

PERSONS AND HUMANS: REFASHIONING OURSELVES IN A BETTER IMAGE AND LIKENESS

by *H. Tristram Engelhardt, Jr.*

Abstract. This article argues that there are neither moral considerations that in principle forbid the development or use of recombinant DNA technology, nor grounds to hold that its application is likely to cause more harm than good. A defensible moral position would enjoin a prudent assessment of consequences, rather than an absolute prohibition. The technology may remain controversial because it presupposes the difference between being a person, an entity who can evaluate and manipulate its own biological structure, and human-ness as a biological structure likely to be the subject of engineering over the long-range future.

Reflections on the genetic engineering of humans tend to be encumbered by a number of difficulties, the main one being that this engineering is not currently possible in any significant degree. Hence, reflections take on a somewhat futuristic, if not science fictional, character. In order to make a reasonable assessment of the likely range of risks and benefits involved in genetic engineering, one would be greatly aided by actually knowing the probable character of future developments. Only against such a background of information will one be able to assay confidently the likely balance of risks and benefits of particular interventions. Science fictional reflections can at least identify the genre of possible benefits and harms that can and perhaps should be weighed. For this essay I will make no presumptions about the actual techniques to be used, but will address the genetic engineering of humans as a process likely to become possible in the future and by means of which we will be able to alter the genetic code of the germ line of humans, not just of somatic cells.

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Genetic engineering of the germ line attracts our attention because it brings into question our very character as a particular species. The production of human hormones by genetic engineering or the alteration of defects in somatic cells through genetic engineering, though dramatic and important, lacks this Promethean character. It is the Promethean possibility which I will address, even though it must be explored in the context of what is often tantamount to science fiction fantasy.

WHAT COULD BE WRONG WITH GENETIC ENGINEERING

At first glance, genetic engineering would appear to be quite attractive. It offers the prospect, however futuristic, of being able to refashion our bodies so as to avoid genetically based diseases and perhaps in addition to make further improvements over the blind deliverances of evolution. As such, it offers access to a number of important goods. As a means of eradicating genetic diseases, it would appear to be nothing more than an extension of the general medical project of curing diseases by removing their causes. Moreover, the prospect of altering the genetic endowment to improve the range of human capacities blends indiscernibly with medicine's interest in ameliorating disabilities, pains, and deformities (Engelhardt 1976; 1980).

Distinctions are not unambiguously available between curing diseases and improving the human germ line, between what one might term negative and positive genetic engineering. Consider, for example, the debilities associated with menopause, such as osteoporosis and senile vaginitis. What if one could engineer around those problems so that women did not face this set of disabilities and difficulties at mid-life? Would one be treating a disease or boldly improving the human condition? How one answers this question depends in part upon what one understands by *disease* (Kistner 1973; Wilson, Brevetti, and Wilson 1963; Boorse 1973; 1977; Engelhardt 1982). How one will interpret our language of disease has implications as well for how one will characterize engineering around problems such as presbyopia or the compromise of near vision with age which is species-typical and undoubtedly affects many of the readers of this article. So, too, it is unclear whether one would be curing a disease or engineering around a medical problem in the case of species-typical difficulties with brain, heart, and respiratory function.

Further, how may one clearly distinguish between curing forms of mental retardation and augmenting human intelligence? On the one hand, many do not appear to be opposed in principle to forms of genetic engineering which would cure genetic diseases that lead to mental retardation. One might take as an example here the metabolic

defect of phenylketoneuria, which can lead to mental retardation if untreated by a restricted diet. On the other hand, there is more suspicion of attempts to augment the general level of human intelligence beyond the normal deliverances of nature. Here one might at once quibble with what should count as normal. Should an I.Q. of 100 count as the norm? Of course, if one is able to cure a range of diseases which contribute to mental retardation, the statistical norm will shift upwards. Can one elaborate criteria to distinguish between curing diseases such as phenylketoneuria and altering some other genetic code, which might propel a class of individuals from an I.Q. of 100 to the new norm (post-curing phenylketoneuria, etc.) of 105? Of course, the process of curing genetically based forms of mental retardation can be repeated *ad infinitum* as one discovers bases for particular groups of individuals falling below a new norm, making them in a sense marginally mentally retarded and thus open to treatment, further propelling the norm for I.Q. ever higher.

