The Journal of Medicine and Philosophy: A Forum for Bioethics and Philosophy of Medicine, 2026, **51**, 158–166
https://doi.org/10.1093/jmp/jhaf033
Advance Access Publication Date: 27 February 2026
Original Research

Human Nature and the Transhuman

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Proponents of transhumanism argue for the use of medical technologies to transform human nature into something better. Those who are opposed to taking steps in the direction of transhumanism sometimes do so on the basis of an obligation to preserve human nature. But how exactly are we to know what constitutes the human essence that demands protection? Kass's appeal to "the wisdom of repugnance" too easily lends itself to the defense of irrational bias. Although Nussbaum is strongly opposed to Kass's appeal to emotions as a source of reliable ethical intuitions, her capabilities approach to justice provides the foundation for an ethical appeal to a notion of human essence that allows one to avoid mere bias and can be employed to determine limits to the transformation of humanity.

Keywords: *capabilities, nature, repugnance, transhumanism*

Proponents of transhumanism argue for the use of technologies to transform human nature into something different and better. Transhumanists have advocated the development and application of technologies that would integrate human cognition with cybernetics, allow for indefinite life extension, and alter the human genome in various ways that go beyond therapy to radical enhancement.[1] Although there is a libertarian streak to the transhumanist movement, transhumanists do more than argue against governmental restrictions from following such a path; they advocate it, as a good thing. What "good" means in such a context is of course an important issue, as is the related issue of how to distinguish therapy from enhancement.

The present article argues that Nussbaum's "Capabilities Approach" to questions of social justice holds promise as a way for ethicists, and society at large, to come to some agreement on a notion of the human good, to determine what limits there should be on the advancement of the transhumanist project.

I. THE QUESTIONS OF HUMAN NATURE AND ESSENCE

Many within the Western tradition have grounded their accounts of both the physiological good (health or wellness, understood as the proper aim of therapy), and the ethical good (understood eudaimonistically) by appealing to nature or the natural. For example, Aristotle and the Stoics grounded their ethics on a teleological metaphysics, according to which the nature of a thing orients it toward its proper good. On such an account, to impede or violate this nature is an evil, for which reason transhumanism, which advocates, not fulfilling human nature as it is, but replacing it in favor of something purportedly better, is morally impermissible. To reject such a teleological metaphysics is to reject this sort of ethical theory. The good must then be considered something other than attaining a natural good, be it a certain kind of consequence, as in utilitarianism, or autonomy, as in Kantianism. Accordingly, transhumanist proposals, which reject giving human nature the status of an ethical constraint, are typically justified on

utilitarian grounds,[2] or on the presumption that the free creative exploration of forms of life and activities is in itself a good (More, 1996).[3]

Those who are opposed to taking steps in the transhumanist direction have been labelled "bioconservatives." I am, I suppose, a kind of bioconservative. There is, of course, a range of positions on this side of the spectrum, just as there are a range of positions on the side of transhumanism.[4] Which technologies are to be pursued and which not is ultimately a political matter, one determined in part by economic forces, in part by philosophical reflection, and in part by popular opinion concerning what is or is not safe or "natural." Although the views of the electorate may not be entirely determined by the analyses of medical ethicists, they may well play a crucial role in how the public debate unfolds.

Questions of what is and is not "natural," and of the normative implications of this, are necessarily metaphysical. I am not among those who reject metaphysics tout court. All philosophical views, including post-modern accounts dismissive of metaphysics, rest on an implicit metaphysics.[5] So the questions raised by transhumanism cannot avoid the shoals of the metaphysics of nature. Yet, if any account as to what is natural and what is not is to play a role in contemporary civic discourse on these matters, it must pass the test of reflective equilibrium. It must be limited to claims that appeal to a conception of the natural that is robust enough to provide substantive guidance yet is in accord with scientific consensus and shared intuition.

