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Review

Valuing Humans and Valuing Places: "Integrity" and the Preferred Terminology for Geoethics

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Abstract: What follows will support the centrality of appeals to the integrity of places as a plausible way of extending the concept of integrity in the light of our actual practices of valuing. The emphasis will, however, be upon practices of valuing rather than upon metaphysical claims about "inherent value". The latter are not dismissed, they are merely set aside. The guiding thought is that our ethical theory should not depart too greatly from our understanding of how and what humans actually do hold to be of value in any particular culturally-shaped context. Following an introduction to the concept of integrity (Section 1), the discussion will open with an attempt to show that we do sometimes value places non-instrumentally (Section 2), even though we tend to look elsewhere to justify our respect for, and valuing of, places (Section 3). It will then proceed through a defence of appeals to such valuing as ethically significant (Section 4), before moving on to a provisional account of integrity as an effective way of making sense of what it is that we value when we value places in their own right (Section 5). Unlike Rolston, who is strongly associated with the concept of integrity, the intention is not to go metaphysically deep and identify something akin to the moral properties of things. Rather, the concern will be with the kinds of considerations that agents would typically point to as a reason for valuing places without any deeper set of claims about inherent value. This provides a less troubling, more metaphysically "neutral", way of addressing matters. The paper is intended for an audience working on Geoethics; however, the norms of argument will be those associated more narrowly with philosophical ethics.

Keywords: integrity; valuing; duty; respect; rights

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1. The Concept of Integrity

The concept of "integrity" features regularly in discussions about Geoethics. It is, for example, mentioned in the list of fundamental values set out in the Cape Town Statement on Geoethics (2016), which require: "Honesty, integrity, transparency and reliability of the geoscientist, including strict adherence to scientific methods" [1]. Appeals to "research integrity" figure repeatedly in the collection *Geoethics: Ethical Challenges and Case Studies in Earth Sciences* (2015) edited by Wyss and Peppoloni [2]. It is, again, mentioned as an important trait of the researcher in Nataliya *Nikitina's Geoethics: Theory, Principles, Problems* (2016), where the concept of integrity is also, occasionally, used in broader ways [3]; and it figures prominently in a recent overview of Geoethics as an emerging field, by Bobrowski et al. (2017) in a larger American Geophysical Union volume on *Scientific Integrity and Ethics with Applications to the Geosciences* [4].

Perhaps surprisingly, the concept occurs less regularly in discussions about philosophical ethics. This poses some difficulties given that what follows will not seek to provide an overview of the various geoethical approaches towards integrity, but will be a more limited exercise in philosophical ethics, i.e., ethics within the academic traditions associated with Kant, Mill, and Aristotle, and influenced by the techniques of modern "analytic philosophy". Yet, even within ethics of this sort there has generally been at least some ongoing background discussion of the concept [5,6]. Now there is growing interest, an emerging and more cohesive discourse [7,8]. However, the dominant sense of the concept within such philosophical discussions is that of the integrity of persons rather than the integrity of places. The latter is called upon only more occasionally, and is perhaps most closely associated with unsystematic appeals to integrity by Aldo Leopold in *A Sand County Almanac* (1949), and with a classic (and more systematic) paper on the environmental ethics of outer space by Holmes Rolston (1986), where it is embedded within a broader set of controversial assumptions about "inherent value" [9]. Given the unsystematic nature of Leopold's work (which says more about love for the natural than about its integrity) I will take it that the most important treatment of the concept is Rolston's. There is, as we might expect, a broader literature drawing from and related to both, such as Chris Preston's *Saving Creation: Nature and Faith in the Life of Holmes Rolston III* (2009), and the Leopold-influenced work of Laura Westra of the Global Ecological Integrity Group, who has focused more persistently upon the question of ecological integrity since the publication of *The Principle of Integrity: An Environmental Proposal for Ethics* (1994). However, the present paper is not an attempt to adjudicate between rival conceptions and ways of taking up the legacy of Rolston. It is written from a broadly liberal standpoint which allows that while integrity is a key concept for geoethics, it may be articulated in significantly different ways, and in line with different, culturally-inflected conceptions of what is good. What is held in common is attention to structrures as wholes rather than merely aggregates. With regard to this at least, Leopold, Rolston, and others are in agreement.

What follows will support the centrality of appeals to the integrity of places as a plausible way of extending our understanding of ethics in the light of our actual practices of valuing. As a clarification, integrity is not the only ethical concept that is needed for Geoethics or the main concept that is needed. But integrity is an important part of the larger Geoethical toolkit, particularly when issues of our duties in relation to outer space are under consideration. (On this much, Rolston was correct). As a further reclarification, the emphasis will be upon practices of valuing rather than (as in Rolston) upon metaphysical claims about inherent value. The latter are not dismissed, they are merely set aside. The guiding thought is that our ethical theory should not be too dependent upon them and should not depart too greatly from our understanding of how and what humans actually do hold to be of value.

