

Human Nature: The Very Idea

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Abstract The only biologically respectable notion of human nature is an extremely permissive one that names the reliable dispositions of the human species as a whole. This conception offers no ethical guidance in debates over enhancement, and indeed it has the result that alterations to human nature have been commonplace in the history of our species. Aristotelian conceptions of species natures, which are currently fashionable in meta-ethics and applied ethics, have no basis in biological fact. Moreover, because our folk psychology finds this misleading Aristotelian conception highly tempting, we are in fact better off if we refrain from mentioning human nature altogether in debates over enhancement.

Keywords Human nature · Enhancement · Essentialism

1 Improving Unicorns?

In bioethical circles, there has been plenty of debate in recent years about the wisdom of attempts to alter human nature (e.g. Habermas 2003, Savulescu and Bostrom 2009, Sandel 2007, Harris 2007). According to some philosophers of biology (and biologists) this is rather like asking about the wisdom of altering a unicorn. There's no such thing as a unicorn, and, some have said, there's no such thing as human nature, either. The distinguished philosopher David Hull was consistently 'suspicious of continued claims about the existence and importance of human nature' (1986, 12). The biologist Michael Ghiselin has made the claim even more bluntly: 'What does evolution teach us about human nature? It teaches us that human nature is a superstition' (1997, 1). Their scepticism is not grounded in some special feature of humans: it is not, for example, an artefact of our capacity for culture and the variation that this capacity brings to our species. On Hull and Ghiselin's view, humans don't have natures

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because no biological species have natures: they are not the right sorts of things to have them. Could it be that the whole debate about interfering in, or improving on, human nature rests on an error?

Cutting to the chase, the answer to this question is clearly ‘no’. Hull and Ghiselin object to a rather particular picture of human nature, which one might call the ‘essentialist’ conception. Their arguments do not show that there is no respectable conception of human nature. Hull himself was quite explicit about this: ‘If by “human nature” all one means is a trait which happens to be prevalent and important for the moment, then human nature surely exists’ (1986, 9). In this paper, I explore the notions of human nature that are, and are not, biologically respectable, and I examine their uses and abuses in debates regarding enhancement. I begin by explaining the biological consensus, which is usually thought to make room for a minimal conception of human nature very much in line with Hull’s own proposal. I go on to examine and criticise a more detailed elaboration of this conception, proposed by Edouard Machery (2008). It turns out that it is difficult even to sustain the minimal notion of human nature in the light of work on polymorphism and the role of learning in the development of widely distributed traits: the only biologically respectable notion of human nature that remains is an extremely permissive one that names the reliable dispositions of the human species as a whole. This conception offers no ethical guidance in debates over enhancement, and indeed it has the result that alterations to human nature have been commonplace in the history of our species. In the final sections of the paper I examine a rather different, quasi-Aristotelian conception of human nature that is frequently invoked in ethical discussion, including discussion regarding enhancement. This conception is highly misleading. Moreover, because our folk psychology finds this misleading conception tempting, we are in fact better off if we refrain from mentioning human nature altogether in debates over enhancement.

2 The Biological Consensus

To the extent that there is any philosophical consensus regarding biological species, it is that biological species fall into an entirely different category of thing, metaphysically speaking, to chemical elements (see, for example, Sober 1980, Dupré 1981, Griffiths 1999, Ereshefsky 2001, 2008, Okasha 2002). An influential story about chemical elements has it that they are natural kinds with intrinsic essences. On this view, a lump of metal is properly classified as gold by virtue of its having the right microconstitution, and more specifically by virtue of its atoms having 79 protons. This microstructural property explains many of the characteristic macroscopic features of lumps of gold: their malleability, electrical and thermal conductivity, density and so forth. This microstructural property also constitutes the sense in which all samples of gold are fundamentally the same: they all have the same atomic number. This also means that were a particular lump of metal to change its atomic number from 79, it would no longer be gold; it would belong to a different elemental kind.

One might think that a similar sort of story could be told about species: perhaps species, too, are natural kinds, again with microstructural essences. On this view, being a member of a given species is a matter of having the right genetic constitution. The genome explains the characteristic properties of each species, and it, too,

constitutes the sense in which the members of a species are fundamentally the same. Once again, if the genetic constitution of an individual human, dog, or whatever, is altered, it thereby stops being a member of that kind.

In fact, this way of thinking about species has been almost universally rejected among biologists and philosophers of biology. Most taxonomic philosophies instead regard species members as united not by virtue of possessing similar intrinsic properties, but instead by virtue of the relations they stand in to each other (Okasha 2002, Ereshefsky 2008). This stance is most clearly expressed by those who think of species as individuals, and not as kinds at all. It should be obvious that not all of the entities we describe are natural kinds. The desk in my office is not a kind, it is an individual. An individual comes into existence at a given point in time (e.g. when the desk is built), it has a location in space which may change over time (as it moves from one office to another), it can survive considerable changes in its properties over time (as it is sanded, repainted, repaired), and it disappears at a moment in time (when it is destroyed). Importantly, the parts of a desk are not united because they are made of the same intrinsic materials: the legs may be metal, the top may be composed of wood and leather. Instead, they are united because of the relations of attachment they stand in to each other (Lewens 2007).