What I mean to suggest is that it will be difficult to discover what should count as genetic diseases to be treated versus newly embraced positive goals of higher perfection for the human species. What is at stake here is in part the basis of disputes regarding the availability of neutralist versus weak normativist definitions of disease, namely, whether a value- and culture-free definition of disease can be elaborated. Thus, it would appear that one can elaborate value-neutral concepts of disease only if one is interested in identifying from the viewpoint of an unapplied science which functions and levels of function are species-typical. Medicine is the application of scientific generalizations with the object of restoring or preserving certain human abilities, securing freedom from pain, maintaining or restoring bodily form, and postponing an unacceptable death. Consequently, it is focused on identifying those functions or levels of function associated with disabilities, pains, deformities, and death which bother humans and which physicians can treat (Engelhardt and Erde 1980; Lindahl and Nordenfelt 1984).

Also, as William Goosens has pointed out, defining diseases in terms of species-typical levels of species-typical functions makes the concept of disease hostage to the past results of evolution (Goosens 1980). One must indeed wonder what is so important about the results of evolution. Insofar as human evolution has been successful, it has produced us as a species well adapted to environments in which we no longer live, but it is a slow process which has done little to adapt us to industrial, urban environments. Moreover, evolution does not have our goals and interests in mind. If one may speak metaphorically, it has been directed by the goal of maximizing inclusive fitness, which may or may not be

directly associated with human pleasure, tranquility, and the moral goals humans celebrate. From black widow spiders devouring their mates to children with sickle cell disease dying of their malady in order to pay the price for the advantage of those with the trait who have greater resistance to falciparum malaria, one finds numerous examples of evolution producing outcomes which are often at variance with our moral sensibilities.

One might find a number of examples where the processes of evolution have led to outcomes that we are likely to judge not only to be immoral but also to constitute a major danger to the future of our species. Consider here a possibility Donald Symons explores in *The Evolution of Human Sexuality* (1979). He reviews the arguments of a number of anthropologists who suggest that there may be a genetic proclivity on the part of males to engage in mutual violence and warfare. Symons speculates that in past circumstances this may indeed have had an evolutionary advantage in selecting for males with particular physical and intellectual capacities. For the purpose of my reflections here, I will grant that such is the case and that these proclivities are fairly strong. Here one might, for the sake of argument, accept F. B. Livingstone's contention that twenty-five percent of human males die in fighting in a Hobbesian state of nature (Livingstone 1967). If that is the case, one is then confronted with a possible biological basis for a human behavior that sets the future existence of the human species as a whole at jeopardy. Were such facts the case, one could understand the temptation to seek a United Nations genetic engineering program that would alter this set of proclivities. Given the license of science fiction-like speculations, one might imagine a compulsory worldwide use of a procedure to alter irrevocably this element of human nature. One would need as well to attempt to envision the political and social problems such a proposal would engender. However, one would need to balance the likely costs of genetic engineering approaches against the likely alternative means of controlling aggression through armies, police forces, and so on. Of course it may be the case that altering aggressive tendencies may be tied to even worse consequences.

I have advanced this example of human aggression in order to indicate the importance of considering the ways in which it might be useful to entertain the possibility of wide-ranging alterations in human nature. Even where one may have reservations about the feasibility of such a program, one can at least understand why it might be seriously entertained, as a part of a heuristic, science fiction speculation. If the issue of aggression control appears too complex or politically difficult, one might substitute less inflammatory examples, such as genetically engineering individuals to be better adapted to asbestos, vinyl chloride,

and benzine in their environment. One need only to see some allure of benefit in order to engage earnestly in examining what the possibilities of harms and benefits could be.

One must face the likely prospect that over the long run, if that run is long enough, we will indeed learn how genetically to engineer complex genetic traits. When such technology is available, we will need to assess the likely costs and benefits of particular interventions. To take the general issues of genetic engineering seriously in a science fictional context is also useful in conjuring certain contrasts between being a human and being a person, for the fantasy presents human nature as a changing and changeable designation for a certain range of mammalian capacities.