The discussion will open with an attempt to show that we do sometimes value places non-instrumentally (Section 2), even though we tend to look elsewhere in order to justify such valuing (Section 3). This relies upon standard moves from environmental ethics. It will then proceed through a defence of appeals to such valuing as ethically significant (Section 4), before moving on to a provisional account of an appeal to integrity as an effective way of making sense of what it is that we value when we value places in their own right (Section 5). However, talk about what it is that we value when we value places in their own right will be more concerned with the kinds of considerations that agents would typically point to as a reason for valuing rather than any deeper set of metaphysical assumptions. As far as possible, metaphysical commitments will be kept to a minimum. Precedents for such an approach of keeping metaphysical assumptions in check when discussing philosophical ethics can be found in Hilary Putnam's Spinoza lectures, published as *Ethics without Ontology* (2005), and Raimond Gaita's *Good and Evil: An Absolute Conception* (2004).

2. Valuing Places

A familiar line of environmental thought, known as the "Last Man Argument", suggests that we value places in ways that go beyond their usefulness to us [10]. The classic version of the argument has been subject to so many qualifications that, for the sake of simplicity, a modified version will be used here:

Imagine the last human alive. He lays waste to forests, levels mountains, and destroys unique geological features. The Old Man of Hoy is toppled. The Blue Canyon in Arizona, with its majestic minaret-like structures, is blown up. The Giant's Causeway is pounded to dust and the Zhangye Danxia Geopark is utterly flattened. Surely, our strong intuition here is that this destroyer of things and places does something wrong, even if no one else is around to be harmed? If this is so then, in spite of the high standing of various ethical theories (rights theories and consequentialisms) that draw upon Kant and Mill in order to insist that only humans or sentient beings are of value, what we actually value non-instrumentally or in its own right includes at least some non-sentient places and things. This is not, of course, to suggest that we all value the same place and things. Valuing exhibits all sorts of cultural variation. However, as a cross-cultural point, valuing is not restricted to beings like ourselves or even to sentient creatures.

This is not, of course, a compelling argument. It may not even be an argument in the strictest sense. It could be regarded as a thought experiment (it certainly includes one). The suggestion here is not that we can rely upon it uncritically. Rather, the suggestion is that an appeal to the Last Man draws our attention to something important about our ethical theories: they do not obviously match up with all of our practices of valuing. We can, of course, acknowledge this as a strictly psychological point and claim that we value beyond the bounds of what can reasonably be justified. Valuing that can reasonably be justified on such an approach will still be exclusively a matter of valuing living things (individually, or in groups, or through the valuing of larger wholes that include them).

This would still offer a range of options. We might, for example, be drawn towards what is known as "sentientism" [11], i.e., the view that only beings capable of feeling have moral standing. Or we may be drawn towards what is known as "biocentrism" [12], i.e., a view which extends moral standing to all living things irrespective of their levels of sentience [13]. Or we may be drawn towards a more Leopoldian "Land Ethic", in which biotic or ecological communities are given moral precedence over their individual constituents [12,14]. Valuing places in their own right, without any concern for human or biotic advantages, with or without any consideration of actual biota/living things, stretches beyond all of these bounds and may seem to involve sentimentality, or a concealed anthropomorphism, or something similarly undesirable.

Alternatively, we may accept the intuition associated with appeal to the Last Man and say that a liveable ethic ought to be able to accommodate the reasonableness of valuing the things that well-placed and well-informed agents ordinarily do value. This kind of approach flows out of a particular conception of what ethics is ultimately for. As a useful simplification, we may say that it treats ethics as the discussion of reasons for action and responding, within the constraints of what is psychologically and practically available and normal for beings such as ourselves. These are usually referred to, by philosophical ethicists, as the constraints of "moral psychology" [15]. An appreciation of cultural diversity may expand our understanding of the constraints of moral psychology, but it will not remove the conviction that there are such constraints or collapse cultural diversity into the view that just anything could count as a livable ethic.

It is not, then, the business of ethics to become too far removed from known and available ways of acting and responding, but to explore the boundaries of the latter. As a point of fact about our practices of valuing, we do seem to value places and in some cases we value them in ways that go beyond any belief that we or others can gain something useful from them. We may recognize their beauty, be enchanted by their strangeness, and be intrigued by their complexity. Whatever the reason, part of what it is to value places in the relevant sense is to be prepared to forego various practical advantages in order to protect them from certain kinds of alteration and damage, even if we ourselves have no prospect of ever directly experiencing the places in question. As an example, we may think of an ageing ecologist who is no longer in a position to go into a wilderness but who nonetheless still defends it, without the prospect that he may enjoy a future beneficial wilderness experience [16]. In a familiar philosophical terminology: we value such places non-instrumentally. For convenience, "valuing" below will mean "non-instrumental valuing", unless otherwise stated.

In this respect, our actual attitudes towards one another and towards places overlap. We value both humans and places in ways which are, at least sometimes, non-instrumental. Additionally, here, by places, what is meant is objects from entire mountain ranges, canyons, and uninhabited forests through to progressively more modest local structures such as Uluru/Ayer's Rock, Stonehenge, and the site of the first lunar landing, down to the scale of anything that might be identified as a location where we might, at least in theory, go. This will involve various exclusions: sub-atomic particles have locations but they are not places in the relevant sense. We could not go where they are, even in principle. However, in some sense the Sun is a place. In principle we could go there, in practice we could not. As a clarification, we do not require that such places constitute ecosystems or value them in ways which are necessarily linked to their life-carrying capacity. We do not always value them in anything akin to a Leopoldian way.