Similar facts hold for species: they come into existence at a moment in time; they can change their location in space as their ranges expand or contract; they can survive changes to their properties over time as they are affected by selection, mutation, drift and so forth; and they disappear at a moment in time (when the species becomes extinct). Individual organisms are parts of a given species not in virtue of the intrinsic properties they share, but rather in virtue of the relations they stand in to each other. What these relations may be is contested: some take it to be a matter of breeding relations, others take it to be a matter of the niche they occupy, for others it is a matter of ancestry (Okasha 2002, Ereshefsky 2008). The upshot of all this is that a given species can be genetically and morphologically heterogeneous at a time; these genetic and morphological properties can change over time; and species membership is not constituted by the possession of some micro-essence. This does not mean that species have no essences at all: just as, on Kripke's view, individual entities such as tables and persons have their origins essentially, so one might argue that species, again understood as individuals, have their origins essentially (Okasha 2002). The key message from the consensus is not that species have no essences, but that species do not have explanatory micro-essences of the sort that would make them analogous to chemical kinds. That is why Hull and Ghiselin have objected to references to 'human nature', and to species natures in general.

This consensus is not, of course, without critics. Michael Devitt has recently argued that biological species do have intrinsic essences after all (Devitt 2008, 2010). Devitt's papers have attracted several rebuttals (e.g. Barker 2010, Ereshefsky 2010, Lewens 2012), and this is not the place to rehearse a response to him in full. Instead, we should note that even Devitt's version of essentialism is mild. His view is that internal genetic properties go some way to explaining the characteristic properties of biological species. For this reason, he thinks it appropriate to describe species as kinds, whose essences are partially intrinsic. Devitt's view, in other words, is that a causal explanation of (say) why tigers develop in such a way as to grow stripes can point, in part, to patterns of genetic material that tigers share. Having said this, Devitt

explicitly concedes (a) that generalisations ranging over the members of a given species, such as ‘tigers are stripy’, are rarely, if ever, without exceptions, (b) that a full causal explanation for the reliable development of tiger stripes would have to point to non-genetic resources, and (c) that being a member of the tiger species is not a matter of having some single ‘tiger gene’. Instead, Devitt takes it that some perhaps unruly pattern of genetic variation is characteristic of a species, hinting that species may be defined as loose ‘genotypic clusters’.

Devitt’s own brand of essentialism is committed to little more than the view that there are reasonably reliable generalisations about members of individual species, which are in turn partially explained by appealing to the genetic constitution of the species in question. These claims are not denied by proponents of the species-as-individuals view, for the mere fact that a species is properly regarded as an individual, whose parts are particular organisms, leaves open the question of how far natural selection, or other biological forces, may have acted to homogenise any given species, thereby giving rise to reliable generalisations about common traits within the species at any given time. While an individual need not be composed of materially homogenous parts—and the example of the desk shows this—this is not to say that an individual cannot be homogenous in some respects, and at certain times. Since evolutionary forces can sometimes lead to the accumulation of difference, and sometimes to homogenisation, it is an open empirical question as to which of our psychological, behavioural, anatomical or physiological features will turn out to be widely distributed across the species. Moreover, such distributions are vulnerable to change as the evolutionary forces acting on them change. That, to repeat, is why Hull explicitly endorsed a mild reading of ‘human nature’.

3 Permissive Natures

Edouard Machery (2008) has recently tried to argue for a respectable notion of human nature, the detailed description of which he takes to be the goal of work in evolutionary psychology. Machery’s conception of his project as a response to Hull is rather confusing, because much of what he says is in the spirit of Hull’s view. Machery distinguishes an essentialist conception from what he calls a ‘nomological conception’, and he argues that the nomological conception is legitimate. Machery’s nomological conception has it that ‘human nature is the set of properties that humans tend to possess as a result of the evolution of their species’ (2008, 323), and we have already seen that Hull did not deny that some properties are common among humans, and that evolutionary processes are often responsible for this commonality.

We should be very clear at the outset that Machery’s nomological conception is, as he himself recognises, not morally normative: human nature consists in traits that are common among humans, but this does not mean there is anything morally wrong in failing to possess one of these traits, nor does it mean there is anything morally right in exemplifying the statistical norm. Like Hull’s own tentative account of what human nature might be, Machery’s proposal is merely statistical: human nature consists in nothing more than a set of traits that are widely distributed within the human species, and which owe that distribution to any of a variety of evolutionary processes. Natural selection tends to promote the spread of those traits that augment

an individual's capacity to reproduce, and yet there is no general reason to suppose that traits of this sort are ethically admirable. Moreover, natural selection is just one of a variety of evolutionary processes: in small populations a trait may become widespread as a result of drift. Such a trait may be less fit than alternatives. The upshot of all this is that on Machery's conception of human nature, the question of whether traits that are a part of our nature are also morally desirable is an open one. So Machery's conception of human nature would not serve as much of a foundation for someone trying to argue against (or for) modifications to the human species. Moreover, Machery's conception (like Hull's) underlines a point made elsewhere by Norman Daniels (Daniels 2009): to change human nature itself, rather than to change an individual so that he or she is no longer exemplary of human nature in some respect, would require changing the typical distribution of traits in the human population as a whole. On this view, to change human nature would be a tall order: it would require more than the development of a few individuals with extended attention spans, or augmented athletic abilities.