This excludes traditional Natural Law arguments. Since Descartes there has been widespread rejection of teleological accounts of material reality, on the grounds that final causes of physical reality are in principle unknowable.[6] Ethical claims grounded on final causes in nature are accordingly generally rejected as unwarranted. Although his epistemology is radically different, it is this kind of thinking that led Mill (2017) to define nature with no appeal to teleology, as

> the *ensemble* or aggregate of its powers or properties: the modes in which it acts on other things (counting among those things the senses of the observer), and the modes in which other things act upon it; to which, in the case of a sentient being, must be added its own capacities of feeling, or being conscious.

On such an account, ethical prescriptions to follow nature, whether along the lines of the Stoics, the scholastics, or Rousseau, are at best meaningless and at worst dangerous; Mill asks whether those who take nature to provide a moral framework would have us follow the destructive ways of storms, hurricanes, and diseases. Our primary ethical obligation is not to follow nature or even to preserve it, but to combat it, or at least to transform it. Skepticism concerning knowledge of final cause leads to questioning the use of metaphysical appeals to nature in opposition to the transhumanist project.

Few philosophers follow Descartes in insisting that knowledge be certain or hold to an empiricism as uncompromising as that of Mill. Most philosophers of science recognize that different levels of explanation are appropriate to different levels of material organization, for which reason an appeal to function is often unavoidable in respect to organized living wholes. But this can be understood in a minimalistic way, to the effect that biological processes are often best understood *as if* they were for the sake of some end. The question of the ontological standing of emergent wholes remains controversial.

There are other reasons why, from the standpoint of biological science, it is philosophically problematic to posit an ethical obligation to be protective of a human essence. From both a diachronic and a synchronic perspective, there is continuity in the genetic makeup of different species, for which reason there is no consensus on the lines by which we are to distinguish one species or nature from another (Ereshefsky, 2022). (The line of development between human nature as it is now and that of a cyborg of future centuries could well be no less continuous than that between us and our prehuman forebears. Our criteria of self-identification, by which *we* determine what is and is not human, might be very different from those that would be at play among transhumans, and, a fortiori, posthumans. They may well consider themselves human. What gives our way of classifying living things as of our kind any priority over the way in which some transhuman intelligence would see fit to classify living kinds?)

II. JONAS ON THE LIMITS OF THE HUMAN

I point to Hans Jonas as a philosopher who has put forward one way to meet the challenge of transhumanism, which has had some traction in public debates on these issues. I explore Jonas's method, and indicate issues with it, especially as developed by Leon Kass, that have led to the general disdain that bioconservativism inspires within the philosophical community. For a less expansive and more secure bioconservative defense against transhumanism, we need more methodological guidance in determining what it is to be a human being. I argue that the way forward in developing an account of human nature robust enough to justify limits to the pursuit of the transhumanist agenda, yet acceptable within our current pluralistic political climate, has, paradoxically, been indicated by a prominent opponent of bioconservativism, Martha Nussbaum. Along with Amartya Sen, she developed "capabilities approach" to questions of human rights, by which she defends an "internalist essentialism" that can withstand the epistemological challenges that traditional Aristotelian approaches might face from modern or postmodern critiques. Although developed with an end to providing a new philosophical grounding for human rights, the same approach, I argue, can be employed to ground a bioconservative answer to transhumanism that does not run into the sorts of problems faced by bioconservatives like Leon Kass, who have followed Jonas' lead.[7]

We begin with Jonas. At the time he wrote his last book, *The Imperative of Responsibility: In Search of an Ethic for the Technological Age* (Jonas, 1984), the term "transhumanism" was not yet in common currency, but the prospect of it was clear enough, foretold in Huxley's *Brave New World*, heralded by emerging technologies of assisted reproduction and life extension, and pointed to by advances in computer engineering and neuroscience. The main thesis of the book is that once a natural kind is recognized, and we appreciate that such beings are oriented toward both their own future and the future existence of beings of the same kind, an ethical demand immediately presents itself, without argument. Jonas's paradigm case for this sort of ethical demand is that of the helpless infant. Just as the vulnerable infant demands attention and care, to allow her or him to live into the future, so do all species, especially the human species, insofar as ours is the only species that is such as to recognize this sort of demand.