However, our practices of valuing humans and valuing places are not identical. We do not, for example, value them equally. It takes the addition of a special theory of value, e.g., the idea that all value bearers have value equally [17,18], before the latter idea seems at all plausible. Value equality is not a position that is endorsed here. We can still understand why someone might sacrifice their life to save a place because it is "just as important" or "more important". Many people have done so, and they have not all seemed like fanatics. However, there is no calculus of value that would allow us to establish a proper exchange rate between humans and places and thereby allow us to determine whether or not such individuals have done the right thing. We would be even less understanding about someone who sacrificed the lives of others in order to save a place from destruction, on the basis of a theory about its value and the value of those unfortunately sacrificed. In part, this is because talk about the value of humans does not ordinarily mean "quantifiable value", even though we may sometimes be called upon to make difficult judgments about saving one human or group of humans at the expense of others. In short, a practice of valuing places, in the sense described, need not entail any particular attitude towards comparisons between people, other sentient beings, other life forms and places (when thought of in a sentience-independent way). On its own, such a practice need not be seen as a threat to our sense of the special importance of humans or our special obligations towards them. It does, however, involve regarding places as important in their own right, independently of any prospect of human advantage. Here, it may also be best to avoid saying that the places in question are valued "for their own sake", because that genuinely would presuppose something like agency and sentience, and would raise concerns about anthropomorphism. The relevant thought may be better captured by saying that they are valued "in their own right".

3. Arguments for Indirect Valuing

Valuing places, in the sense described, need not covertly be an attitude towards something else. However, justifications for valuing or, more simply, caring about places tend to direct our attention elsewhere, away from any idea that they should be valued in their own right. In some, perhaps all, cases, we can tell a more indirect story about why we might take measures to protect places from damage. Such an approach draws from Immanuel Kant and his attitude towards animals [19]. On Kant's view, we are justified in caring for animals because we have respect for persons. If we are cruel to the former, we will damage our character and will then be more likely to harm the latter. Similarly, we may care about and protect places, but only because we have respect for persons. On more extended approaches, the care might be justified by appeal to the value of sentient beings, or of living beings or of life. However, in each case the principle is the same: it is not the places themselves that matter. If we are truly rational, on such an approach, then we may still value places, but in a more instrumental manner, as an indirect way of valuing and respecting one another (or fellow creatures, or life). A good deal of cultural heritage argumentation works in precisely this way: places and things are to be protected because they are, or are akin to, artifacts valued by some or other human culture. To damage the objects and places, or to represent them in unfavourable ways, is to disrespect the cultures in question. We should not do it without some compelling reason, just as we should not desecrate burial grounds without a compelling reason, even if we have no belief in the spirits of the dead.

Such an approach works better with some places than with others. It fails to justify a good many of our inclinations to protect important sites. It works well in the case of Stonehenge because it is an artefact, constructed by humans, rather than a more strictly natural feature of the landscape. It also makes sense of the intuition that if Stonehenge was a comparably natural feature, then our attitude towards it might, reasonably, be different. Accordingly, when it is proposed that a tunnel should be constructed under Stonehenge in order to help ease local traffic, we can understand why this might involve a failure of respect for past or present humans who have important relations to the site: causal relations, relations of attachment, and relations bound up with identity and with ways of valuing of the past. This is, however, less obvious with forests where humans do not dwell, or with other non-artifacts. Similarly, we can make the connection to the importance of humans quite easily when we consider an Apollo landing site. Protection of the latter is all about our attitude towards humans, but it is harder to make a similar connection when we think about the Lunar South Pole, a place which humans have yet to visit.

Yet, in the case of non-artefacts too (forests, islands, mountains, and geophysical structures in general), if we are sufficiently determined to reject the idea of valuing places in their own right, we may still build plausible narratives about their human significance. Indeed, geoheritage discussions (by contrast with cultural heritage discussions more generally) have typically focused upon natural features with a heritage significance, rather than anything more akin to artefacts, although there are exceptions [20]. The standing of "heritage" does not imply the standing of "artefact". Mars and the Moon are obvious cases in point. They are not artefacts, but they are still culturally significant. They are, in an elusive term with special legal significance, part of the "common heritage of mankind" [21,22]. Mars without the Valles Marineris, a canyon 4000 km and up to 7 km deep, or without Olympus Mons, a shield volcano almost 22 km tall, would be missing something important, although it may be harder to say exactly what they would be missing other than the objects themselves. Additionally, the issue is not aesthetic, or at least not directly so. It does not concern what seen by humans, but what is known to be there. Similarly, we would not allow someone to hollow-out the interior of the Sphinx for tourist souvenirs, even if the surface appearance of the Sphinx remained unaltered. We would not allow the Valles to be used as a conveniently large dump for waste. We would not allow Olympus Mons to be quarried for driveway chips or bathroom tiles, or for any other trivial reason.

However, appeals to cultural heritage still do not extend far enough to apply to all of the places, structures and things that many of us may be inclined to protect. It is unlikely, for example, that a cultural heritage argument of the above sort, one that applies to Mars and the Moon, could be applied in quite the same way in relation to the big four bodies in the asteroid belt: Ceres, Vesta, Pallas, and Hygiea. Olympus Mons would be protected, but Rheasilvia (on Vesta) might not, even though it is slightly taller. These objects (which are also places) simply do not figure in the same way in human literature, art, and cultural imagery. Dante did not write about them, as he did about Mars and the Moon [23].

