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COMMENTARY

Nature's Legacy: On Rohwer and Marris and Genomic Conservation

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In their instructive and stimulating paper, Rohwer and Marris claim that 'many conservation biologists' believe that there is a *prima facie* duty to preserve the genetic integrity of species. (A *prima facie* duty is a necessary *pro tanto* moral reason.) They describe three possible arguments for that belief and reject them all. They conclude that the biologists they cite are mistaken, and that there is no such duty: duties to preserve genetic integrity are merely instrumental: we ought act to preserve genetic integrity only because doing so is required by some other duty, such as the duty to preserve taxonomic biodiversity, or the duty to preserve the reproductive fitness of existing species. In permitting for instance the introgression of cattle genes into the genome of *Bison bison* we therefore do not necessarily fail in any respect ethically. I will criticize the paper here on three fronts.

1. First, I am not yet convinced that anyone holds the position under attack. The authors quoted by Rohwer and Marris are committed merely to holding that there is normally a proper (an all-things-considered) duty to prevent the loss of genetic integrity. Indeed it is consistent with the rejection of a *prima facie* duty to hold that we are obliged in most, or even all, real-world scenarios to prevent loss of genetic integrity. That is because genetic integrity could be instrumental to such an assortment of goods that only in unreal, hypothetical scenarios are we in no respect duty-bound to preserve it. Rohwer and Marris therefore seem to take belief in a *prima facie* duty to be weaker than it is: they impute it to thinkers who could consistently reject it. (Conversely, they seem in places to take that belief to be *stronger* than it is: they point out at various places in apparent criticism [pp. 17, 22, 25] that human modification of a genome might sometimes be obligatory, for instance when it is necessary to prevent the extinction of a species. But this is consistent of course with the existence of the *prima facie* duty, a fact that they elsewhere seem ready to concede [p. 10].)

2. But let us set these initial objections aside and suppose with Rohwer and Marris that some, or many, conservationists believe in the *prima facie* duty. What should we make of their criticisms? Rohwer and Marris attack three possible groundings of the duty. The first is that genetic integrity interpreted as 'genetic purity,' or the persistence of the existing genome of a species, is intrinsically good. Rohwer and Marris argue that it cannot be so because genomes change continuously by interbreeding, random variation and

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non-anthropogenic hybridization, and such change being natural cannot be bad. In addition, the property of genetic purity is supposed to fail G. E. Moore's test of intrinsic value. The second is that genetic integrity interpreted as 'freedom from anthropogenic change' is intrinsically good. Rohwer and Marris again argue that it cannot be so because some anthropogenic change is not bad (for instance, intentional hybridization necessary for the prevention of a species' extinction). They offer in addition a *reductio ad absurdum*: in this our epoch, the Anthropocene, all genomic change is to some extent anthropogenic: if genetic integrity were intrinsically good, then all current genomic change would be bad. But this consequent is absurd; so the antecedent must be false. Rohwer and Marris thirdly argue that the *prima facie* duty might be thought to follow from the instrumentality of genomic integrity to other intrinsic goods, such as taxonomic diversity, genetic diversity, or the reproductive fitness of individuals of current species (that is, the lack of 'outbreeding depression'). But they object that genomic integrity is not a necessary condition of any of these goods: there are at least hypothetical scenarios in which the promotion of those goods does not require the preservation of integrity.

The characterization I have given here is rough; but it serves to show that all of Rohwer and Marris' arguments contain the following suppressed premise:

(1) There is a *prima facie* duty to preserve *x* iff *x* is intrinsically good.