It is not self-evident that there is such a thing as human nature and that, even if there is, it is worthy of protection; otherwise, transhumanism would be unthinkable. Jonas recognizes that the imperative to preserve humanity as such requires philosophical justification, which he provides in two mutually supporting ways. First, he accepts Heidegger's phenomenological account of human life as self-assertion in the face of a hostile external world, but he suggests that to understand only human existence in this way is solipsistic and unjustified. It is evident to Jonas that, from the amoeba on up, all living beings can only be understood as unities preserving themselves and expressing themselves, in manners both expressive and defensive, in relation to the reality that is not they.

So far, Jonas' thought is roughly Aristotelian. The question arises as to how we identify these natures and what they entail. For Aristotle, the answer lies in the logic of explanation. Exactly how this is so is a matter of some controversy among Aristotle scholars. According to some (Gotthelf, 1987). Aristotle thinks that explanation of even particular events is in principle impossible without appeal to "irreducible potentialities," which constitute essences. Others (Nussbaum, 1978; Charles, 1988), pointing to "bottom up" accounts of embryological development, try to bring Aristotle up to date by arguing that the scientific appeal to the essence of natural living kinds is a matter of the pragmatics of explanation. On either account, the determination of what constitutes essences, including the human essence, is a matter of selecting those features that ground scientific explanations of derivative properties. Jonas (rightly or wrongly) takes today's science to be reductive, which threatens to do away with all talk of human essence. For this reason, he takes a different path.

Jonas does not present his strategy, "the heuristics of fear," in order to support a comprehensive account of the human essence. It is rather specifically geared toward meeting the challenges faced by technologies that threaten the human essence. The proper object of fear is danger, and our pretheoretical response of fear is a reliable indicator of danger. This grounds the following method. We picture to ourselves humanity as having altered itself through the use of technology, and a feeling of revulsion indicates that an imagined future is one that should be avoided.

> As long as danger is unknown, we do not know what to preserve and why. Knowledge of this comes, against all logic and method, from the perception of what to *avoid*. This is perceived first and teaches us, by the revulsion of feeling which acts ahead of knowledge, to apprehend the value whose antithesis so affects us. *We know the thing at stake only when we know that it is at stake.* (Jonas, 1984, 27)[8]

We clarify for ourselves what the human essence is[9] by imagining various scenarios, and we rely on a kind of emotional intuition to see whether it has been lost.

Note that we are not here dealing with any kind of fear in regard to any kind of biotechnology. The widespread use of antibiotics inspires fear of massive plagues of killer, resistant bacteria. This may or may not point to due caution in regard to medical technology. That is a matter for the empirical sciences, which may be in a position to dismiss such fears, as it (with hope) is to counter the fears of the anti-vaccination movement. At best, such fear serves to recommend due caution in the development of new technology, not the erection of walls beyond which technological innovation is not to go. Rather, the sort of fear to which Jonas appeals concerns *the kind of being* that we or our offspring may become. Is an envisaged future as a different kind of being consistent with our responsibility that future humanity exist? A human being with an artificial heart does not inspire fear that our descendants are not human, whereas the prospect of a human being with a brain connected to other brains or artificial intelligence (AI) through a wi-fi connection does.[10] The first sort of technological development is ethically unproblematic. Development of the second is inconsistent with our responsibility to future offspring, as we judge that they would no longer be of our kind. To make a distinction between human and nonhuman is to appeal to a notion of essence, so we are implicitly appealing to metaphysical reasons for the difference between the two kinds of judgment. It is no part of the human essence that the heart that pumps one's blood had developed directly from that with which one was born. In contrast, the possession of an autonomous brain is essential to human nature. So, for this reason,[11] is having one's cognition resultant from the activity of one's own brain, that is, one developed from that possessed at birth. It is on this basis that Jonas grounds his argument against the development of human cloning. Science fiction scenarios like that of *Brave New World* inspire fear; the isolation of reproduction and child rearing from maternity presents the prospect of a life that would be diminished from that led by human beings.

