

We Should Not Manipulate the Genome of Domestic Hogs

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We can approach the ethical question of whether we ought to use genetic engineering to change domestic hogs from two directions: first, treating the hogs as nothing but means to human ends and, second, considering the well-being of the hogs to be morally relevant. In both of these approaches we can employ a common-sense conception of ethics, that a major goal of morality is to minimize suffering and otherwise make life in this world happier and more fulfilling.

I

From the anthropocentric perspective the questions run something like this. We should direct our limited resources—especially socially-controlled resources, such as tax monies available for research, education, and subsidy—in ways which seem likely to make the best contribution to relieving suffering and otherwise improving the quality of human life. Genetically engineering hogs will doubtless require significant expenditures of social resources, in the form of research funds and tax incentives. What do we have to gain by expending these resources in this way? And are there other ways in which we could use these limited resources which promise to make a more significant contribution to enhancing the quality of human life?

To answer these questions we must first project what goals might be accomplished through genetically engineering hogs. Here are some examples. Pork is high in fat and cholesterol, which reduces its healthfulness as a human food. Through genetic engineering we might be able to reduce the fat and cholesterol levels of pork. Again, one of the current criticisms of meat production is that an animal must be fed several pounds of vegetable protein to produce each pound of animal protein. Through genetic engineering we may develop larger, meatier hogs and reduce that ratio. Again, the factory farming of hogs is a growing trend, but it generates vices, such as tail-biting, and animal stress, which lead to weight loss and disease. Through genetic engineering we may produce hogs that are better adjusted to factory farming and, consequently, less susceptible to these vices and diseases. At the very least, we may be able to cure the tail-biting by producing a tail-less hog.

In these ways the goals of genetically engineering hogs are to produce a more

healthful kind of pork and a greater quantity of pork for the investment devoted to raising hogs. These are clearly admirable goals. They would contribute to enhancing the quality of human life, since people who enjoy eating pork could then do so with less risk to their health, and the production of pork would represent less of a drain on the world's food supply and other resources. A further, positive consequence of this reduced drain on resources would be that people who make their living from pork production could increase their income. However, the question is not just whether these goals—if attainable—would contribute to human well-being; the question is whether using our limited resources to pursue these goals promises to be the most efficient way of enhancing that well-being. That is not obviously the case; indeed, that is clearly not the case.

For example, many people do not and, for religious and ethical reasons, will continue not to eat pork. Resources devoted to genetically engineering hogs will, therefore, be wasted, as far as their well-being is concerned. On the other hand, if those resources were devoted to improving the healthfulness and quantity of other food stuffs which they, along with current pork-eaters, do eat—such as vegetable products—these resources would have the potential of enhancing the quality of life for a much larger group of people. This limitation on the market for genetically-engineered pork, in comparison with the markets that could be benefited by directing our limited resources elsewhere, suggests that genetically engineering hogs is not how we should expend those resources.

Furthermore, even if we restrict our concern to those who are willing to eat pork, genetically engineering hogs is not the most efficient use of our limited resources to enhance the quality of their lives. If consuming significant amounts of pork (in its current form) poses a health risk, then directing people to limit their intake of pork would be one way of removing that risk.¹ An educational program to that end would be comparatively inexpensive, as would be developing attractive alternatives to pork. The differential between the cost of these consumption-reducing programs and what we would have had to spend on genetically engineering more healthful pork would then be available for pursuing other goods. Economic incentives to reduce pork consumption, similar to current "sin taxes" on alcohol and tobacco, could actually raise money, probably more than enough to pay for the educational and alternative programs. Consequently, pursuing this way of combatting the unhealthy consumption of pork could simultaneously increase resources for attaining other goods.

Similarly, programs to encourage pork-eaters to consume more vegetable protein would doubtless cost much less than engineering hogs to be more efficient protein converters. The economic resources that would then not have to be expended on this genetic engineering project could also be redirected into other projects for human benefit or simply returned to people to spend as they pleased. It should not be overlooked, when seeking the most efficient use of our limited resources, that directing current pork-eaters towards consuming more vegetable protein and limiting their pork intake would accomplish both the goal of improving the healthfulness of their diets and the goal of making more food available for people at a reduced cost. On the other hand, genetically engineering pork with less cholesterol and fat and genetically engineering hogs that more efficiently convert vegetable protein into animal

protein could require two separate, costly programs to accomplish those same two goals.