Even so, some argumentative moves remain possible. Hypothetical extensions of Kantian arguments have been developed in relation to sites of significance to other, intelligent, beings from elsewhere [24]. We would (arguably) have reasons to respect at least some of the objects that such beings value or have valued in the past, and they would have comparably good reasons to value what has mattered to us. This would apply even if one civilisation discovered only historic traces of the other. This is partly because rational beings matter, irrespective of where they come from, and partly because our attitude towards the past is not strictly instrumental, we do not regard it only as a guide to future actions. Civilisations are generally accorded respect even when they are no longer around, just as individuals are regarded as worthy of respect even when they are dead. A civilisation which simply threw its dead away, or recycled them for chemical components, in the manner of Huxley's *Brave New World* (1931), would be significantly outside of our regular experience of what civilisations are like and outside of our understanding of normal human moral psychology. For various reasons, people continue to be important to others even when they have ceased to exist.

By adding some forward-looking considerations about time we can also add a further series of pathways which can justify care for places indirectly, by appeal to respect for humans or for humanity as a whole. Pathways of this sort will allow us to appreciate that (arguably) we ought sometimes to protect places that no one has ever considered to be important in their own right. There are, no doubt, many objects and places which have not, in the past, been culturally significant to humans or to anyone else, but which might well take on this significance in the future. On this line of thought, one of the reasons why we should not permit damage to Olympus Mons is the iconic, identity-building status that the great volcano would assume for any future humans who come to live and work there. (A prospect that seems to be within the reach of the second half of the present century, so we should not be complacent and say "This is so distant a possibility that it does not matter"). Similar considerations might apply to places where there are no other human-focused reasons for protection. They will apply to Rheasilvia, application to which may even been taken as an adequacy test for a theory of protection: does it apply to Rheasilvia as well as Olympus Mons?

Given the small number of large-scale bodies in the asteroid belt, and the strategic significance of the latter as a source of metals for any ambitious, space-faring human civilisation, there may be grounds for some manner of protection from trivial use because of what Rheasilvia could and probably would come to mean to humans in the future. It is tempting to say that human psychology abhors too much uniformity in a landscape. Sites that would make a place more liveable, and less like a magnificent but desolate quarry, may be good candidates for protection, independently of any consideration of their past cultural significance. Mars is one such place, ideally suited as a base for mining the asteroids, because it would take far less energy to reach the asteroid belt from Mars than it would do from the Earth. It might also avoid some of the anomie associated with soulless mining stations. However, it is such a place partly because of its distinctive, unique landscape.

We can, in short, build overlapping narratives about why our concern for places and for non-sentient things can be justified as indirect ways of showing concern for one another, or for humanity as a whole (past, present, and future). Perhaps, for any object or place, at least some such story will always be available. For a large class of cases, these are also, perhaps, the kind of stories that we ought to tell, especially if our concern is with social ethics and policy formation rather than with individual ethics and with what any given individual agent ought to be committed to. Considerations of a similarly human-focused sort have a proven track record. They have been an important driving force behind all of the existing legislation on planetary protection. In line with Article IX of the Outer Space Treaty (1967), the main international agreement dealing with such protection, back contamination (accidental microbial transfer from elsewhere to the Earth) is to be avoided in order to protect us; and forward contamination (from Earth to elsewhere) is to be avoided because it will compromise science, which is of value to humans. While it may be argued that back contamination is covertly driven by broader considerations, the stated rationale behind internationally agreed planetary protection has always been concern for humans and for humanity as a whole [25].

This kind of appeal to the importance of humans as the real, justifiable underpinning of our valuing of places may often be the most pragmatic way to go. It has a ready hold upon us. Planetary protection, in the existing strict legal sense initially established by the OSA, followed by NASA's planetary protection office and used by COSPAR (the main body tasked with devising the relevant classifications of place and protocols for action), is based around such considerations and not around notions about valuing places in their own right. Nevertheless, there has, in recent years, been a broadening of the discussion involving both bodies [26] and the discussion of such matters within newer bodies, such as The International Association for Geoethics (IAGETH), evidences an openness towards broader, and less-anthropocentric, justifications for valuing, sometimes in the light of sympathies for the classification of our current geological era as the Anthropocene. If our human influence has now reached this far, this realization may underline the importance of allowing room for the non-human.

4. Keeping Motivations and Justifications Aligned

There do seem to be good, instrumental (or pragmatic, or prudential) reasons for us to support the protection of places by appeal to our duties towards one another, our respect for one another, and for humans past and generations yet to come. However, should we always justify the protection of places only in such a way? One reason why we might not do so concerns what ethicists have, in recent decades, refered to as "moral schizophrenia", i.e., a predicament in which the justifications that we are able to offer for action, response, and valuing become separated from our actual motivations for acting, responding, and valuing [27]. The classic examples of this are known as "hospital cases". Ethical theories often tell us that we should care for others as a matter of duty, or because it will promote the greatest good, or because it is a virtuous thing to do. But imagine visiting a dear and close friend who is in hospital and explaining this to them: "I have come to see you out of a sense of duty" seems rather cold; "I have come here to maximise the greatest good", would perhaps be counter-productive; "I am here because it is the virtuous thing to do" sounds quite self-centred. We can, of course, remain silent about our reasons for visiting, or simply lie in a socially licensed manner. However, that seems to be out of keeping with the openness that we may expect between friends. What is odd here is that the motivation behind the visit, i.e., the care we have for the friend, cannot itself be offered as the reason (the justification) for the visit without departing from the available theories. The real motive for the visit and the justification that the latter will allow us to offer have become separated.