III. KASS AND AGAR ON REPUGNANCE AND BIOENHANCEMENT

Jonas' words of caution concerning cloning did not lead to nationwide legislation banning the development of such technology. But they were not unheard. Leon Kass has argued for a ban on the development of such technology, and he explicitly credits Jonas for developing an account of life and the ethical demands that it makes on us, which serves as the theoretical foundation of his own approach (Kass, 1995). Like Jonas, Kass appeals to our emotional reactions in order to clarify what aspects of human nature we take to be fundamental and worthy of preservation. Both Jonas and Kass point to revulsion as a kind of ethical Geiger counter, by which, having presented its anticipated results before the mind's eye, we can determine whether a practice or project is unethical. Jonas, however, concentrates on the revulsion felt not against an actuality but a potentiality, for this revulsion is an aspect of fear, an emotion directed towards an imagined impending danger. Kass, in contrast, focuses on "repugnance," which has at its root revulsion from what is either actually present before one, or is at least imagined as present before one. "To pollution and perversion, the fitting response can only be horror and revulsion; and conversely, generalized horror and revulsion are prima facie evidence of foulness and violation. The burden of moral argument must fall entirely on those who want to declare the widespread repugnancies of humankind to be mere timidity or superstition" (Kass, 1998, 689).[12]

It is this feature of Kass' thought that has doomed it in the eyes of most bioethicists today. For the emotion of repugnance, as an expression of irrational discomfort of a reality before one, as opposed to an imaginative possibility, is often directed toward the practices of others, and is for that reason a result of blind prejudice and hatred. We need not here discuss the conservative sexual ethics that Kass has advocated.[13] We need only consider the response of repugnance, widespread not so long ago, against interracial families and what used to be called miscegenation.[14] Recall that Jonas' ethical epistemology took the awareness of revulsion in respect to an imagined future state of our descendants as a sign that the border between sustaining a nature and ushering in its demise has been crossed—which would

allow us to say that in an important sense descendants who are cloned or are cyborgs are not of our kind. By the same logic, a racist would understand a mixed marriage as having crossed a line that leads to the demise of a treasured kind, one's race. But race, an artifact of the same society whose injustices instilled societal abhorrence of "miscegenation," is not to be treasured.

Repugnance, in and of itself, is not a sign of what should be feared; it indicates only what is feared, rightly or not. This is the main point argued for by Nussbaum. Against Kass, she writes:

> What, in any case, does someone need to believe in order to believe that disgust gives good guidance in the realm of law, a guidance that is deeper and more reliable than that of rational argument? One way of defending such a claim would be Devlin's, namely[,] that disgust is a cultural product and thus a good index of what we have come to care about socially. That cannot be Kass's view, for in Kass's view … we cannot trust the culture. (2004, 82).

Nussbaum (2004, 2010) sees two ways to give disgust a deeper analysis. The first, which is that of Nussbaum herself, is to point to its evolutionary origin. The fact that a cognitive reaction at one time had evolutionary value does not mean that it continues to carry any moral authority. After all, our worst tribal characteristics may have some genetic basis. (Nussbaum speculates that the brain circuitry by which we are wired to avoid the putrid and biologically dangerous may be at work in atavistic aversion towards others who are gauged to be impure on account of some manifest difference.) The second is to appeal to Scripture, in taking disgust to be a G-d-given response to what violates the Divine Will. This is an appeal that most would consider to lie outside of philosophy as such.

Here Jonas may be given a pass not allowed to Kass. For our repugnance at others who are different arises on account of historically contingent social structures, which separate some groups from others as a result of social dynamics. The response of repugnance against certain people doing certain things might (although it need not) be this sort of thing. The kind of revulsion that Jonas focuses on is different, for as he describes it, it is limited to future beings in not yet realized scenarios. How can there be social bias against what does not exist? That is not to say that Jonas's methodology is not problematic. For there is no reason to think that we can trust our gut, as it were, in regard to *future* use of technology to alter what it is to be human. Is there another way to determine what is and is not compatible with the human essence? Or must the very notion of an inviolable human nature be rejected as philosophically and scientifically untenable?