Having said all this, there are some problems even with Machery's minimal account of what human nature is supposed to be. They are instructive when we address ethical issues regarding enhancement. There is a minor worry in the way he describes his project, for he tells us that: 'According to this [nomological] construal, describing human nature is thus equivalent to what ornithologists do when they characterize the typical properties of birds in bird fieldguides' (2009, 323). A fieldguide is designed to enable the correct recognition of an individual bird, qua member of a given species or subspecies, in the field. Since this is the function of fieldguides, it is not surprising that they restrict themselves properties that are (a) diagnostic of a given species, and (b) easy to observe over a short period of time (such as when out on a walk). Machery's conception allows that a property can be part of human nature when it is neither diagnostic of our species, nor easy to observe: the property instead needs to be widely distributed through our species. Some such properties may be found widely among other species (hence they are not diagnostic), and they may only be apparent in an individual human after microscopic observation, or prolonged observation. If evolutionary psychologists Daly and Wilson (1988) are correct, then adverse treatment of genetically unrelated offspring is a feature of human nature even though it is not the sort of feature one can easily observe on a short walk 'in the field', and it is not the sort of feature that is peculiar to humans: on both counts, it is not the sort of feature one would expect to find in the entry under 'Human' in a field guide to mammals. Much more generally, the vast number of homologies shared between humans and related species (pentadactyly, the possession of a spinal cord, and so forth) are parts of human nature on Machery's view even though they are not diagnostic of our species. It is misleading to say that the description of human nature under the nomological conception is equivalent to the sort of description one finds in an ornithological field guide.

That was merely a presentational problem: Machery's proposal has two more deeply problematic features. First, he argues that something is only a part of human nature when it is 'shared by most humans'; second, he argues that something is only a part of human nature when humans possess that feature 'as a result of their evolution'. Let us begin with the first requirement: 'male philandering' is just the sort of trait that evolutionary psychologists are likely to regard as part of human nature, and yet only

half of humans are male (Buss 1999). Field guides, as Machery notes, typically contain several images for a single species, including representations of the species at different life stages, and representations of males and females. More generally, evolutionary processes including natural selection can often lead to various forms of polymorphism, and sometimes produce very distinct morphs with characteristic anatomical and behavioural features. The marine crustacean species *Paracerceis sculpta* offers a nice example (Shuster 1987). Here, there are three male forms: one large one which guards smaller females in harems contained inside sponges, one very small one which sneaks into the sponges, and one that imitates the females to enter the sponges in disguise. On Machery's account, a feature is only part of the nature of a species when it is shared by most of its members. What justifies this verdict, rather than various reasonable alternatives? Why, for example, shouldn't we be prepared to say that it's in the nature of the species *P. sculpta* to produce these three morphs, or perhaps that each morph has its own nature?

Machery considers these problems, and defends his understanding on purely pragmatic grounds: since other disciplines (he names forms of anthropology, and personality psychology) focus on human differences, 'it is useful to have a notion that picks out the similarities between humans...' (324). Even considered pragmatically, this justification is weak: after all, a conception of human nature that makes room for polymorphism need not overlook traits that are more widely distributed throughout the species. What's more, personality psychology and those forms of anthropology that highlight cultural difference are rarely in the business of offering evolutionary explanations: if Machery's aim in outlining a respectable concept of human nature is to ensure that an important realm of inquiry is not neglected, then the study of evolved polymorphisms would seem just as worthy of support as the study of traits that evolution has distributed more widely in our species.

This brings us to Machery's second major requirement for something to count as part of human nature: what does it mean to say that some feature of our species is 'a result of evolution'? This problem is compounded by his own insistence that '... nothing is said about the nature of the evolutionary processes in the proposed characterisation of human nature. The traits that are part of human nature can be adaptations, by-products of adaptations, outcomes of developmental constraints, or neutral traits that have come to fixation by drift' (2008, 324). Of course this doesn't go very far to explaining what does count as an evolutionary process, and here again Machery's definition takes the form of a stipulation: '...saying that a given property... belongs to human nature...is to reject any explanation to the effect that its occurrence is exclusively due to enculturation or to social learning' (326).

There are a number of ways in which we can put pressure on this stipulation. First, Machery's thought appears to be that social learning is not itself an evolutionary process, hence if social learning is the only process responsible for the occurrence of some trait, the trait does not count as a part of human nature. To make this argument good one needs some reason for denying that evolutionary processes in general include cultural evolutionary processes. In contrast to this, the likes of Richerson and Boyd (2005) have built fruitful evolutionary models that consider how populations change over time—how they evolve, that is—under the influence of various forms of social learning. Second, to the extent that 'human nature' is supposed to name those traits that are widely distributed among our species, and perhaps even

those traits whose development is very robust, or hard to evade, it's not clear why we should rule out an explanation for their persistence that looks solely to enculturation or social learning. We may think it unlikely that these processes would result in widely distributed traits, because we might think that where social learning is wholly responsible for the development of a trait it will also tend to result in considerable variability across different communities. This hunch is better left as an empirical claim to be established by proper investigation. Moreover, if it is true then Machery's insistence that human nature only names traits that are characteristic of the species as a whole will ensure by itself that traits produced solely through these forms of learning will not feature in human nature.

Third, it isn't clear that Machery's conditions succeed in excluding any widely distributed traits from human nature. He gives an example of a trait that he thinks is not part of human nature: 'the belief that water is wet is not part of human nature, in spite of being common, because this belief is not the result of some evolutionary process. Rather, people learn that water is wet' (327). Why should we not count this belief as the result of an evolutionary process? Machery suggests two rather different answers, but neither is satisfactory. The first response looks back to the notion that if a trait's occurrence 'is exclusively due to enculturation or to social learning', then it is not evolved. We have already seen reasons to question this stipulation, but Machery is quick to point out that 'This is of course not to deny that social learning, or indeed any other environmental influence, can be part of the explanation of the development of the trait' (328, fn8). Once this concession is made, though, we will surely concede that since *part* of the development of my belief that water is wet refers to phenomena other than enculturation and social learning, such as my own perception of water's wetness, it can qualify as part of human nature after all.

