivid way of thinking of humanity and nature as separate.

The second observation is simply this: the Anthropocene invites us to intensively reconsider the separation of humanity and nature. This is perhaps ironic, at least if I am correct that the Anthropocene is morally troubling to views that seek to overcome the separation but in fact rely on it. But obviously the term itself brings the two ideas together quite vividly: it represents humanity as a force of nature. Indeed, the idea of

the Anthropocene seems very much in keeping with current interest in ideas like the end of nature, the post-natural, and hybridity. [1] Let me now go on to propose a conceptual context for the Anthropocene idea which might help make the boundary between humanity and nature a bit vaguer, thus making the relation between them the focus of moral attention.

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I will go forward by suggesting a way of thinking about nature which I believe will deemphasize its distinctness from humanity. Let us start with a distinction, broadly inspired by J.S. Mill, between two senses of the word: nature-as-process, and nature-as-place. The former sense calls attention to the underlying play of forces that produce the phenomena we attend to with the latter sense: the arrangement of physical objects caused by the operation of those forces. For example, we speak of geological forces working to produce a valley. As Mill observes, and we will consider further in a moment, human beings make use of natural forces in their own activities – indeed, there is no reason not to think of human activity as a natural force: “Art is as much Nature as anything else; and everything which is artificial is natural.” [7] Nonetheless, as Mill intimates, when we think of nature in the sense of place we are prone to think of places produced solely by non-human forces. It is such forces we have in mind when we speak of “going out into nature,” for example to walk in a valley; we think of ourselves as going to a location which was shaped by geological, not human processes.

In my view, typically when we think of nature as distinct from humanity we likewise deploy the place sense of the term: nature is conceived as an arrangement of

objects in space, the characteristics of which came about without human activity. An increasing body of scholarship suggests, however, that much of what we think of as natural in this sense was in fact substantially influenced by human beings. The field of Environmental History, for one example, in large measure developed as an empirical investigation of this theme. [3] I would like to consider the theme more abstractly, by looking at human activity in the environment as an example of the biological phenomenon of niche construction.

The term “niche construction” refers to the efforts all organisms make to enhance their chances at survival by modifying their physical surroundings. [9] Beavers’ construction of ponds is perhaps the most obvious example, but this activity is pervasive, and can be regarded as a characteristic of life. Ecologists have studied it under the rubric of “ecosystem engineering,” and suggested that “all habitats on earth support, and are influenced by, ecosystem engineers” (Jones et al 1994, 373). An important line of inquiry examines niche construction as a factor in evolution. On this line species do not simply adapt to selection pressures presented to them exogenously by their environment: the arrow of influence, so to speak, is not only one way. Rather, members of a given generation manipulate their environment to create more favorable conditions, thus modifying the selection pressures the species faces. Instead of a unidirectional arrow, that is, there is a feedback loop through which species recursively influence their own evolutionary pathway, precisely by influencing the physical environment in which they evolve.

Niche construction by human beings is obviously relevant to our discussion, and I will turn to it in a moment. But the phenomenon in the abstract is relevant to us, at the conceptual level, in several ways. First, niche construction stands in obvious contrast to a-biotic natural forces, e.g. geological forces. It is not simply that the forces are exercised by living beings – more, they are aimed at a goal. I will simply assume that a-biotic forces simply play out as they do – they are not in anyway structured by their outcome. Niche construction activities however have been selected by evolution because they contribute to the organism’s chances to survive and reproduce. Of course I do not assert that this is the conscious intention of individual organisms engaged in niche construction activities, even in humans. But these activities are structured by their outcome: the organism works to the goal of arranging the material in its environment in a particular way, and that arrangement serves the broad purpose of survival and reproduction.

Second, we can interpret niche construction in terms of the two senses of nature discussed above. Niche construction activities are instances of a broad natural process – and their operation leads to the arrangement of the materials that characterize a given place. When we think of a visit to a beaver pond as going out into nature we think that the beavers’ activity in creating an environment more conducive to their survival is entirely natural, and recognize that it is responsible for the character of the landscape before us. Thus, the idea of niche construction helps foreground the dynamic quality of nature-as-place: the places we think of as natural are not the product of a single, definitive act of creation, which stamped on them a static form, but rather are the result

of on-going activity by their living constituents, interacting with the a-biotic setting and each other. Niche construction exemplifies Heraclitus' image of nature as the realm of becoming, where biotic activity is a key agent making natural places venues of ever-present change.