A prominent and promising attempt to answer this question is that of Nicholas Agar. Agar distinguishes "moderate enhancement" which "improves significant attributes and abilities to levels within or close to what is currently possible for human beings" from "radical enhancement" which "improves significant attributes and abilities to levels that greatly exceed what is currently possible for human beings" (Agar, 2014, 2). The former, which would include a chip implanted in a brain to remedy damage from a stroke, is ethically permissible. The latter, which would include an implanted chip to multiply IQ many times over, is not. As so expressed, the distinction is quantitative and leaves open the question: how much enhancement is too much? Agar addresses this issue by pivoting away from a quantitative test. Any enhancement that leads to rejecting the way in which one previously valued experiences and activities is radical. Agar's core example is being transformed into "pod people," as in the 1954 and 1978 movies entitled *The Invasion of the Body Snatchers*. Pod people can do quite a lot that we cannot, but their evaluative framework is so different that we cannot wish for or ethically endorse such transformation. The problem with this view is that within our own lives there can be such transformations–religious conversion, or maturation into adulthood–that do not seem "radical" in the negative sense.

Agar discusses the case of maturation at some length. Children recognize that they will outgrow their fascination with their toys and welcome this, which indicates that the transformation is "internal" (Agar, 2014, 15). Without something like an appeal to essence, though, the test of whether the transformation in question will be welcomed by someone at an earlier stage of life seems unreliable. Would the atheist welcome the prospect of an impending spiritual or religious awareness of the vapidity of an earlier life? (A similar question can be asked of someone "losing their religion.") Attending to unpleasant practice of piano scales is often part of a process that leads to wholesale revision of musical taste, but it is doubtful that this is a transformation that would be welcomed in advance. Agar recognizes that there is some weight to the argument that adults know better than children what is good for them: "We rightly privilege

adult interests even when adulthood may take up a comparatively short part of an individual's life" (Agar, 2014, 73). But what makes an interest an adult interest? Are there not some adults of stunted psychological development who never outgrow childish interests? In the absence of something like an understanding of human nature, what is the criterion for this? Without an answer to this question, we cannot defend setting bounds to the transformation of the human species.

IV. THE CAPABILITIES APPROACH AND TRANSHUMANISM

Interestingly, it is Kass's most effective critic, Nussbaum herself, who shows the way here. Nussbaum (2003, 2004), is on board with Jonas and Kass taking emotions to have epistemological value; she has argued extensively that our emotions have cognitive content and constitute a kind of embodied thinking that is as valuable to us, as rational beings, as other modes of thought. The problem with revulsion is not that it is an emotional response, but that, on account of its evolutionary origins as a response to perceived contamination, it is particularly suspect and the judgments to which it leads stand in special need of examination to see whether they are in accordance with rational standards of justice. How might we rationally determine what lives are worthy of human beings? The primary difficulty with a normative conception of the human essence is that raised by Descartes: we are simply unable to grasp such essences. All claims of human essence, whether grounded in overt emotional responses or not, are epistemologically suspect, and, Nussbaum writes, it is their shady status that has allowed for appeal to a notion of human essence that takes the image of the white male as paradigmatic for humanity and for essentialism to become "linked by its opponents with an ignorance of history, with lack of sensitivity to the voices of women and minorities" (1992, 205).