On the negative side, alternatives to the genetic engineering of hogs could have an adverse impact on those who would benefit financially from such engineering projects, i.e. the researchers themselves and those who make a living from pork production. Researchers, however, have shown a talent for prospering no matter which way research dollars are directed. If there is money available for genetically engineering plants or for developing genetic therapies for birth defects, but not for genetically engineering animals, then genetic researchers will simply redirect their efforts accordingly. For example, they could turn their talents to developing and making palatable sources of protein, such as "Pruteen," which would allow us to meet our needs by harvesting insentient microorganisms rather than by slaughtering sentient animals. If the monies not expended on genetically engineering animals were not redirected into any sort of genetic research, then the genetic research industry would suffer an economic loss. However, those who received these monies would enjoy an equal economic benefit; so, this immediate economic impact of redirecting funds would not compromise human welfare overall.

Farmers and others who depend on pork production for a living could suffer similar economic hardship. However, as far as traditional, resident, family hog farmers are concerned, the genetic engineering of hogs will likely help destroy their way of life and force them out of business, anyway. This is because such engineering is aimed at massive factory pork farms, not at the small family farming of hogs. For example, leaner hogs will likely be more susceptible to the dangers of cold weather and, consequently, will require a more controlled environment, i.e. the enclosed, artificial environment of the factory farm. Merchants and others who depend on the continued existence of family farms also probably have more to fear than to hope for from the genetic engineering of hogs. As factory farms reduce the number of workers required in agriculture, they reduce the number of clients available to sustain rural businesses and services. Consequently, family farms and rural economies would probably be helped rather than harmed if we were to forego genetically engineering hogs—and other farm animals.

Still, if we directed our limited resources to alternative projects to genetically engineering hogs, corporate farmers and their suppliers, large meat-packers and distributors, and their employees could suffer the loss of economic opportunities. Nonetheless, it is not obvious that limited social resources should be devoted to subsidizing such corporate entities and their profits—although some resources might have to be expended on supporting and retraining some meat-industry workers. Also, the development and distribution of alternatives to pork would provide economic opportunities for these workers and businesses—and for others, too—so that the long-term, overall impact on the economy, or even just on these workers and businesses, need not be adverse.

Finally, there may be a small number of people who so strongly enjoy eating pork that they would feel deprived without it. Presuming they would find the leaner, more healthful pork satisfying, while finding non-pork alternatives unsatisfying, these people could be left worse-off by the pursuit of alternatives to genetically engineer-

ing hogs. However, that a small number of people can indulge their taste for pork is a trivial matter compared with the need for nutrition, housing, sanitation, education, and other major contributors to human well-being. In a world of plenty we might be able to afford spending millions of dollars to indulge this small group of people, but in the real world, where those basic human needs are widely unmet, devoting millions of dollars to such indulgences is not only something that ethical concern does not direct us to do, it is something that ethical concern directs us not to do.

Thus, if we compare the likely impacts on human well-being of directing our limited resources to genetically engineering hogs or of releasing those resources for use elsewhere, including pursuing a more healthful, abundant diet in other ways, the alternatives to genetically engineering hogs promise a better return for the investment. So, even if we set aside all concern for the well-being of the animals involved and adopt a thoroughly anthropocentric perspective, genetically engineering hogs is not what we ought to do; quite the contrary.

II

Let us now turn to the other ethical approach to these questions, the approach which considers the well-being of hogs as well as that of humans. Does this broader ethical concern reinforce or challenge the conclusion reached by the narrower, anthropocentric approach?

Genetic research involving hogs will likely use a great many animals. I have never seen a protocol for such research; however, as a member of the institutional animal care and use committee at the Lawrence Berkeley Laboratory, I had occasion to review several such protocols concerning transgenic mice. Each of these experiments involved killing about 2500 animals, and I was told that the techniques employed were state of the art and were not likely to change in the near future in ways that would require fewer animals or reduce the number of experiments which fail due to inadequate expression of the transplanted genes—a problem which has also befallen experiments with transgenic hogs. Consequently, we can expect that continuing genetic research with hogs will require a large number of animals who will be closely confined and stressed while alive and killed far short of their natural life-spans. These animals will not be better-off as a result of this research.

Would future generations of hogs be better-off as a result of having been genetically engineered? If hogs continue to be factory-farmed and if genetic engineering curbs the vices, stress, and diseases from which animals suffer on factory farms, then these animals will be better-off for having been genetically engineered. However, relief from the injuries, stress, and increased rates of disease occasioned by factory farming can also be attained by reversing the trend toward factory farming of hogs and returning to more traditional, less stressful farming methods. Providing an environment in which hogs as currently constituted can thrive would be at least as good for the well-being of future hogs as would genetically altering those hogs to cope with the stressful, deprived environment of the factory farm.