This long-range view can be confusing if we conflate very long-term and short-term possibilities. It must be emphasized that these fantasies are engaged in the service of portraying starkly some areas of contrast between notions of being a person and being a human. The fantasies should not send individuals running to the bulwarks of liberty and humanity, but rather should bring them to reflect on what we should mean by human nature if it is changing and changeable. One may still wish to walk to the bulwarks if one wishes, and to that end one can derive from long-range speculations some possible objections to the endeavors of genetic engineering, especially of the germ line. Here I shall review a short list.

It is just not natural. One might object that alterations in the results of evolution are in and of themselves suspect. For such a contention to be taken seriously, one would need an argument to establish either the moral importance of the design that led to our present state of affairs, or that there are overriding advantages to the current results of evolution. For the former arguments to succeed, a set of religious or metaphysical assumptions regarding some designer and His or Her (or Their) design would be required. Such assumptions place the debate within restricted communities accepting such special religious or metaphysical assumptions. It would appear very difficult to show why in general terms the current results of evolution are in any sense sacrosanct.

One might hold that we at least know the advantages and disadvantages of our current genetic endowment and that any changes invite the prospect of unanticipated disadvantages, including political abuses. Such considerations form the basis of an argument regarding acting prudently in genetic engineering. They do not establish a particular moral standing for the particular current results of evolution. This is underscored because we as persons have the capacity to regard our human nature as an object to be manipulated. There is an impor-

tant heuristic distance between us as persons reflecting on what we would take to be rationally and prudently acceptable versus us as humans when we consider the peculiarities of our biological and psychological capacities. As a result, we as persons can envisage reshaping human nature in both modest and radical fashions. One might cite as an example the classic science fiction novel by Olaf Stapledon (1968), *Last and First Men*, which portrays the history of the human race over approximately two billion years and recounts various radical refashionings of human nature. Stapledon's 1931 portrayals of man remaking himself envisage many of the difficulties that are likely to be encountered in genetic engineering. Even where they fail to be complete, such accounts offer a heuristic portrayal of the distance between persons as fashioners, makers, and manipulators, and human nature as an object of such manipulation.

I will return to this contrast between personhood and humanhood in a later section of this paper. However, here it is enough to observe that, if there is anything natural about us, it is the ability we have as persons to objectify our characteristics as human and to inventory their benefits and drawbacks. Far from human nature being sacrosanct, this ability would appear to call us to reflect regarding revising and remaking ourselves.

Problems of pollution. Even if there may be nothing intrinsically wrong with the project of revising human nature, the controversies with regard to genetic engineering in the 1970s can at least remind us of the possibility of creating harmful bacterial or viral agents in the process of pursuing noble ends (Engelhardt 1978; Recombinant DNA Research 1976-78; Medical Research Council 1977; Powledge 1977). Even if the risks of recombinant DNA appear to be much less than once feared, the moral concerns raised by the debate were in the main wholesome. One must prudently assess any technology which has the potential of disastrous side effects. Such an understanding leads to the prudent assessment of technology, not its banning on principle.

Mistakes: Could genetic engineering provide the ground for tort for wrongful life suits? It is becoming more accepted legally that offspring may seek a recovery for damages when they are born with a genetic defect that could have been avoided by abortion or by contraception (Holder 1981). To conceive a child or to allow a pregnancy with known genetic defects to go to term harms the future person who will be born. However one might be able to construe such a harm, it is generally to the advantage of society to have as few disabled individuals as possible. As a consequence, those engaging in genetic engineering should not employ their techniques unless it is likely that they will produce offspring with fewer defects than those produced by the uncontrolled endeavors of the usual cottage industry of child production.