The "capabilities approach" to social justice pioneered by Nussbaum and Sen is intended to provide the foundation for a different kind of appeal to human essence that steers clear of such dangers. In a nutshell, this view takes the justice of a society to be a matter of the extent to which it allows for and promotes the well-being of its members, where well-being is Aristotelian *eudaimonia*, the exercise of fundamental human capabilities, such as those of healthy living, affiliation, and thought.[15] This allows for a wide variety of different forms of flourishing, but avoids an "anything goes" relativism. The approach makes appeal to an account of human essence: human beings are the sorts of being with the general capabilities in question, and any society that impedes or prevents their development or exercise (as in not providing adequate health care or education, or denying opportunities for sexual satisfaction, through practices such as female genital mutilation of the young) is to that extent unjust. The approach rests not on a "metaphysical realist essentialism," which she rejects, but on an "internalist essentialism," according to which "the deepest examination of human history and human cognition *from within* still reveals a more or less determinate account of the human being, one that divides its essential from its accidental properties" (Nussbaum, 1992, 207). Even if we hold back from identifying a real essence that makes people what they are,[16] this internalist essentialism should be robust enough to ground ethical judgments, which is all that she, like Jonas and Kass, is trying to do in appealing to an account of human essence.

There is, of course, the danger that one's understanding of the fundamental human capabilities is shaped by private or social biases, but such an essentialism is at least in principle able to show sensitivity to gender and cultural differences. An "especially probing and basic sort of evaluative inquiry" would be able to determine what *all* reflective human beings would accept as a list of capabilities, the suppression or hindering of which would prevent a life from achieving the human good. A life in which these capabilities are absent would in some respect be less than fully human.

Although Nussbaum seems unaware of this, a philosophical appeal to basic capabilities can ground at least some bioconservative positions in a way that is less vulnerable to the sort of argument that she offers in opposition to Kass. Like Jonas and Kass, Nussbaum recognizes the value of literature in offering thought experiments that facilitate distinguishing the human from the nonhuman. Their differing ethical concerns are reflected in different literary works used as examples. Although Jonas and Kass, concerned with the transformation of medical practice from healing to manufacture, focus on Huxley's *Brave New World*, Nussbaum (1990) who has a special philosophical concern with human vulnerability and dependence, turns to the *Odyssey*, in which neither the life of an asocial Cyclops nor the status of an immortal consort of Calypso point to a recognizably human existence. Concerned to show that a truly human

life must involve a normative conception of the human being, she offers her own imagined planet of Textualité, where descendants of earthlings fled to "a home where they could escape patriarchal authority and binary thinking to take delight in the free play of difference, utility, and power" and thereby flee human life itself (Nussbaum, 1992, 241–2).

Nussbaum's argument for a kind of essentialism, then, is deeply parallel to that of Kass, despite her vociferous opposition to many of his views. Both rely on the rejection of imagined modes of life as lying outside the parameters of the human, on the basis of emotional/cognitive responses that arise in us when we consider them. The fundamental difference between their approaches is as follows. For Kass (as for Jonas), the test of whether a technological manipulation of human nature constitutes an affront to human dignity insofar as it violates human nature is determined by a private thought experiment. It thus opens itself to the objection that it is a mere validation of personal bias. Nussbaum rejects the private thought experiment in favor of an empirical study of what it is about humanity that different people in different cultures value. This ends up being the exercise of capabilities. The functioning of these capacities takes different forms, but the validation of a basic capability as constitutive of human nature will not be called into question by the distaste one feels in regard to one mode of expression rather than another. For even if some societies condemn particular ways in which a capability is expressed, that the capability should be expressed in some manner or another is agreed on by members of all societies.

Once a set of basic human capabilities has been determined, we have a methodological framework for determining which transhumanist proposals threaten humanity as such, and for that reason violate ethical demands to respect its integrity. I would not wish to defend the list of basic capabilities that Nussbaum (provisionally) draws up, on the basis of historical and sociological surveys. My project here has been to show that the capabilities approach in general has the resources to address the ethical questions raised by transhumanism. I offer by way of example some *preliminary* reflections, on the basis of some of the basic capabilities that Nussbaum has identified.