Finally, however, the niche construction idea invites us to blur the boundary between organism and environment: it gives us a way to think of them not as separate, but as essentially related. For just as it views a species' habitat as shaped by the organisms' activity, it likewise views the activity as shaped by the habitat, in a recursive loop. The species acquired the characteristics it has, including its members' behavior of modifying their environment, as an adaptation to the environment: individuals with that behavior had greater reproductive success. In effect, the species helps create an environment that selects for individuals whose modifications of the environment suits them to the environment they modify. The idea of niche construction thus invites us to understand the changes in a species and its environment in terms of the dialectical interrelation between them; we understand them best not as sharply distinct entities, but rather as different aspects of a complex system they help constitute.

In sum, the niche construction idea in general works against the metaphor of nature as a stage presented above. It challenges the notion that species enter into already given niches, to which they must simply adapt. Instead, species help shape the stage on which they perform the business of survival. But further, that activity of shaping the stage, yields changes in the shape of the species itself. In this light, the stage

metaphor becomes less useful, precisely because it encourages us to hold organism and environment apart. I will suggest a possible alternative metaphor shortly.

How, then, does the niche construction idea apply to human beings? Human beings are, pretty obviously, the preeminent niche constructing species; a huge percentage of the globe has been affected by human niche construction activity. [4] What is exceptional about human niche construction is that it is carried out through cultural practices. [5] Thus, the behaviors that underlie niche construction activities are not necessarily directly encoded in the human genome, but rather transmitted from one generation to the next by culture.

Note that it is not unlikely that the genetic basis for our ability to engage in culture, and in particular to participate in social learning, is the result of niche construction: the early individuals who found ways to use certain traits to render their environment more habitable would have transmitted the relevant genes to their descendants. But even more noteworthy is that the shift in transmission of the capacities required for niche construction from the genome to culture allows for a substantial acceleration in the transmission of the skills those capacities make possible. A species' ability to manipulate its environment a given way is a trait acquired over an evolutionary time-scale, i.e. many, many generations. A human social group, by contrast, can acquire and transmit an ability over a single generation, since the ability is not the expression of particular genes, but rather conveyed in the shared knowledge embedded in the group's culture. Thus, improvements in the skills involved in niche

construction can develop quite intensively, and disperse quite widely, over a short period of time.

Nonetheless, it seems entirely appropriate to me to see human niche construction as continuous with niche construction by other species. The manifestly greater efficiency of the human version notwithstanding, in transforming the physical environment human beings are doing what living things do. To imagine human beings as “part of nature” demands that this fact of life be recognized. This does, I recognize, raise profound moral questions. If it is no more than “natural” for people to modify their surroundings, is it possible to appeal to the unmodified condition of their surroundings as the basis for a moral evaluation of their activities? What can be the basis of moral norms regarding human activity in nature? Or, most troubling, does the effort to “naturalize” human activity in the environment, by assimilating it to the activities of non-human species, lead to a moral nihilism which denies the applicability of moral norms altogether?

These are questions that must be addressed, and I will return to them below. Before taking on the ethical implications of the challenge to the separation of nature and humanity, however, I will develop the challenge a bit further. Let me first simply register the fact that the phenomenon of human transformation of the environment—described as niche construction or not—is now studied across a variety of fields. In addition to environmental historians, mentioned above, anthropologists, geographers, and landscape ecologists, among others, have documented and theorized the way human activity has shaped landscapes, not just in the present and recent past, but

throughout the history of the human species. [2,4] Indeed, it is now understood that even landscapes that had been thought of as paradigms of “virgin wilderness” have the character they do because of human activity. [6] This is not to say that there is no genuine wilderness, but rather that there was always less of it than we might have thought.