It would appear difficult to argue that one should hold those engaged in genetic engineering to a higher standard than one holds parents reproducing with a risk of a defective offspring. Whatever standards should apply to parents without the benefit of genetic engineering should apply to those employing genetic engineering as well. On the other hand, one might suspect that, if one were to proceed prudently with the development of genetic engineering and if genetic engineering would aid us in avoiding birth defects, the onus might come to be upon those not availing themselves of its benefits. If parents were to fail to use safe means of avoiding disabilities for their children through genetic engineering, such an omission would appear to be easily construed as analogous to the failure of a physician to use RhoGAM to prevent injury to children of future pregnancies of a couple with Rh incompatibility. Thus, successful genetic engineering might lead to new grounds for holding parents responsible for not using available health care for their children. Whether one would want to have legal sanctions in addition to adverse moral judgments against such parents would surely be a matter to receive serious consideration. In any event, avoiding injury to future offspring is not a problem unique to futuristic reflections on genetic engineering. Moreover, the problems appear to be open to analysis and resolution in ways not greatly dissimilar to ways in which we already attempt to maximize the balance of benefits over harms in human reproduction.

Avoiding uniformity. There has been concern that the advent of genetic engineering techniques might lead to a loss of human genetic diversity. If a single uniform view of the ideally adapted man or woman were proposed and accepted, opponents suggest that genetic engineering might lead to a uniformity in humans that would on the one hand be boring and on the other hand be dangerous by too narrowly adapting us to a particular ecological niche.

One is likely to want to put some limitations on the desire for diversity. For example, there are a number of hemoglobin types that, when they occur in the homozygote, cause severe disability and early death. In addition, diseases such as age-onset diabetes may represent an expression of a genetic trait, which at one period in our past conferred advantages on those who possessed the trait. The notion of preserving such diversity surely has some merit. A number of currently suffering and ill-adapted individuals might turn out in some future unanticipated environment to be those who are well adapted and able to survive. However, to preserve such diversity at the price of individual suffering, significant pain, and disability would require showing that such genetic diversity could not be preserved by other means and that such a genetic insurance policy was worth the costs entailed.

One way to respond to this difficulty might be to develop means of storing ova and sperm of individuals with these genetic traits. Advancing a somewhat similar proposition, Hans-Martin Sass (Bochum and Georgetown University) has suggested creating a human type collection which would preserve sperm and if possible ova from various endangered isolated ethnic groups throughout the world.¹ He has in mind groups such as the Yanomamo of Venezuela and the BaMbuti of Zaire. Through the processes of industrialization and urbanization such groups may be lost, either through their dying out due to contact with diseases to which they are not accustomed or through intermarriage with surrounding populations. Of course, in the future when we come to know the exact genetic code underlying particular traits and when genetic engineering becomes fully realized, sperm and ova banks may not be necessary. The knowledge of the code may be sufficient to preserve genetic diversity for future possible use. One could simply recreate it. But such possibilities lie very far in the future.

The goal of maintaining human genetic diversity is a significant one which should be considered even apart from concerns of genetic engineering. Genetic engineering does not raise new problems, but poses problems one can already see to be at stake in other areas of public policy. These possible difficulties justify proceeding with prudence, not establishing an absolute prohibition. One might here enshrine the medieval maxim, *festina lente*, to make haste slowly, while underscoring the virtues of diversity.

A powerful presupposition underlying traditional Western religious and moral thoughts has been what one might term the monotheistic presumption that there is a single, advantaged viewpoint from which moral and scientific truths can be enunciated. Such a viewpoint may lead to the assumption that one can indeed articulate a single coherent understanding of the ideal man or woman. Contrary to this viewpoint is what one might tendentiously term the polytheistic presumption that there are a number of alternative construals of moral and aesthetic excellence. Although the gods and goddesses dwell in one cosmos, which enables the fashioning of certain empirical and logical generalizations, there will not, nor should there be a single view of human or divine excellence. Rather, the gods and goddesses offer us competing models of moral and aesthetic virtue.

The polytheistic metaphor can remind us that one should attempt to articulate alternative views of human excellence. Just as a devout polytheist attempts to choose a proper constellation of special gods and goddesses for his or her worship—one might think here of Septimius Alexander, worshipping in his private chapel with particular devotion Christ, Abraham, Orpheus, and Apollonius of Tyana (Lampridius

[1924] 1967, 29.2)—so too a society might especially support the development of certain human types, while recognizing in the end that these constitute only a small selection from a wider possible range. After all, humans may model themselves after Apollo or Athene, Aphrodite or Dionysos—one would hope not Mars. Moreover, the virtue of *sophrosyne* would undoubtedly suggest that one person should not devote him- or herself to one god. So, too, in choosing an ideal one would wish to recognize the necessity of avoiding oneness.