Machery's second response is rather different: 'Saying that a trait has an evolutionary history is to say something stronger than the fact that it has perdured across generations. Humans have probably believed that water is wet for a very long time, although this belief has no evolutionary history. For this trait is not a modification of a distinct, more ancient trait' (327). This may be a plausible claim for beliefs about water, but it looks less plausible if we consider a different example of a trait that is very widely distributed among the human species today, such as basic knowledge of the rules of association football. This knowledge has surely undergone modification over time, as the rules of the game have changed. If we follow Machery's second response, knowledge of the rules of association football is part of human nature, while knowledge of the wetness of water is not. Machery's proposal to equate human nature only with those elements of our common makeup that can be understood as modifications of earlier more ancient traits threatens to draw a theoretically dubious distinction between different cognitive traits, all of which are produced via social learning.

These are not merely philosophers' quibbles: in recent work the psychologist Cecilia Heyes has argued that human social learning—that is, the ability to learn from other humans—in fact makes use of general learning abilities (the sort of abilities that underpin trial and error learning, for example), coupled to input mechanisms that are specifically tuned to the activities other agents (Heyes 2012). Importantly, Heyes suggests that this tuning of input mechanisms—that is, the shaping of perceptual, attentional and motivational systems that direct us to the activities of other

people—may itself be influenced by further learning. Thus, Heyes considers the possibility that the motivation of children to copy the actions of others may itself be a learned product of the rewards adults give them for successful imitation (see Ray and Heyes 2011). The ability of humans to imitate others is just the sort of widely distributed trait that one would presumably want to count as part of human nature, and the question of the role of social learning or enculturation in its production is one that needs to be explored in full: it is not the role of a definition of human nature to exclude social learning or enculturation as the explanation (or, for Machery, the sole explanation) for the widespread development of some important feature of our species.

What lessons can we take away from our discussion of Machery's proposal for a respectable account of human nature? The answer is that an initially attractive conception slips through our fingers as we inspect it more closely. There is no particularly good theoretical or pragmatic reason to insist that the 'nature' of a species consists solely in those traits that are widely distributed throughout the species. This is especially clear when we focus on the conception of a biological species as an individual; that is, as a complex structured entity in its own right. The human species, like all species, has various reliable tendencies, in virtue of the distribution of genetic and other developmental resources throughout it (Lewens 2009a). It is in the nature of the human species to reliably produce organisms that are similar in certain respects, but it is also in the nature of the human species as a whole to reliably produce patterns of difference, such as the anatomical and physiological differences between the sexes (Ereshefsky and Matthen 2005). There is also no particularly good theoretical reason to insist that traits cannot count as parts of the species nature if they are solely produced by forms of enculturation or social learning; that is partly because it is unclear that any traits are produced *solely* through these channels, partly because learning processes can underpin the development of traits that are reliably distributed throughout the species, and partly because various forms of social learning appear to have been important in the evolutionary history of our species.

Having made these concessions, the nomological conception becomes disturbingly permissive, and it is hard to see how it can be reined in other than by unprincipled fiat. If we understand 'human nature' simply to name the reliable dispositions of the human species as a whole, then what grounds do we have to deny that it is in the nature of the human species to produce Catholics, or that it is in the nature of the human species to produce rugby players? These are certainly reliable tendencies of our species, which have endured over a reasonable length of time. We do not want to exclude them on the grounds that there have not always been Catholics, or rugby players, because any biologically respectable notion of human nature must allow that it can change. Nor do we want to exclude them on the grounds that Catholicism, or rugby-playing, are learned, because any biologically respectable notion of human nature must allow that learning contributes to our makeup.

What's more, while changing the reliable dispositions of the complex entity that is *Homo sapiens* may be difficult, there will be a great many ways of intervening in the broad patterns of human development, all of which could potentially result in changes to human nature. Population-wide programmes of genetic manipulation may produce changes to human nature on this view, but population-wide changes to educational regimes may do the same. Even more restricted processes, such as imperialist

interventions that extinguish certain languages, or rituals, will count as alterations to human nature because they alter the reliable tendencies of the species as a whole. The alterations that have been going on in our species over the past few hundreds of years, wrought by the arrival of printing, the computer, and so forth, have certainly made broad differences to the ways in which humans develop: there is no good theoretical reason to deny that these amount to changes in human nature too. On this view we should deny Daniels's claim that the modification of human nature is exceptionally ambitious, for it is the sort of thing that is going on all the time.

Machery might reasonably point out that this more permissive account of human nature is so broad that no human trait seems to be excluded from its extension: this makes the account unacceptable. Instead, the permissive account must be reined in somehow, perhaps along the very lines Machery proposes. One might simply decree that 'human nature' is to name those properties that most humans share, and which are produced by a restrictive subset of evolutionary processes, even if there is no particularly strong theoretical reason to ground the chosen set of restrictions. The case for such a stipulation is, however, purely pragmatic: it does nothing more than to limit the field of inquiry for a particular empirical discipline in order to contain its subject matter. It is hard to see why one should wish to maintain this narrow stipulative understanding of 'human nature' when one is inquiring about the ethics of various interventions that might alter humans: here, the permissive account seems hard to resist. From this perspective it is hard to find fault in Marx's claim that 'all history is nothing but a continuous transformation of human nature'. And, of course, if human nature has been constantly transformed throughout history, it is hard to see how alterations to human nature could possibly mark out a type of intervention that will receive uniform ethical evaluation. Instead, ethical discussion of the rights and wrongs of diverse interventions in our species needs to focus on appraising the details of the interventions themselves, rather than the question of whether they might change 'human nature'.