The lesson I draw from these empirical studies of the human role in the production of apparently “natural” places is that there is a touch of mystification in our tendency to understand nature-as-place precisely as a-place-produced-by-non-human-processes. Our belief in, perhaps our desire for, the latter can blind us to the human processes that contributed to the creation of certain places; by eliding the human influence we conceive of a place as “strictly natural,” lending support to the belief that the human and natural realms are separate. A valuable result of the empirical work, I believe, is that it counters this mystification, helping calm the conceptual reflex that sharply distinguishes humanity and nature.

As part of the effort to blunt that reflexive distinction, let me propose a replacement for the metaphor of nature-as-stage discussed above. The image I have in mind is nature-as-a-resultant. The niche construction idea, bolstered by the empirical studies I’ve alluded to, gives some content to Mill’s characterization of human activity as a natural force. Thus we can think of human activity as among the range of natural processes, working with them to produce the phenomena we observe. In particular, human activity is a component of the set of processes that produce the arrangement of materials we find in places, including, as noted, many places we might have thought of

as produced by non-human processes alone. Human activity, in sum, is very much part of the nature-as-process that shapes many instances of nature-as-place. In those instances, it seems deeply misleading to think of nature as genuinely distinct from humanity, as if it were a pre-existing stage onto which human beings had somehow wandered. Instead, nature has the character of a resultant – the product of a combination of forces, each of which influences the outcome. Human activity, no less than other biotic and a-biotic forces, is an essential component of the resulting landscape, making it what it is.

Let us bring the foregoing reflections back to the idea of the Anthropocene. I observed that the Anthropocene calls on us to reconsider the separation of humanity and nature, and I have appealed to the idea of niche construction to point toward an understanding of natural places that, so to speak, allows for the internalization of the human influence – treating it not as a factor that compromises nature, but as a natural component. The Anthropocene is readily conceived in just this way. It is, it seems to me, conceptually continuous with niche construction, in the sense that the altered condition of the planet as a result of human activity is no less natural than is the altered chemistry of soil that results from the activity of earthworms. Human activity has fully entered into the suite of other natural processes, biotic and a-biotic, which give Earth as a place the characteristics it now has. [1] The metaphor of nature as a resultant helps us to dispel the notion that these characteristics – the characteristics of the Anthropocene – are in a meaningful way unnatural. Rather, the Anthropocene idea helps us recognize what follows from thinking of human beings as part of nature, namely that we must

allow our understanding of nature to encompass what has traditionally been called “second nature,” i.e. a nature that cannot be understood apart from humanity. [11]

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We are now in a position to address the ethical implications of the Anthropocene. In my view, the most pressing question has to do with the idea that nature has intrinsic value. That idea is hard to accept, i.e. it is hard to attribute intrinsic value to nature, if the metaphor of nature as a resultant is persuasive. As noted above, the idea of intrinsic value rests on a conceptual distinction between humanity and nature; the view of nature as a resultant works against that distinction. We can track the deflation of the idea of intrinsic value by considering the practical function of value claims. Claims that an object has intrinsic value function as reasons that human action should be constrained so as not to affect that object in ways that would compromise the given value. For example, to say that a painting has intrinsic artistic value provides a reason for that object not to be splattered with turpentine: that action would change the object so that its artistic value would be lost. In the moral domain the reasons are more like imperatives. Thus, the attribution of intrinsic value to nature functions as a moral demand on human beings that they not (for example) interfere with the integrity of a natural system.

But consider the distinction we have deployed between nature-as-process and nature-as-place. On the one hand, from a practical standpoint it strikes me as meaningless to attribute intrinsic value to nature-as-process – because there is nothing human activity can do to affect natural processes themselves. As Mill notes, human

beings *make use* of natural processes – this is the reason he denies the difference between nature and artifice. But at whatever scale our technology reaches, we can only take advantage of the laws of nature, not change them. Of course we are able to rearrange the material circumstances in which natural processes operate. But this points to the other hand: in such cases we are operating as shapers of nature-as-place. And obviously human beings are prodigious in their effects on nature in that sense.