Sticking with a merely indirect (human, sentient or life-focused) story about why places are worthy of our attention and care introduces the risk of a similar separation between our justifications for valuing places and our motivations for doing so. Of course, these two are never completely aligned. We are psychologically complex beings with many different things going on, and we are the products of cultural environments that vary considerably. The moral schizophrenia charge is not about these matters, or about the regular forms of cognitive dissonance that humans display. Rather, it is concerned with a more radical misalignment of motivations and justifications. A misalignment so radical that it might also be called artificial. This is particularly awkward in our personal relations with others we care for in deep ways, where love is a motivating factor that ethical theories often find difficult to accommodate.

However, the problem is not restricted to such cases. In order to see this, a comparison with animal ethics may be instructive. Until recently, work in animal ethics has been strongly focused upon animal rights and, more especially, upon a version of the latter that takes such rights to be based upon sentience alone, i.e., upon the sheer capacity for thought and feeling, or upon a special kind of sentience, rather than upon actual interests [17,28]. The result is that matters such as cruelty, which seem to be far more concerned with interests than with mere sentience, have tended to fall out of the picture. Appeals to cruelty have, as a result, been deliberately downplayed as a form of sentimentality [29,30]. The problem here is that people continue to become interested in animal rights largely because of issues of cruelty, and they remain motivated to defend animal rights out of a concern for such cruelty, i.e., a concern that they no longer feel able to use in justifications. Motivations and justifications then diverge although, in practice, we may suspect that the real motivations continue to exercise a covert influence, a predicament which makes dialogue between supporters and critics of animal rights much harder because the discussions skim across the surface of much deeper commitments.

As a point of clarification, the suggestion is not that the very idea of animal rights is flawed but that the theory often used to support such rights introduces a problem of moral schizophrenia by failing to connect them more strongly and directly with animal interests, i.e., with the primary motivation for supporting such rights. One familiar way to solve the problem is to say that animals have rights whenever they have an interest that is strong enough to ground a duty on the part of others [31,32]. With such an approach, motivation and justification will tend to converge. What is at stake in such convergence is both an issue of personal integrity (as agents, it is better if our motivations and the justifications that we offer are not too far apart from one another) and a matter of impact and the connection between ethical theory and actual policy. The consideration that is banished is precisely the kind of consideration that might allow the theory to address the broader public in more effective ways. Geoethics, which is in an earlier stage of development than either animal ethics, might do well to avoid a similar, and politically marginalizing, predicament. If the motivation behind concern for places sometimes (perhaps often) goes beyond our concern for one another, then this is something that should be openly recognized rather than concealed behind a quite different narrative about our reasons for valuing.

5. The Integrity of Places

If the above is broadly correct then at least sometimes we care about places because they are the places that they are, because they are unique and enhance the diversity of the world, because of their special history, and for similarly non-instrumental reasons. Moreover, if we are to avoid the above problem of moral schizophrenia, these are the kinds of reasons that we should offer to someone who asks "Why protect this place? Who are you to say what can and cannot be done?" Yet, this leaves us with a problem of how to make sense of what it is overall that we are responding to when we respond to such places by valuing them. Understood in terms of proposals for policy formation, this is not primarily a problem of the deep metaphysics of value. Rather, it is a problem of settling upon a suitable vocabulary for Geoethics. Moreover, for breadth of appeal, we do not need a vocabulary which presupposes that places ought to be valued in their own right and dismisses rival standpoints. Rather, and more minimally, what is needed is a vocabulary that is capable of, at least sometimes, directing our attention more to the places themselves than to our concern for one another.

Although it concerns moral vocabulary, and the way in which it directs our attention, rather than any manner of deep metaphysical underpinnings for ethics, the task is non-trivial for two familiar reasons. First, the way in which we direct our attention shapes a good deal of our ethical life. Second, our traditional ethical theories and concepts have largely been developed with a view toward talking about humans rather than anything else. They are anthropocentric in ways that can sometimes make the importance of the non-human difficult to appreciate [33].

The difficulties this gives rise to may be accepted even by those who nonetheless endorse a broadly anthropocentric standpoint. Given the limitations of our human-focused ethical vocabulary, we are faced with the temptations of either inventing new ethical concepts (which would initially lack the authority of our existing concepts) or else of extending the sense of our existing concepts in ways which are, at the very least, awkward. The former can, at times, be unavoidable if we are to do justice to a recognised pattern of valuing or to a significant change in the world. However, a concern for the authority of ethical concepts will favour the latter option and what is known as "moral extensionism" (or, sometimes, "ethical extensionism") [34]. Talk about, for example, a "cosmological ethic" will lack the authority (the normative significance) of talk about "diversity", "duty", and "rights" [35]. The default, then, will be to try to get the latter to perform the required work. The former will become a good candidate for adoption only if this cannot readily be done.