4 Neo-Aristotelianism

In the last section I argued that the account of human nature we owe to Machery and Hull leaves open the question of whether there is anything morally wrong with altering human nature, and I also pointed to a variety of problems with that account, which all push us towards an exceptionally permissive view of what human nature is. Whether we accept Machery's restrictive account, or move to the permissive conception of human nature, we fail to generate an account that offers any sort of ethical guidance. Of course, other writers in ethics and bioethics have implicitly or explicitly adopted very different conceptions of species natures, which they believe do have ethical implications, and I turn to these now. In this section, I examine the appeals to human nature that underlie an influential form of neo-Aristotelian meta-ethics, championed recently by Michael Thompson (1995, 2008) and Philippa Foot (2001). I should explain at the outset that what follows is not intended as a refutation of their work, because I will not be addressing the most important parts of their case (although see Lewens 2010 for further criticism of Foot). Thompson, in particular, argues that reductive definitions of what it is to be a living thing all fail, or beg the

question, and he uses this as a clue to fashion his neo-Aristotelian account. This part of the argument falls beyond the scope of this essay. Instead, I simply want to focus on the support their work gets from the puzzling status of what Thompson calls ‘Aristotelian categoricals’.

Thompson has drawn our attention to a peculiar sort of claim one encounters about species and their natures. People are prone to say things like ‘The bobcat breeds in spring’, or ‘Man sheds his teeth’ (these are Thompson’s own examples). What are we to make of such statements, which Thompson calls ‘natural historical judgements’, or ‘Aristotelian categoricals’, and which take the form ‘The S is (or has, or does) F’?

It is obvious that these statements shouldn’t be understood as referring to a particular bobcat, or a particular man—they are instead efforts at more general description. Moreover, Thompson claims, quite plausibly, that we can’t understand these claims simply as shorthand for ‘Most bobcats breed in spring’, or ‘Most men shed their teeth’. He takes it that a statement like ‘The mayfly breeds before dying’ is not challenged by the fact that most mayflies die without breeding at all. Thompson consequently takes it that these sorts of statements, while describing a species, nonetheless specify standards for species members. This is borne out by the possibility that most species members might fail to meet the standards in question.

We will examine Thompson’s positive proposal for how to understand natural historical judgements in a moment. First, let me quickly review some highlights from psychological and anthropological investigations of the ‘folk’ conception of species natures (e.g. Atran 1990; Atran et al. 1997; Gelman and Hirschfeld 1999). On the face of things, this empirical work gives considerable support to Thompson and Foot’s claims. We are, it seems, intuitive essentialists (see also Linquist et al. 2011). So, for example, research on young children has suggested that they regard each living kind as having some sort of underlying internal nature, which is itself causally responsible for the appearance of typical features of the kind in question. These essences are hidden: they can fail to manifest themselves properly even when they are present. They are teleological, in the sense that they are oriented to some end state that may not in fact appear. It would be wrong, then, to think these statements about essence can be translated without loss of content into statements about statistical norms within the living kind, for the essence might continually ‘misfire’ and fail to result in an anticipated regularity. Finally, it has been argued that people conceive only of living kinds in this way. They do not regard artefacts, or chemical elements, as possessing internal ‘teleo-essences’ of this type, for the making of forks is not driven from the inside of the fork, and the making of carbon is not goal-directed. Atran et al. summarise: people ‘presume the biological world to be partitioned at that rank [the generic-species rank] into non-overlapping kinds, each with its own unique causal essence, or inherent underlying nature, the visible products of which may or may not be readily perceived’ (1997, 39). The end result of all this is that the folk do indeed seem committed to the existence of ‘natures’ for (folk) species, which can be described, which are irreducible to statistical generalisations about individual organisms, and which inhere solely in the organic world. These essences also have normative implications, in the sense that they specify proper and improper developmental outcomes in virtue of their teleological orientation (this does not entail, of course, that species natures are conceived of as entailing fully ethical norms for species makeup). Such thinking emerges very early in cognitive development: as

Gelman and Hirschfeld put it, ‘Four-year-old children act like essentialists, assuming that members of a category share an innate potential and that innate potential can overcome a powerful environment’ (1999, 418).

Although they do not cite this ethnobiological literature, both Thompson and Foot use these features of folk discourse to strengthen their case for a particular view regarding meta-ethics. In both cases they take it that there are natural facts, of a rather special sort, which ground claims about proper standards for species functioning. Thompson describes the project he and Foot share: ‘...the suggestion was made that practical reason be viewed as a faculty, akin to the powers of sight and hearing and memory; it was further maintained that an individual instance of any of these latter powers is to be judged as defective or sound by reference to its bearer’s *species*...’ (Thompson 1995, 250). This is a sort of neo-Aristotelian position, according to which we can learn about the right way for individual members of a species to be by learning about the nature of that species. Needless to say, this is the sort of meta-ethical position which might have ramifications for the way in which one goes about evaluating alterations to individuals that cause them to depart from the proper nature of their species. Whether it also has implications for proposals to change human nature is unclear, because even if one thought that the nature of a species specified normative standards for its members, it still would not be clear whether altering that nature (and hence altering the standards) would be problematic.

The problem, of course, is that while empirical research supports the notion that the folk are committed to the existence of species-specific teleo-essences, such research does nothing to show that species really have such essences. The psychological researchers in question have taken it as a given that while people might be tempted to think of species in this way, there’s no justification in biological reality for that conception (Gelman and Hirschfeld 1999, 405). The onus is on the likes of Foot and Thompson not merely to show that much discourse seems committed to normative essences, but that there really are such essences. Unless such a task is achieved, they have shown only that people are intuitive Aristotelians, without showing that Aristotelianism is a position we should adopt. The confusion regarding what implications their position might have for attempts to alter human nature is, of course, an artefact of a further problem with their underlying meta-ethical position: with no clear explanation of what makes it the case that a species’ nature is one way rather than another, there’s also no clear answer to the question of when an intervention changes the nature of the species, and when it simply changes the observed properties of individual members of the species while leaving its underlying (and potentially hidden) nature intact.