The presumption of this biconditional explains the slippage throughout the paper between 'duty' and 'goodness.' It is however falsifiable in both directions. Consider first the more trivial case of the direction right to left, and let *x* be 'sexual pleasure.' Sexual pleasure is intrinsically good, but there is no *prima facie* duty to preserve it. In this world there are many things that are good; there are many intrinsic goods; but they do not each impose on us a *prima facie* duty. There is I believe a duty of goodness: it is the duty to promote goodness; we ought to make the world better. But goods can be weighed against each other, and we do not necessarily fail in some respect when we trade one good for another. Now consider the more important case of the direction left to right. Does a *prima facie* duty to preserve *x* entail that *x* is intrinsically good? It does not. There could be a *prima facie* duty to preserve *x* even if *x* is not in some scenarios good: *x* could be instrumental to such an assortment of intrinsic goods that its probability of goodness is very high; a loss of *x* might be likely to do great harm. Further, *x* might be so opaque that we cannot know when it is not good. For example, let *x* be 'biodiversity.' It is in reasonable dispute whether biodiversity is intrinsically good. But even if it is not, there might still be a *prima facie* duty to preserve it: biodiversity is at least instrumental to many intrinsic goods; the probability that goodness is advanced by its preservation is very high; the scenarios in which no good is advanced by its preservation are hypothetical and rare. Further, biodiversity is one property of a massively complex system, the biosphere: the precise scenarios in which its loss is no evil might be unknowable. All this is to say that a *prima facie* duty might be a function of our knowledge of goodness and its probability, and not merely its truth. The consequence for the current debate is that there might still be a *prima facie* duty to preserve genetic integrity even though genetic integrity is not intrinsically good. All of Rohwer and Marris' arguments are therefore inconclusive.

3. But let us set this objection aside and assume with them that the biconditional (1) is true. Do they succeed in showing that genetic integrity is not intrinsically good? They do not. They deploy the following Moorean test of intrinsic goodness:

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(2) *x* is intrinsically good iff *x* is good in a world in which *x* is the sole entity.

I take it that this is a special case of the following general principle:

(3) *x* is intrinsically good iff *x* is good in all worlds.

Rohwer and Marris sensibly conclude that 'genetic integrity' (under any interpretation) fails this criterion. But the criterion, even if it accurately characterizes Moore (which I suspect it does not), is vastly too strong: almost nothing—possibly nothing—could satisfy it. Certainly it excludes many strong candidates for intrinsic goodness. What could it even mean, for instance, to speak of 'animal flourishing' as the sole entity of a world? Moore gave a 'non-relational' account of intrinsic value; but there are others. One is the standard account of 'intrinsic' as 'non-instrumental,' in which intrinsic goods are, in John O'Neill's words, 'goods that other goods are [terminally] good for the sake of.' That account does not exclude genetic integrity.

I think it is plausible that genetic integrity is intrinsically good under the interpretation of 'freedom from anthropogenic change.' I described above Rohwer and Marris' two criticisms of that view. My response is first to weaken slightly the interpretation to 'freedom from anthropogenic change that diverts genomic change from its natural course.' That interpretation does not disvalue change that, though to some extent anthropogenic, is no different to what it would have been without human influence. (Though possibly this extension of the range of 'good change' is negligible or empty.) Second, it is to accept the conclusion that Rohwer and Marris think absurd, that all anthropogenic genomic change is bad. We shan't bite the bullet here too hard, for the pain is not as severe as it seems: genomic change is bad only to the *extent* that it is anthropogenically divergent from its natural course, and this could be slight, either because it is only slightly divergent, or because it is only slightly anthropogenic. Third, it is to say that though anthropogenic change might in some scenarios be on balance good, it is never so without admixture of evil. Anthropogenic change might be necessary, but still to an extent regrettable—an unfortunate necessity to correct other human damage. I will pass over the science fiction counter-example of 'space tigers' because I see no reason to trust our intuitions (if we even know what they are) in such cases that depart so radically from real normative experience.

The thought that lies behind my view is that introgression is a loss of what nature has bequeathed us: it is a loss of the natural product of evolution. A species in its pre-Anthropecene form is high-grade genome. Biodiversity is not intrinsically good: it is good only with a certain narrative—good only as an evolutionary outcome. The protection of genetic integrity is like the protection of wilderness: it is the shielding of what preceded the human domination of the natural world.

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