New concepts are, of course, sometimes required in order to fill a gap, in cases where extension cannot readily be carried out. The concept of "Geoethics" itself is an innovation, with the strong justification that it marks out a newly emerged discipline bringing together ethics and the geological sciences [2]. Although we might want to say that it is part innovation and part fusion of two existing concepts the take-up of the concept can be culturally inflected and variable [36]. Extending the sense of a concept can sometimes go wrong, or else it can be highly provisional, a placeholder for a more naturally formulated discourse. Talk about the "rights of places" during early discussions of space ethics [37], or about "the rights of trees" [38] during the first wave of contemporary environmental ethics, are obvious examples. Do either of these have rights? The oddness of the question, even when answered with a "no", may suggest the strangeness of the disciplines. (Which have now moved on from such early formulations). Admittedly, there are specialised legal contexts in which the idea of corporate agency is appealed to in order to make sense of duties and obligations by allowing that non-individuals actually do have legal rights. (Which is not something that settles questions about the possession of moral rights). David Boyd's legal take on these matters in *The Rights of Nature* (2017) presses the point in the spirit of Leopold and Westra. Again, the emphasis is placed upon living systems, groups of living beings (species), and life-supporting systems. There is a tradition of argument along these lines, stretching back to Christopher D. Stone's classic paper "Should Trees Have Standing? Towards Legal Rights for Natural Objects" in the *Southern California Law Review* back in 1972, during the early development of contemporary environmentalism [38]. It does frame legal (and sometimes also moral) standing in terms of the most convenient legal terminology, i.e., rights, the associations of which with agency and even personhood remain difficult to pare away.

As a more minimal point, it will at least, from time to time, be a useful legal convenience to appeal not to agency simpliciter, but to corporate agency as a model for talk about our duties in relation to rivers and places. (These are two of Boyd's paradigmatic cases). However, carrying over the concept of rights will be a little more awkward given that what ultimately grounds talk about the rights and duties of corporate agents is the presence of actual individual agents who help to constitute the "corporate agents" or legal persons. Places and rivers do not have this decompositional advantage. They are not made up of agents or persons. Because of this, the legal shorthand of referring to their rights is far more contrived.

Viewed from the standpoint of animal ethics, and animal rights advocacy in particular, it may also be unwelcome. The persuasive strategy adopted to extend agency beyond the bounds of sentience is to do as Boyd does and move sequentially from animals (where rights are, in at least cases such as primates and cetaceans, difficult to deny), on to species, then to places and rivers, and ultimately to the Earth as a whole (or even "Mother Earth" as it figures in Boyd's text). Animals and species are appealed to, in part, as a softening up argument to shift us away from a more anthropocentric standpoint in which only humans can be the bearers of rights. If that was all that the appeal did, then few objections could be raised against it (unless we happened to be committed to sentientism, which is not the standpoint adopted here).. However, the link between rights attributions in the case of animals and in the case of rivers and places is taken to be stronger, such that accepting the former puts us on the path to accepting the latter. With some small cluster of additional assumptions, the rights of places will be entailed.

What is particularly worrying here is that it makes one of the oldest counter-arguments to animal rights too easy run, a reductio: given animal rights, absurd consequences would follow and so at least some of the initial premises of a claim of animal rights must be false. The strategy does no favours to animal rights advocacy because it ties them to a claim that it likely to be rejected by otherwise sympathetic commentators. Additionally, this is a very different point from the one brought into play earlier: over-reliance upon rights talk within animal ethics is unwise. This point is, after all, consistent with rights attributions.

Yet, if our ethical duties in relation to places cannot easily be understood by appeal to rights, what then is a more appropriate way to make sense of them? One option, favoured here, is to focus instead upon appeals to the "integrity" of places. This will allow for a naturalness of formulation, but will still do so through an extension of our existing moral vocabulary, rather than through the invention of any new concept that might lack the authority of the latter. On this matter, a point of good methodology, the move towards rights can still be accepted as the right kind of move. We do not deprive ourselves of the normative authority of existing ethical concepts unless we absolutely have to. New terminology is not the default option.

On this approach, what we respect, when we respect places, and what we have a duty to protect, is not (except occasionally in the contrived legalistic sense) the rights of places, but it may well be their integrity, and this, conveniently, accommodates the point that most places change and alter in ways that we would not wish to prevent. Change and even certain kinds of use need not violate integrity unless we adopt a peculiarly static account of the latter. Indeed, if we are to say some of the more interesting things about the integrity of a place, such as Mars or the Earth, then we will have to say why their integrity is preserved in spite of ongoing surface changes.

Again, as a methodological point, the suggestion here is not that integrity is the only concept needed by Geoethics. Such a claim would be not only false, but also incoherent: the integrity of things is a deontological concept. That is to say, it concerns duty (Ancient Greek: *deon* = what is right and proper) and, more specifically, it concerns what we have a duty to respect. Already, multiple established concepts are in play, and not just a single concept. There could not be just one ethical concept, but (counterfactually) if there was it could not be integrity, because of the way that the concept of integrity is bound together with other concepts.