Another way of posing this problem draws once again on empirical research. The folk do indeed take it that there are internal essences for each species. However, they also seem to hold that there are internal essences for other living categories, including sexes and races (see Gelman and Hirschfeld 1999 for references and discussion). This reminds us that biological species are not the only things that can play the role of subjects in Thompson’s natural historical judgements. Darwin, for example, was prone to mention ‘the negro’, or ‘the Australian’ (1877/2004, 184), and he wasn’t trying to pick out a particular Negro, or a particular Australian. Darwin thought of the negro as ‘light hearted, talkative’, in contrast with the ‘taciturn, even morose’ aborigine of South America (198). In *The Descent of Man* Darwin quotes with

approval William Greg's description of 'The careless, squalid, unaspiring Irishman' (1877/2004, 164), but that should not move us to think that 'The Irishman' is a successfully referring term, even if Darwin and Greg thought it was. We should not object to Thompson's claims that '...a concept is a species concept if it is a possible subject of the corresponding form of judgement [i.e. a natural historical judgement]. A life-form or "species" (in the broad sense) is anything that is, or could be, immediately designated by a species concept or life-form word' (Thompson 1995, 292). The psychological evidence suggests that we do indeed make use of species concepts, or life-form words, in Thompson's sense. This does not mean, however, that there are any species, or life forms, so understood: 'the Irishman', 'the negro' and even 'the mayfly' fail to refer.

One might reply by saying that it is not only 'the folk' who think of species in this way: they are conceptualised like this in bona-fide biological documents, too. Thompson, for example, thinks of fieldguides as describing, either implicitly or explicitly, the Aristotelian natures of species. Surely, we do not wish to deny the legitimacy of field guides?

Thompson may be right about the interpretation of field guides, but once again this does not help to show that there are any Aristotelian natures so understood. First, recall that the function of a fieldguide is to enable recognition. Many ethnobiological researchers have argued that our intuitive essentialism facilitates various forms of recognition and classification—it allows us to rationalise the appearance of otherwise troublesome variation, for example, and may sometimes summarise central diagnostic features—even though they regard these essences as having no reality in nature. It would be no surprise, then, if something like an Aristotelian essence were depicted in a field guide. Moreover, recent research by Linquist et al. (2011) reminds us that even scientists can continue to be subject to the cognitive biases of folk essentialism: we should not expect such misleading conceptions to be stamped out in works used by scientists. Finally, a fieldguide is not a technical document summarising the genuine features of a given species, and detailing the range of potential variation that might occur among its members: its images serve heuristic functions that are used either by amateurs, or as a precursor to more technical application of a species key. So we cannot point to the fact that species natures appear in fieldguides to argue that they must correspond with real entities.

5 'Our given nature'

Leon Kass is usually understood to be a recent champion of another form of neo-Aristotelian thinking about species, whereby their natures also specify ethical standards for their members. This is the way that Buchanan has interpreted him (Buchanan 2009). It is also the way Adam Briggie has understood things in his book-length study of the work of the US President's Council on Bioethics, which Kass presided over (Briggie 2010). Briggie takes himself to be describing and endorsing Kass's own view when he tells us, in neo-Aristotelian fashion, that: 'The nature of *Danaus plexippus* [i.e. the monarch butterfly] is seamlessly descriptive and normative, as it defines what constitutes full flourishing within the pattern of that kind' (2009, 91).

It is odd, then, to see how often Kass's own writings seem explicitly to repudiate this sort of neo-Aristotelian view. My primary aim in this penultimate section is to expose this confusing character of Kass's own appeals to human nature, and in so doing to underscore and elaborate a point made elsewhere by Buchanan (2009), and made in a preliminary form at the end of section three of this essay: we would be better off leaving human nature out of ethical discussion altogether.

In a discussion of Michael Sandel's work on human enhancement, Kass himself tells us that the mere fact that some feature is a part of human nature leaves its ethical status open. He puts it like this:

In short, only if there is a human givenness, or a given humanness, that is also good and worth respecting, either as we find it or as it could be perfected without ceasing to be itself, does the "given" serve as a positive guide for choosing what to alter and what to leave alone. Only if there is something precious in the given—beyond the mere fact of its giftedness—does what is given serve as a source of restraint against efforts that would degrade it. (Kass 2003, 20)

Kass is here formulating an objection to Sandel's celebration of the 'giftedness' of human nature. Human nature is 'gifted' in the sense of being a 'given': it is something we find humans to have. Kass makes the compelling point that the mere fact that something is part of human nature tells us nothing about whether it should be celebrated or exterminated (see also Lewens 2009b). Perhaps some elements of human nature are indeed worth preserving and celebrating, but if so we need to establish that they are 'precious', and to explain why we should preserve them: 'The mere "giftedness" of things cannot tell us which gifts are to be accepted as is, which are to be improved through use or training, which are to be housebroken through self-command or medication, and which opposed like the plague' (Kass 2003, 19).

Kass's discussions in this paper and elsewhere are puzzling because they sit uneasily between the unobjectionable practice of building a moral case for celebrating certain features that are widely distributed among humans, and the objectionable practice of using the fact that some feature is part of human nature to give a moral justification for it. When he tells us 'cloning shows itself to be a major alteration, indeed a major violation, of our given nature as embodied, gendered, and engendering beings' (Kass 1998, 689), is Kass claiming that cloning will damage an aspect of human nature that he can also show to be valuable, or is he claiming that cloning is objectionable because it constitutes an alteration of human nature?