Thus, the attribution of intrinsic value to nature is only meaningful when we are thinking of nature-as-place. Indeed, from a practical standpoint, that attribution functions as a moral demand that human activity not alter the characteristics of a given place, in particular a place that is thought to have been produced by strictly non-human forces. I find the rationale for demands of this sort unpersuasive (though in particular instances I might agree for other reasons with their substantive content). For, as we have seen, in many cases human activity was a component in the array of forces that produced the place as a resultant. [2,3,4,6] Whatever kind of value such places have, they are not valuable in virtue of the purity of their genealogy, i.e. because they represent a nature that is in a separate sphere from humanity.

More fundamentally, however, in light of our discussion of niche construction, which reinforces the understanding of human activity as a natural force, it seems frankly arbitrary to single out human modification of a natural place as unethical. Say that a place produced strictly by non-human processes were altered by another non-human process – e.g. beavers appear, and flood an area of woodland. Presumably this alteration would not compromise the place's intrinsic value. But why, other than that

they are associated with humanity, should human activities be distinguished from all other natural processes when it is claimed that the place's intrinsic value is compromised by the changes wrought by human beings? That claim reflects the strict conceptual separation of nature and humanity I am working against. In my view, attributions of intrinsic value do not sit well with the view that that gap should be narrowed.

It is fair to ask, however, whether the position I am developing leaves us without a basis for ethical restraint on human activity. Doesn't the view that human activity simply is another natural process license unrestrained exploitation of nature – an attitude nicely encapsulated in the slogan “drill, baby drill?” Indeed, at a fundamental level, the approach I have taken might seem to challenge the project of moral evaluation altogether. My appeal to niche construction assimilates human activity to activities to which moral evaluation simply does not apply: nature is, traditionally at least, the domain of a-morality, and indeed, because the “natural” in human-kind has been seen as the source of *immorality*, morality has been seen as a kind of battle against nature. The project of narrowing the separation between humanity and nature might be taken to have as a consequence a kind of moral skepticism, according to which moral norms have no transcendent grounding, but are at best regularities in behavior that have proven to be adaptive. Or more, it might lead to an embrace of moral nihilism, in which the fact of human power is taken to be beyond considerations of good and evil.

In the face of such concerns, it might be argued that, the philosophical criticisms I have offered notwithstanding, the idea of intrinsic value has some utility as a kind of

platonic noble lie. That is, it might be interpreted as useful myth: not strictly true, but worthwhile because it lends support to ethical norms that inhibit damaging human activity. In the familiar pattern, narrowly self-interested behavior can have adverse collective effects over a longer term. It is a classical position in political philosophy that the presentation of ethical values as transcendent, indeed mandated and sanctioned by religious authority, can mitigate that collective action problem. Thus it might be argued, ironically, that there is instrumental value to the idea that nature has intrinsic value. The serious concern here is that if the considerations I have offered against the idea of intrinsic value take hold, and that idea loses its force, the result would be a weakening of such constraints as do exist on the imprudent exploitation of nature – not a desirable outcome from an instrumentalist perspective.

More specifically, we can focus our concern on the notion of a “runaway Anthropocene.” Here I appeal to the idea of a feedback process where an effect is amplified with each cycle of the loop. There are familiar (and frightening) examples in the climate system: e.g. warming will release more methane from previously frozen tundra, leading to greater warming. The prospect I have in mind has to do with the interaction between attitudes about nature, and behavior. Suppose that as the idea of the Anthropocene gains greater currency, arguments of the sort I have offered become more plausible – and that as a result the conception of nature as distinct from humanity loses strength, and people come to conceive of nature as the human domain. Though it is easy to imagine some degree of nostalgia for a more “natural” Earth taking hold among some people, it is plausible that many human beings would abandon any

remaining ethical inhibitions that limit their activity of transforming their environment. In this scenario the idea of the Anthropocene would help accelerate the activities that contribute to the Anthropocene—intensifying the human stamp on the planet. In light of the dangers associated with climate change alone, a runaway Anthropocene would not be a desirable outcome either.

To conclude, then, I will offer some thoughts on how to regard the Anthropocene from an ethical point of view. The outlook I would like to develop can be framed as the attempt to humanize the Anthropocene. To speak in terms of an ethical injunction, we must inhabit it with responsibility, where that responsibility involves the acknowledgment that as human activities shape our environment, we must act in light of values that are humane. [8] In sum, we must not regard the Anthropocene as something alien to us – we must recognize both ourselves in it, and it in ourselves.