Integration of human beings into a cybernetic hive mind (such as "the Borg") would violate the capability of "senses, imagination, and thought," insofar as it would render impossible "experiencing and producing works and events of one's own choice," so any technological advance that makes significant strides in that direction should for this reason be prevented. Such would also violate the basic capabilities of practical reason and affiliation, and of control of one's environment (Nussbaum, 1992). The basic capability of emotion must be respected. Pharmaceutical or surgical therapies to adjust emotions should be welcomed if they allow the patient to achieve emotional balance, but not if they render one immune to any unpleasant emotion and accordingly lead to a truncated emotional life. Perhaps the creation of super-athletes through genetic or surgical means threatens the very existence of sport as we know it, and accordingly, it might be argued, constitute a threat to the basic capability of play. In contrast, there does not seem to be any plausible way to employ the capabilities approach to argue against the ethical permissibility of prosthetic limbs, or mind/computer interfaces for the treatment of aphasia and other neurological disorders. The approach seems to meet the test of reflective equilibrium.[17]

Employing the capabilities approach, then, goes some distance to validating emotional reaction to imagined scenarios as a valid method for determining the bounds of human nature. Because it is based on an empirical study of what aspects of human life are especially valued, it is less prone to relativistic challenges than are "top down" arguments based on a more *a priori* notion of human nature, and, in these pluralistic times, is more appropriate in the public sphere. But note that as Nussbaum describes it, the determination of basic capabilities is synchronic, surveying which capabilities are more or less universally recognized now, and backwards looking, surveying capabilities recognized in human history. As I indicated earlier, just because people at t_1 have an understanding of human nature does not mean that people at t_2 will do the same. For example, pretty much everyone now considers the capability of autonomous choice as fundamental to human life,[18] but we can imagine a continuum of technological innovations from the present to a future in which human beings are cyborgs subsumed in a collective. At some point on that continuum, as small technological neural interventions add up, and as the brain becomes integrated with AI, the consensus of what constitutes human life and thought may well change. So what is to prevent the list of agreed-on human capabilities from radically changing?

I am afraid that I have no answer. Aristotle, in contrast to Plato, was something of a metaphysical optimist. Normally, natural potentialities are actualized, if not always to perfection. The eternality of the species is metaphysically ensured. We, in contrast, are aware of mass extinctions and have reason to

doubt that total societal failure to inculcate political wisdom about the most important things is rare. Still, we have no choice but to hope for the best, and that political deliberation will lead to enough societal pressure to thwart those who would have us rush into a transhumanist future. Essential to that is the urgent task of careful reflection on what capabilities and actions are fundamental to human lives and an appreciation of the ways in which they might be lost.