Consider Kass's claim that 'Sexual reproduction...is established...by nature; it is the natural way of all mammalian reproduction' (1998, 689–90). Perhaps all Kass means by this is that, as a matter of fact, mammals reproduce sexually. But then what is the function of insisting that this has been established 'by nature'? On the face of things this is a redundant claim: what else other than 'nature' could we possibly think has established sexual reproduction? The contrast he is drawing here is between what is established 'by nature', and what is instead established 'by human decision, culture, or tradition' (689). This is a spurious contrast: we have already seen that there are no good reasons to think that culture and tradition are not parts of nature, and that they may not be involved in the generation of widely distributed human

traits. As Kass himself says, ‘There can, in truth, be no such thing as the *full* escape from the grip of our own nature. To pretend otherwise is indeed a form of hubristic and dangerous self-delusion’ (2003, 18). We cannot escape from nature because whatever we do—even if that means augmenting our cognitive abilities with drugs, or reproducing through asexual cloning—is partly determined by our prior goals, which are themselves ultimately produced by natural processes. The fact that Kass feels it necessary to say not merely that ‘mammals reproduce sexually’, but that this is ‘the natural way’, suggests he thinks there is some additional force, perhaps ethical force, in describing something as ‘natural’.

Kass’s own comments on Sandel remind us, though, that further ethical reasoning is required to show whether sexual reproduction should be ‘improved’, ‘housebroken’, ‘opposed like the plague’, and so forth. To his credit, this further reasoning is just what Kass attempts to provide us with. He explains that a colleague asked him whether he would have opposed efforts to move away from asexual reproduction, had this instead been the reproductive system established in humans. It is telling that Kass’s response departs, as it should, on a discussion of why he believes that sexual reproduction is worth celebrating. The implication seems to be that had we been asexual ‘by nature’, Kass would have welcomed efforts to transform us into sexual beings. Being sexual is, Kass thinks, morally richer than being asexual: ‘For a sexual being, the world is no longer an indifferent and largely homogeneous otherness...It also contains some very special and related and complimentary beings, of the same kind but of the opposite sex, toward whom one reaches out with special interest and intensity’ (1998, 691). It is unlikely that sexual reproduction is truly an important factor here: plants are sexual beings, but this does not suffice to enrich the moral character of their interbotanical lives. Kass attempts to back his position up with the claim that ‘it is impossible...for there to have been human life—or even higher forms of animal life—in the absence of sexuality and sexual reproduction’. Many evolutionary biologists will agree that the ability of sexual reproduction to foster variability has indeed been a contributor to increased complexity in the plant and animal kingdoms, with the result that sexual reproduction has indeed been instrumental in producing the higher faculties that we value. It is another thing to say that these faculties would not survive if some human reproduction became asexual. We will come on to these substantive issues in a moment: the important point to note here is that Kass’s basic argument seems to be that sexual reproduction is worth preserving not because it is ‘natural’, but because its erosion would lead us to regard the world in the way asexual beings do, namely as ‘an indifferent and largely homogeneous otherness.’

Kass continues to make the case for the poverty of asexual reproduction by telling us that we ‘find asexual reproduction only in the lowest forms of life: bacteria, algae, fungi, some lower invertebrates’ (Kass 1998, 691). This isn’t true: parthenogenesis—a form of asexual reproduction whereby female eggs develop without fertilisation from males—is regularly observed in vertebrates, especially reptiles. But even if Kass were right, it is hard to see what conclusions we should draw for human relationships from the sadly impoverished lives of asexual bacteria. Sexual reproduction in a given human couple hardly seems necessary for them to harbour deep feelings for each other, and it is not necessary to maintain the other-regarding attitudes that may accompany their raising children. Many humans forego sexual reproduction to raise

adopted children, and for some of them when they ‘reach out with special interest and intensity’ it is to ‘special and related and complimentary beings’ of the same sex. Suppose, then, that a clone is formed when the nuclear material from one woman is inserted into the enucleated egg of another woman she loves, and the resulting embryo is implanted into the second woman’s womb. This is ‘asexual reproduction’ in the technical sense that the nuclear genetic material comes from one parent only, but there are still two partners with an essential biological involvement in the generation of new life, there are still genetic contributions from both parties (for the gestational mother contributes her mitochondrial DNA), and there may still be plenty of ‘reaching out’ to each other, both when the decision is made to begin a family, and later as the new person’s life unfolds. If Kass is concerned to preserve a world in which rich relationships flourish between other-regarding humans, more argument is needed to show that asexual reproduction will undermine it.

6 Beware of ‘Human Nature’

The tendency to linger in debates over cloning and enhancement on what is ‘natural’ to humans should be abandoned (see also Buchanan 2009). It either constitutes an irrelevant preamble to the important question of which features of human reproduction should be preserved, or it constitutes an objectionable allusion to some mythical and morally loaded ‘human nature’ that might serve as an ethical yardstick in debates of this sort. What is more, the fact that we seem to be intuitive Aristotelians about species natures in general should make us particularly wary of the resonances of framing debates about enhancement in terms of claims about human nature. Our tendency is not merely to understand claims about human nature as casual statistical truths about human populations, with no particular ethical significance, but instead as descriptions of an underlying, normatively laden, internal essence we all share. This reinforces the basic message of David Hull’s work: Hull allowed that there might be a respectable notion of human nature, but he was rightly troubled when human nature was put to work in ethical and political debate.