Such concerns would appear to be overwhelmingly aesthetic considerations. The long run prospects of genetic engineering may force us to consider the ways in which one can construe being a man or a woman in full, ample, and beautiful fashion. It should not be surprising that reflections on the proper norms involved in humans refashioning their own nature are not only ethical but aesthetic. We must create artfully as the gods and goddesses, recognizing the range of possibilities for excellence and the need for as much reflection and as thorough knowledge as possible.

In pursuit of the super race. In some of the popular agonizing regarding genetic engineering, the issue is raised that such technology might lead to an immoral pursuit of some fanatic vision of a super race. It is surely difficult to argue that the general virtues of humans protect us against such an endeavor. Individuals might indeed come to be intolerantly consumed with the notion of fashioning a superior race of humans through genetic engineering of the germ line. Such a pursuit presumably would not be wrong in itself but only wrong if that undertaking were adverse to the interests or rights of those who did not want to join in that endeavor, or if it excluded other important possibilities of human perfection.

If, for example, it becomes possible in some distant future to increase the average I.Q. of humans by two standard deviations and if some individuals protest and do not want to participate in such an endeavor, should those who demur have a veto on the aspirations of the would-be supermen? Are such rights limited to those possessed by groups such as the Amish, who live their lives with minimum interference, isolated as far as possible from those who have embraced wholeheartedly modern industrialized Western society? Although the rights of groups to maintain their own ways of life are substantial, those very rights would appear to support the case for would-be supermen and superwomen. These persons should be able to pursue, with the aid of genetic engineering, their views of human excellence, as long as that pursuit is free from force against those who do not wish to join in such an undertaking.

WHAT GENETIC ENGINEERING HAS TO OFFER

Besides the possibility of eradicating genetic diseases and developing the capacity of humans to be resistant to various noxious agents from chemicals to bacteria, genetic engineering in offering the very long-range possibility of increasing such widely valued human capacities as intelligence and memory can induce us to consider ways in which we could bring together a constellation of human excellences into various ideal types of men and women. One might imagine a sort of mixed economy of genetic engineering in which certain restraints and endeavors might be under international control while a wide range of possibilities would be left to the discretion of particular groups. The restraints would need to focus on assuring that modes of genetic engineering employed did not diminish the balance of benefits to harms. One would wish to rule out possibilities that would clearly lead to unwholesome conditions of life for future children. But here again the issues need not be different from the concerns that support tort for wrongful life suits and child abuse laws. The benefit of this fantasy is that it may aid in reminding us of the wide range of human excellence and the even wider range of possibilities for persons.

As with any technology, prudence will undoubtedly be required in order to maximize the ratio of benefits to harms. What one finds in genetic engineering is a further augmenting of what modern technology has already afforded us in providing means for artificially acquiring immunity against diseases, suppressing the capacity to eject foreign tissue, or controlling reproduction. Although absolute prohibitions offer a certain simplicity, it will likely be impossible to avoid the tedious process of individually weighing the usefulness of particular endeavors in genetic engineering.

There appear in fact to be no unique moral issues at stake in genetic engineering. There are rather a set of very important prudential concerns to which one must attend, somewhat on an analogy with the development of most of the technological advances of modern civilization. In addition, the prudential issues do not appear to be closely tied to major possibilities for the destruction of human life or human civilization on the scale that has attended the development of nuclear power. The possible political and social fantasies raised by genetic engineering, and here one might wish to invoke the classic science fictional portrayals of dim future outcomes, *Brave New World* (Huxley [1932] 1969) and *1984* (Orwell [1949] 1971), do not indicate that the abuse of genetic technologies need be more oppressive than the more traditional means of suppression via surveillance, terror, and torture. *1984* does not require genetic engineering for its force.

One must explore with care whether the prospects for totalitarian repression are significantly worse with or without the availability of genetic engineering. If one is sufficiently impressed by the capacities of traditional means of repression and worldwide destruction, one may be less concerned about genetic engineering making a significant adverse contribution. Moreover, in whatever ways one suspects we may be able to find our path safely through the possibilities of other modes of political catastrophe, one must consider whether such will not apply to genetic engineering as well. Finally, one may surmise that totalitarian regimes will proceed with such research in any event and that the research of liberal regimes may hold the key to avoiding adverse consequences by more amply appreciating the negative side effects of particular interventions.