However, in established discussions of integrity within general ethical theory (and even in the Geoethics sources cited at the start of this paper), the concept is ordinarily associated with personal integrity rather than with the integrity of places. In such uses, it is a concept that is focused upon human character and virtue. It is about what is a good thing to be rather than what is a good thing to do. In such uses, it is not a strictly deontological concept. However, it still draws upon familiar applications of the concept from outside of ethical theory, ordinary uses which apply not only to persons. Indeed, while Nikitina (2016) generally uses the term to refer to good professional character, it is occasionally used by her to refer to integrity of other sorts, including the integrity of places [3]. Generally, if we say that "the integrity of x" has been compromised, no-one will be confused about what is meant, irrespective of whether x is an experiment, a sealed enclosure, a procedure, a data set, and so on. Accordingly, in relation to places and things, appeal to integrity permits an ease of expression that talk about the rights of things ordinarily lacks. Additionally, it does so while still drawing upon the authority of an existing character-focused ethical concept that can be reworked in a more deontological manner that does not introduce overtones of agency or personhood and is therefore more suited to Geoethics (which is strongly weighted towards deontology) [39].

Such talk seems also to track something about objects themselves, or in their own right. As a way of gaining sympathy for the term's use in relation to abiotic objects (including places), it was pointed out, in Rolston's treatment of space ethics, that we number some objects and name others [9]. The practice of naming is, on this account, symptomatic of the presence of integrity or of our inclination to attribute something like integrity. If the claim is not pressed too far, there may be something to it. Planets are named but asteroids are (typically) numbered. Although, here, we may point out that they are often named as well, as a reward for discovery or for some other reason. There are also hybrid practices, as with the extra-solar planet Kepler 22B.

As a further qualification, we may also reflect upon the practices of naming that involve a mixed attitude towards moral standing: slaves in the antebellum South were given names that set them apart from the free white population; pets are often given names that we do not give to other humans, names that reflect their lesser standing. Even so, the differentiation between routine asteroids and other solar system bodies is an appealing one. It is in line with an important distinction made in recent U.S. legislation (the SPACE Act of 2015 [40]) that draws a contrast between "space resources" and the subclass of "asteroid resources", with a view towards future mining operations. The shared thought seems to be that there would be something significantly different about mining asteroids and mining a planetary surface or a moon. An appeal to integrity can help us to provide various narratives about this difference, and about something ethically significant that is lacking in the case of most asteroids in the belt [41].

We can, however, be a little more precise about what the integrity of places involves and how, in some important respects, it draws upon and connects up with our understanding of personal integrity. As a provisional formulation, we may define the integrity of places as follows: A place with integrity will have a distinctive, unique, or near-unique structure or composition. This structure or composition will be present because of a unique history and will contribute to diversity.

As this is a multi-point definition, we may expect there to be marginal cases where some of the above considerations apply but others do not. It is also, as indicated, provisional. It is also conveniently general and will allow for mutually-competing and narrower accounts of the concept to be put in place. Nonetheless, it is not so general that it performs no work. If we adopt it, or some near reformulation, there will be obvious inclusions and obvious exclusions. Objects and places with integrity will include planets, moons, particular structures on both, and the larger asteroids such as Ceres, Vesta, Hygeia, and Philae. Among the exclusions, we may number commonplace rocks and the overwhelming majority of objects in the asteroid belt. Marginal cases will include comets and the interstellar medium. Perhaps comets (or at least some comets) belong among the former, while the interstellar medium belongs among the latter, or else it should not be on the list at all. Comets may be compositionally and structurally quite mundane to all but those researching them and attempting to land on them; however, they have distinct relational properties (such as special trajectories) that set them apart from routine bodies in the asteroid belt. A case for integrity might be made. However, reasonable opinions may differ on such matters. This is part of what makes such cases marginal. The appeal to relational properties might be disputed, and we would still have (cultural significance) grounds for the protection where it would obviously be required, e.g., Halley's Comet, even if the comet in question actually lacked integrity in the relevant sense. In the case of the interstellar medium, the rationale for appeal to the concept of integrity as a protection-focused concept falls away. It is too vast for questions about harm, damage, and protection to have any traction.

While much of this discussion has been shaped by a concern for the ethics of human activity in space, the proposed definition would also yield intuitively plausible distinctions if it was applied to Earth systems such as terrestrial woodland and waterways. Old growth forests will have a stronger claim upon integrity than stretches of uniformly planted commercial pine. The Colorado River will have a greater claim upon integrity than a water tank, even if the latter stretched for more or less the same distance. Such terrestrial cases, together with the marginal cases and the multi-point nature of the definition, can draw our attention to something significant: together, they suggest that judgments about integrity may often be a matter of degrees, rather than always being binary. We need not simply say that some object or place has it while another lacks it. Rather, we may allow that a place or object o has integrity with respect to its properties $p_1, \ldots, p_n$, to degree d.

This idea, that the integrity of places may often be a matter of degree, marks another point of continuity with our familiar use of the concept in personal contexts. Compromises with regard to our preferences are an ongoing necessity. However, they do not always mean that our personal integrity has itself been compromised. Otherwise, personal integrity is something that none of us would ever possess because of the continuous element of compromise in our lives. Yet, some compromises are "compromises too far". Similarly, respect for the integrity of a place need not require us to adopt a "hands off" attitude that rejects all forms of use or deliberate change. Lunar impacts still occur and result in change, but it would be odd to say that the changes they involve pose any sort of threat to lunar integrity. Comparable deliberate change brought about by humans could hardly be judged to be a greater threat to such integrity unless we hold that anthropogenic change is automatically change of a more integrity altering sort. The justification for such a view is unclear.