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References

- Atran, S. (1990). *Cognitive Foundations of Natural History*. Cambridge: Cambridge University Press.
- Atran, S., Estin, P., Coley, J., & Medin, D. (1997). Generic species and basic levels: essence and appearance in folk biology. *Journal of Ethnobiology*, 17, 17–43.
- Barker, M. (2010). Specious intrinsicism. *Philosophy of Science*, 77, 73–91.
- Briggle, A. (2010). *A Rich Bioethics: Public Policy, Biotechnology and the Kass Council*. University of Notre Dame Press.
- Buchanan, A. (2009). Human nature and enhancement. *Bioethics*, 23, 141–150.
- Buss, D. (1999). *Evolutionary Psychology: The New Science of the Mind*. Allyn and Bacon.

- Daly, M., & Wilson, M. (1988). *Homicide*. New York: De Gruyter.
- Daniels, N. (2009). Can Anyone Really be Talking About Ethically Modifying Human Nature? In J. Savulescu & N. Bostrom (Eds.), *Human enhancement*. Oxford: Oxford University Press.
- Darwin, C. (1877/2004). *The Descent of Man*, Second Edition. Edited and introduced by J Moore and A Desmond. London: Penguin.
- Devitt, M. (2008). Resurrecting biological essentialism. *Philosophy of Science*, 75, 344–382.
- Devitt, M. (2010). Species have (partly) intrinsic essences. *Philosophy of Science*, 77, 648–661.
- Dupré, J. (1981). Natural kinds and biological taxa. *Philosophical Review*, 90, 66–91.
- Ereshefsky, M. (2001). *The poverty of the Linnean hierarchy*. Cambridge: Cambridge University Press.
- Ereshefsky, M. (2008). Systematics and Taxonomy. In Sarkar & Plutynski (Eds.), *The Blackwell companion to the philosophy of biology* (pp. 99–118). Oxford: Blackwell.
- Ereshefsky, M. (2010). What's wrong with the new biological essentialism? *Philosophy of Science*, 77, 674–685.
- Ereshefsky, M., & Matthen, M. (2005). Taxonomy, polymorphism and history: an introduction to population structure theory. *Philosophy of Science*, 72, 1–21.
- Foot, P. (2001). *Natural goodness*. Oxford: Oxford University Press.
- Gelman, S., & Hirschfeld, L. (1999). How Biological is Essentialism? In S. Atran & D. Medin (Eds.), *Folkbiology* (pp. 403–445). Cambridge: MIT Press.
- Ghiselin, M. (1997). *Metaphysics and the Origin of Species*. SUNY Press.
- Griffiths, P. (1999). Squaring the circle: Natural kinds with historical essences. In: R. Wilson (Ed.) *Species: New Interdisciplinary Essays* (pp. 209–228). MIT Press.
- Habermas, J. (2003). *The Future of Human Nature*. Polity.
- Harris, J. (2007). *Enhancing evolution: The ethical case for making better people*. Princeton, NJ: Princeton University Press.
- Heyes, C. (2012). What's Social about Social Learning? *Journal of Comparative Psychology*. In press
- Hull, D. (1986). Human nature. *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*, 2, 3–13.
- Kass, L. (1998). The wisdom of repugnance: Why we should ban the cloning of humans. *Valparaiso University Law Review*, 32, 679–705.
- Kass, L. (2003). Ageless Bodies, Happy Souls. *New Atlantis* Spring Edition: 9–28.
- Lewens, T. (2007). *Darwin*. London: Routledge.
- Lewens, T. (2009a). What is wrong with typological thinking? *Philosophy of Science*, 76, 355–371.
- Lewens, T. (2009b). Enhancement and human nature: The case of Sandel. *Journal of Medical Ethics*, 35, 354–356.
- Lewens, T. (2010). Foot note. *Analysis*, 70, 468–473.
- Lewens, T. (2012). Species, Essence and Explanation. *Studies in History and Philosophy of Biological and Biomedical Sciences*. In press
- Linquist, S., Machery, E., Griffiths, P., & Stotz, K. (2011). Exploring the folkbiological conception of human nature. *Philosophical Transactions of the Royal Society B*, 366, 444–453.
- Machery, E. (2008). A plea for human nature. *Philosophical Psychology*, 21, 321–329.
- Okasha, S. (2002). Darwinian metaphysics: Species and the question of essentialism. *Synthese*, 131, 191–213.
- Ray, E., & Heyes, C. (2011). Imitation in infancy: The wealth of the stimulus. *Developmental Science*, 14, 92–105.
- Richerson, P., & Boyd, R. (2005). *Not by genes alone*. Chicago: University of Chicago Press.
- Sandel, M. (2007). *The case against perfection: Ethics in the Age of Genetic Engineering*. Cambridge, MA: Harvard University Press.
- Savulescu, J., & Bostrom, N. (Eds.). (2009). *Human enhancement*. Oxford: Oxford University Press.
- Shuster, S. (1987). Alternative reproductive behaviors: Three discrete male morphs in *Paracerceis sculpta*. *Journal of Crustacean Biology*, 7, 318–327.
- Sober, E. (1980). Evolution, population thinking, and essentialism. *Philosophy of Science*, 47, 350–383.
- Thompson, M. (1995). The Representation of Life. In R. Hursthouse, G. Lawrence, & W. Quinn (Eds.), *Virtues and reasons*. Oxford: Oxford University Press.
- Thompson, M. (2008). *Life and action: Elementary structures of practice and practical thought*. Cambridge, MA: Harvard University Press.