NOTES

1. It remains an open question to what extent these become technologically feasible in our lifetimes. In regard to manipulation of the human genome, see, for example, Cwik: "[W]hen it comes to determining permissible uses of gene editing in one important medical context—germline intervention in reproductive medicine—issues about enhancement and eugenics are, for the foreseeable future, likely a red herring. Current research is taking us in a different direction, and discussions about the ethics of enhancement are of limited use in the place we appear to be headed" (2019, 696). However, that was written six years ago. In a recent interview Elon Musk declared that the ultimate goal of Neurolink was an AI/Human symbiosis. See Fridman (2024).
2. See for example Harris (2007) and Bolstrum (2008).
3. This is also behind the argument of Fuller (2011).
4. A good review of the *status quaestionis* can be found in Sparks (2023).
5. For such a defense of metaphysics, see Lowe: "My overall objective in this book is to help to restore metaphysics to a central position in philosophy as the most fundamental form of rational inquiry, with its own distinctive methods and criteria of validation. In my view, all other forms of inquiry rest upon metaphysical presuppositions—thus making metaphysics unavoidable—so that we should at least endeavor to do metaphysics with our eyes open, rather than allowing it to exercise its influence upon us at the level of uncritical assumption" (1998, v).
6. "I am now aware that my nature is very weak and limited, whereas God's nature is immense, incomprehensible and infinite; so of course he can do countless things whose reasons I can't know. That alone is reason enough to give up, as totally useless, the attempt that physicists make to understand the world in terms of what things are for, that is, in terms of God's purposes. Only a very rash man would think he could discover what God's impenetrable purposes are" (Descartes, 2017, *Meditation* 4).
7. Nussbaum (2008) in part concerns ethical issues in biotechnology but misunderstands the bioconservative argument. For example, she takes the core objection to cloning to be that a cloned offspring lacks the rights of one otherwise conceived. She does not discuss an objection like that of Jonas and Kass, that the development of cloning technology threatens human life as such, which has the sort of dignity that makes it worthy of respect. However, the path I take here was anticipated by Coeckelbergh (2011) who rejects a private appeal to one's affective reaction to imagined scenarios.
8. Bess asks, "But here's the rub: Huxley's dystopia is, by design, an extreme portrayal. Why should we believe that all chemical interventions for mood control necessarily lead down a path to the Brave New World" (2010, 651)? Jonas would of course deny that all such interventions necessarily lead us down such a path, but the possibility that they might is frightening enough to forbid them all. One might just as well say that there is no reason to think that use of nuclear weapons in warfare would lead us down the path of mutual destruction.
9. This is what Fukuyama (2002), in his discussion of these same matters, calls "Factor X." Fukuyama does not discuss the methodological and epistemological issues of how we are to know what constitutes this factor.
10. Thus, Jonas would appeal to "the heuristics of fear," in responding to Coeckelbergh: "[T]he discussion about human enhancement in relation to information technology is not about 'technology'… but as part of continuously changing human-technological functionings and practices which resist categorization in terms of means or ends alone" (2011, 88).
11. I presume that being subject to a "brain transplant" would be incompatible with the autonomy of one whose brain can be transplanted. The object would not hold if the memory and programming of the previous brain could be completely uploaded to the new one, with no modules that could override the old ones.
12. See also Kass (2002).
13. As do Vogel (2008) and LaFleur (2008). Vogel writes "I think that Hans Jonas' reluctance to deduce moral norms like heterosexuality, gender roles, the nuclear family, and patriarchy from his 'existential interpretation of the biological facts' proves to be an asset, not a liability. Cf Agar (2004, 56–61).
14. This cannot be dismissed as a group-specific repugnance, ruled out by Kass's express appeal to those emotional reactions that are *widespread*. See Leach (1967, 19): "I am claiming that, in a very fundamental way, we all of us distinguish those who are of our kind from those who are not of our kind by asking ourselves the question "Do we intermarry with them?"
15. For provisional lists of basic capabilities, see (Nussbaum, 1992, 2005).
16. Nussbaum writes "This conception is emphatically *not* metaphysical; that is, it does not claim to derive from any source external to the actual self-interpretations and self-evaluations of human beings in history," (1992, 215). In my view this reflects an overly narrow view of what metaphysics is, and shies away from asking *why* there is such historical and cultural uniformity in such self-interpretation. It would be more accurate to say that an "internalist essentialism" brings to light those metaphysical principles that are such as to be accepted in the context of the political discourse of a pluralistic society.
17. A possible exception here, demanding further thought, is the matter of indefinite life extension. Kass (2001) argues against pursuing this; an immortal life would not be a human life. Nussbaum (2008) however sees no problem with it: "The sheer fact of prolonging life is a very good thing, and should be encouraged, up to the point where life becomes nothing like a human life at all, such as when someone enters a persistent vegetative state—or, up until the point when the person, mentally fit and free from undue pressure, chooses not to live." My ethical intuitions are with Kass here. Perhaps aging and facing death gracefully can be understood as exercises of basic capabilities.
18. See the basic capability "Practical Reason" in Nussbaum: "All human beings participate (or try to) in the planning and managing of their own lives, asking and answering questions about what is good and how one should live. Moreover, they wish to enact their thought in their lives—to be able to choose and evaluate and to function accordingly" (1992, 219).

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The Journal of Medicine and Philosophy: A Forum for Bioethics and Philosophy of Medicine 2026 51(2) 158–166
https://doi.org/10.1093/jmp/jhaf033
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