In summary, there is no wrongness to genetic engineering as there is a wrongness to inflicting unnecessary pain. Although there are major possibilities for harm, they do not appear to be catastrophic, and there do appear to be major possibilities of benefit. As with all technological advances, applications will need to be assessed carefully and concretely. However, when one considers the major advances perhaps possible in the long-range future, one is brought to certain interesting conceptual issues such as the contrast between personhood and humanhood.

BEING A PERSON AND BEING A HUMAN

Philosophers tend to focus on the characteristics of persons when outlining the general lineaments of theories of morality or justice. One comes to talk of persons when one wishes to know how individuals should act rationally.² Rational reflection appears so nonidiosyncratic that there are no compelling reasons for believing being a person need be restricted to humans. When John Rawls, for example, indicates that moral persons are distinguished by having a conception of their good and a sense of justice (Rawls 1971, especially 505), there is no logical ground for holding that these conditions could not be met by entities who are not humans, that is, by entities who would not be identified by taxonomists as members of the genus *Homo* of the suborder *anthropoidea* of the order of primates.

This point is understood by children who have seen the movies in the "Star Wars" series and have come to the judgment that Yoda is a marvelous person and Jabba the Hut is an evil person. None of those entities is human, although they are all portrayed as persons. Stories of angels and gods give classic illustrations of the same point. Not all persons need be humans.

Genetic engineering makes this point in a somewhat transformed fashion. Humans, since they are persons, need not remain human. One

can imagine humans over time so transforming their characteristics that one would wish to advance new classificatory taxa to replace *Homo sapiens*—perhaps *Homo fabricatus I*, *Homo fabricatus II*, and so on. This is the point raised in the novel by Stapledon.³ If one is willing to entertain a sufficiently long-range fantasy regarding the human future, it is difficult to imagine that humans will not in fact refashion themselves in major ways.

This but underscores the obvious. The bodies we have as humans only in part meet our goals as persons. In many circumstances they default on our intentions, rebel against our plans, and defeat our hopes. These bodies are, as already noted, the blind deliverances of random mutations and selective pressures that have adapted to environments in which our ancestors lived. As persons, however, we can envisage what it might be like for our bodies to be better adapted to our current environment. Moreover, we can understand what it would be like to measure adaptational success not merely in terms of inclusive reproductive fitness but in terms of other goals as well. Thus we might envisage bodies adapted to our more sedentary life-styles, rather than to the life-styles of hunter-gatherers. We might even envisage ourselves possessing greater intelligence, even if that did not lead us or our kin to out-reproducing others.

In being a person we can envisage life-plans that would be worth pursuing but for which our bodies are not fully condign. It is because of this ability to envisage such life-plans for ourselves and others around us that we are inclined to manipulate our very nature as humans and to fashion that nature in ways that we would find more useful. As beings envisaging life-plans that transcend the current capacities of our bodies, we come to objectify those bodies and our human nature as constraints to be refashioned and set aside.

Such considerations will move us to employ more refined notions of what it means to be a person. First and foremost, we will need to recognize that there is a cluster of usages. In talking of persons we often loosely mean human. Further, certain practices presume specialized senses of a “person before the law.” Thus in antebellum Texas, slaves, women, and men were all persons before the law, but persons in different ways.⁴ For clarity, one may need to add subscripts and superscripts to identify particular legal usages as well as philosophical usages. One sense focuses on persons as rational, reflective moral agents, as entities that can be blameworthy, that can be the bearers of rights and duties. Others identify the special moral statuses with special rights, that we impute to infants not because they are persons in the sense of moral agents (which they are not) but because of the important roles they play in highly significant social practices.