We can take some steps toward the outlook I envision by returning to some of the ideas I enlisted above. That outlook is meant to be in keeping with the broad understanding of nature not as a stage, but as a resultant. That is, it is meant to internalize not just an understanding of nature (in the sense of physical places) as dynamic, but also a conception of human activity as a component of that dynamism that is as natural as any other process. As we observed, the term Anthropocene assimilates human activity to natural forces, specifically geological processes. But the effort to humanize the Anthropocene regards this comparison as misleading: unlike geological processes, human activities are directed toward a goal. This contrast recalls our discussion of niche construction, which I distinguished on just this basis. Hence, it

strikes me as important to think of the Anthropocene as the product of human niche construction, and to frame human activity in those terms. I hope that this is in keeping with the science. But more, I believe it is more promising from an ethical standpoint. For, niche construction involves a species' effort to make its environment more habitable. In that light, I would like to conceive of human activity as action in pursuit of habitability.

I take it as obvious that habitability is a notion replete with ethical value – and I take it to be central to the moral outlook I envision. Let me offer three brief reflections on it. First, I have presented a critique of intrinsic value, but not had much to say about instrumental value. Though I am (to be frank) less hostile toward the latter than the former, I do not mean to gloss over well known problems. I regard habitability as an improvement on instrumental value, because it is, so to speak more intimate. Though it is indeed associated with the human use of nature, it is in keeping with the effort not to think of humanity and nature as separate. The notion of instrumental value suggests drawing resources out of one realm (nature), and depositing them in another (the human). By contrast, the notion of habitability suggests a more intimate embeddedness – it suggests a single realm, shaped, to be sure, by its inhabitants.

Second, I do not regard the elements of habitability to be objectively given, as indisputable facts. The astounding variety of human culture makes it obvious that the standards of habitability are elastic, and likely differ even in similar environmental conditions. No doubt there are elements that are more and less pervasive, which answer to more and less essential organic needs. But, in particular because of the social

character of human habitation, the details of implementation will be up for social decision, hence are susceptible to revision, influenced by the range of human value considerations. Thus, third, to the extent people value the experience of places (at least seen as) produced by non-human forces, the notion of habitability has ample scope for the idea of “room for nature.” Parks and gardens are essential contributors to the habitability of the places people live – and it is not difficult to make the case that wilderness areas, where people do not live, are important to the habitability of nation, or indeed of the Earth as a whole.

I will close with a bit of speculation – to the effect that the ethical value of habitability might function to forestall the kind of runaway Anthropocene I imagined might result from the abandonment of the idea that nature has intrinsic value. To the extent that people came to understand that their activities were shaping a place they did not in fact want to inhabit, and to the extent that they were able to restrain those activities, e.g. through governance at some scale, we can imagine that they might attenuate the feedback loop: greater understanding of the Anthropocene might lead to a lessening of the intensification of the Anthropocene. I will simply ignore the obvious political obstacles, in order to note the role I have projected for Anthropocene science. A virtue of the Anthropocene idea is that it encourages a systemic view, from local to planet-wide scales, of human activity as a component of what I have characterized as nature as a resultant. [13] Thus, Anthropocene science is in a position to provide human agents, at the individual and social levels, with assessments of the impacts of their activities on the habitability of the nature they are helping to produce. Those

assessments, we can imagine hopefully, might work as feed-back, dampening down the activities in question, and lessening the chances of a runaway Anthropocene.

The call to monitor the Anthropocene in this way is, quite clearly, opposed to the ethical demand that the Anthropocene be reversed – a goal that may be even less intelligible than possible. Rather, the ethical demand is to approach it with the essentially human virtues of intelligence – to strive to make it a product of deliberation, rather than a by-product of the un-moralized assertion of power. To adopt Manuel Arias-Maldonado’s term, we should aim for an Anthropocene which is a expression of human refinement. [1] This is the ethical vision of an Anthropocene that has been humanized.

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