Matters of judgment about change and integrity become harder in cases that involve more extensive alterations or structural damage. For example, and for various reasons concerning its concentration in the upper layers of lunar regolith, dedicated mining operations for a steady supply of helium-3 (^{3}He) on a scale required to replace nuclear fusion on the Earth would need to involve something akin to strip mining rather than deep mining. This would require considerable surface damage [41,42]. Mining on such a scale would almost certainly raise concerns about the integrity of the lunar surface, concerns that more limited mining operations for more modest amounts of ^{3}He need not raise. We might, as a result, judge that the greater logistical difficulties of ^{3}He mining from asteroids are worth accepting in order to protect the lunar surface [41,43].

Integrity, understood in these terms, allows us to make plausible distinctions between reasonable candidates for protection and less plausible candidates. It does so in ways that will allow for change and, in the case of planetary bodies and their moons, it need not be seen as an insurmountable obstacle to economic development or to the establishing of a human presence. Rather, it may shape the pattern of the latter in various ways, helping to avoid actions that might be a cause for later regret.

Two key advantages also stand out. First, appeal to the integrity of places may help to address the widespread concern that the 1967 understanding of planetary protection is simply too narrow to be indefinitely sustained. However, if we are not only protecting science from the dangers of forward contamination, but also protecting people from the dangers of back contamination, what exactly should we be protecting? The integrity of places would seem to be a persuasive answer, or at least a plausible candidate answer. Understood in the above terms, it helps to pick out exactly the kind of objects and places about whose protection a culturally-sensitive consensus might eventually be built.

Second, and perhaps just as important for the traction of ethical influence upon matters of policy, the concept of integrity is metaphysically neutral or at least as neutral as any ethical concept can be expected to be. That is to say, while integrity talk has in the past been associated strongly with ideas about inherent value, and with notions of poesis and biogenic nature, particularly by Rolston (1986) but also by Westra (1994), there are obvious disadvantages to attempts to give the concept too much metaphysical depth. Such a move may create difficulties for dialogue. It may be best if, when we appeal to integrity, we do not have to commit one way or another on the idea that places have a metaphysical, inherent value that can be understood as a special sort of moral property, thought of as entirely separate from human responsiveness. Here, it might reasonably be objected that the established normative content of the concept of integrity is being under-estimated. Over the past four decades a significant number of agreements have begun to employ the concept. Here, we may think of the Great Lakes Water Quality agreement between the US and Canada (1978), the UN's Rio Declaration on Environment and Development (1992), and its World Charter for Nature (1982). This is what we might call normative baggage. However, it is newer baggage than that associated with the concept of rights (which, in some or other form, dates back for thousands of years, even though the terminology of *recht* is somewhat newer). Perhaps more importantly, these uses of the concept of integrity are embedded within environmental discourses about ecosystems. They concern the integrity of the latter, and not the integrity of places that may or may not support life. They are descendants of Leopoldian integrity and, as such, are bound up of limited use with regard to ethical issues in, for example, space. For the latter, a quite different concept of integrity is required. It need not, however, be as metaphysically "thick" as Rolston imagined.

Nor need we commit to anything else that might provide some manner of deep philosophical underpinning for our practices of valuing. These practices will continue, irrespective of the philosophical stories that we tell about them and irrespective of how illuminating the latter may sometimes be. This is not, of course, a point against philosophy, it is simply a reaffirmation that subordinating ethics to metaphysics is not always the only or best option. Accordingly, a concept of integrity can readily be used, and used in relation to the same features of the same places, by those who are committed to the idea that places can reasonably be respected and valued without appeal to some human interest, and by those who remain unconvinced by the arguments presented above (i.e., those who remain committed to a strictly indirect justification, even at the expense of motivations and justifications becoming disconnected). Indeed, even among those who defend philosophically deep notions of "inherent value", or some equivalent notion, talk about the integrity of places does not actually entail agreement about which is the best account of such value. (There are several plausible theories of "metaethics").

None of what has been presented above is, of course, conclusive. While there is local argumentation, it is not proof-like. It merely draws out various advantages that geoethical use of integrity (in a broadened sense) may have. Talk about integrity dovetails well with a commitment to inherent value, and with the idea that we do have reasons to value non-instrumentally, but it does not presuppose either. This level of metaphysical neutrality is convenient and need not lead to confusion. After all, many of our most important ethical concepts are like this. They are open-textured. Detailed metaphysical commitments cannot readily be read off of them. We can, for example, agree that individual humans have rights, and even agree about the kind of rights that they should have in a liberal society, without necessarily agreeing about the philosophical or metaphysical underpinnings of such rights beyond their connection to some types of entities rather than others. We need not agree on our stories about metaethics and metaphysics, stories about why the individuals (or groups of individuals) in question might happen to have them. However, if we do not agree about the deep metaphysical underpinnings of ethics in the human case (where the level of disagreement among philosophical ethicists is high), we are unlikely to agree in non-human cases, and in particular in the kinds of cases that are furthest removed from our own lives as sentient beings. One of the desirable features of any ethical concept is that it will help to bridge intractable philosophical disagreements of this sort or provide ways of bracketing them out; another is that it allows for a naturalness of formulation. (Legal contrivances are less permissible in ethical discourse).

The concept of integrity meets both of these requirements. While the meeting of such minimal requirements, or adequacy conditions, is not a conclusive reason for accepting the treating any concept as central, it does at least make integrity a good candidate for such a role.

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