These senses of persons must then be distinguished from whatever we mean by personality. There is much that can be said here, but it should be enough to recall the commonsense ways in which we talk of the personality of persons changing: "He has not been the same since his tour of duty in the Vietnam war." People even change their secondary sex characteristics through surgery. However, through all of this we can invoke an intellectual standpoint which presupposes, if not strict personal identity, at least a reflective vantage point from which one can contemplate and choose among rather fundamental changes in oneself and in human nature. From that perspective one cannot envisage setting all genetic constraints aside; however, one can envisage exchanging less desirable constraints for more desirable constraints.

One will need to make similar distinctions regarding human nature. Such distinctions are in part available in the distinctions among the various species of the genus *Homo*. In the future one may need, if one makes significant changes through genetic engineering, to assign further subscripts to "human." If we use genes from other species, perhaps some hyphenation will be in order. These biological usages of "human" will need to be distinguished from honorific senses (e.g., "She's a truly human individual") and senses in which being human is loosely identified with being a person.

The difference and distance between us as persons, as manipulators of our nature, and us as humans, as objects to be manipulated gives us our destiny as self-refashioners, self-manipulators. Being self-conscious and rational, we can always objectify our bodies and in so objectifying them bring their shortcomings into question. In seeing ourselves as objects, we then raise for ourselves the moral problem of all creators, namely, to create prudently and responsibly. Here the issue is especially earnest, for the problem is that of our own self-creation, self-manipulation. The possibility of genetic engineering recalls to our attention the inescapable fact that in being self-reflective individuals, we are always potentially recreators of ourselves. Genetic engineering opens up in physical reality possibilities that were always available in reflection.

The enduring significance of genetic engineering of the human germ line lies in the fact that it offers the possibility of persons remaking their bodies in the image and likeness of their goals. One is left with the canons of prudence and care, since there is nothing sacrosanct about the particular deliverances of evolution, which we find currently in human nature. However, this itself is instructive. It underscores the character of the creative task of persons, which remains indefinitely open.

CONCLUSION

Aside from general injunctions to act prudently and to respect the rights of those involved, not much can be said until particular possibilities with their particular risks and benefits are available for assessment. Then and only then will one have the concrete problems of actual public policy choices. The fact that this is all that can be said in advance is itself instructive: there is nothing in and of itself immoral or improper in the general endeavor of human genetic engineering. Further, it would appear that eventually the endeavor of human genetic engineering will be realized. It seems farfetched to believe that humans could have at their disposal the ability to engineer around the problems in their biology and psychology and not take advantage of that possibility. In the long run such knowledge is likely to become available (unless our possibly genetically based proclivities to aggression will remove us from the scene before genetic engineering is possible), and there are unlikely to be considerations that over the long run will weigh against rationally and prudently making use of that ability. If we are fortunate, we as persons will refashion our human nature.

There are no overbearing reasons to maintain human nature as it is, uncontaminated by manufactured genes or by genes from other species. Human nature as a cluster of inherited capacities is no more inviolate than it is secure from mutations. We as persons cannot step outside of genetic constraints, but we can change or alter those constraints. Over the long run we are likely to do that and in so doing revise human nature better to meet the goals of persons. Then the issues will not be simply moral, but aesthetic as well. We will need to remember to do not only what is good, but also what is beautiful.

NOTES

1. Professor Hans-Martin Sass's statements were made at the Sixteenth Trans-Disciplinary Symposium on Philosophy and Medicine: "Reproductive Rights and Responsibilities: Medicine and the New Biology," at the University of Missouri-Columbia, 21-23 April 1983. The proceedings will appear in the Philosophy of Medicine Series, D. Reidel Publishing, Boston and Dordrecht, Holland.

2. One might recall here the central role played by the concept of persons in Immanuel Kant's theory of ethics. The *mundus intelligibilis* of Kant is the kingdom of persons. One is not a member of the *mundus intelligibilis*, the kingdom of ends, because one is a human, but rather because one is a rational being and therefore able to posit one's own goals. See, for example, Kant (1968, 433-39).

3. It is clear that the various stages in the development from *Homo sapiens* as described by Olaf Stapledon are radical enough for most taxonomists to recognize the emergence of new species.

4. For example, slaves in antebellum Texas had the standing of villeins in common law and, therefore, had legal protection against battery by their masters. See *State v. Stephenson* 20 Tex. 151, 152 (1857). For a general discussion see Nash (1971).

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