Additionally, genetic engineering may well produce—accidentally or intention-

ally—animals with infirmities or vulnerabilities that are detrimental to their well-being. The infamous "Beltsville pigs," with their arthritis and deformities, are an example of this happening accidentally; Harvard's patented "Oncomouse" is an example of such misfortune being inflicted on animals intentionally. Given the economic, anthropocentric motives for genetically engineering hogs and the haphazard results to be expected from an infant technology, experiments at genetically engineering hogs are at least as likely to produce animals with reduced quality of life as with improved quality.

I have not heard of a program for the genetic engineering of hogs—or any other animal—where the goal is to improve the quality of life for the animals, except in the above sense of altering them to adjust to deprived, stressful environments like that of the factory farm. It might be that in engineering hogs with lower levels of fat and cholesterol we would incidentally produce animals who are less susceptible to heart disease and capable of living longer. However, since these animals would be produced for slaughter at an early age, reduced susceptibility to problems like heart disease and a potential for increased longevity would be irrelevant to improving their well-being.

Furthermore, it is a safe generalization that the capacities and qualities which would enhance an animal's well-being outside the factory farm are generally undesirable from the viewpoint of the factory farmer. For example, if genetic engineering resulted in hogs with greater intelligence and strength, the experiment would be deemed a failure, since such hogs would be less satisfied with the deprived environment of the factory farm and more difficult to handle there. So, insofar as "enhanced well-being" does not refer to the same capacities and qualities as "better adapted to a factory farm environment," genetic engineering is not intended to enhance the well-being of hogs—or other animals—and is likely to reduce their well-being. Through traditional means of selective breeding for meatier animals we have already made hogs much less agile than their forebears; genetic engineering holds the promise of much worse for future generations of farm animals which one writer has already labelled "institutionalized animal incompetents" (Callicott, 1980: 331).

It might be contended nonetheless, that hogs would be better-off if they were genetically engineered to be better adapted to a short, cramped, dull life on a factory farm. This is because—so the argument runs—factory farming and genetic engineering can produce less expensive, more healthful pork, which will increase the use of pork, which will lead to the production of a greater number of hogs than would otherwise be the case. Certainly the alternative discussed above—encouraging people to limit their intake of pork—would result in there being fewer hogs in future generations.

This program of reducing sensitivities in order to increase numbers represents a perversion of our common-sense, ethical pursuit of a better world. What is being suggested here is that a group would be better-off by having its needs and wants reduced in order to increase the numbers of the group living in a deprived environment. This brave new world appears a fine place to members of the group because they have been engineered not to need nor want more than it provides. However, the traditional goal of ethical concern with well-being has been to enhance the en-

vironment so that a full complement of needs and wants can be met. Consequently, from our ethical viewpoint, hogs would be better-off retaining their full complement of needs and wants in an environment that can provide adequate resources to fulfill them, even if this results in the number of hogs being lower than if genetic engineering had been employed to reduce their needs and wants.

Contrary to the previous contention, it might be argued that genetically engineering hogs to produce more usable product per animal would be beneficial for the hogs, since fewer of them would then have to be factory-farmed and slaughtered to satisfy the demand for those products. (No matter whether the hogs would be better-off with more or fewer of their number, the proponents of genetic engineering have the answer!)

Reducing the numbers who must suffer to attain a good is always a (*prima facie*) good. However, this promise of reducing the number of hogs to be factory-farmed and slaughtered is surely a false one. The economic motive which is driving the pork industry to genetic engineering will continue to drive it to secure a larger share of the food market. If more meat can be produced per animal, the industry will endeavour to market more pork, rather than to reduce the number of hogs who are factory-farmed and slaughtered.

One other possibility – at least a logical possibility – is that through genetic engineering we could develop hogs totally devoid of feelings, i.e. hogs who could not feel pleasure or pain, frustration or fulfilment, boredom or happiness, etc. From the viewpoints of psychology and ethics such animals would be vegetables, and what we did to them would pose no more direct ethical question than does what we do to carrots and cucumbers. However, creating insentient animals would again represent a perversion of our traditional ethical goal of pursuing a better world, since "better" refers to a world in which frustrations have been reduced by fulfilling interests, not by eliminating them.

Thus, the genetic engineering of hogs holds even less promise for animal welfare than for human well-being. Alternatives hold greater promise of benefiting both humans and animals. So, insofar as ethical concern is directed to enhancing the well-being of humans or of humans and animals, that concern directs us away from the genetic engineering of hogs – and other farm animals.

III

Although ethics is not the sort of discipline in which one can expect conclusive, knock-down, drag-out arguments for or against a position, neither is it an area in which any opinion is as good as any other, with "diff'rent strokes for diff'rent folks." Some moral positions are more coherent, informed, and sensitive than others – all of which ought to recommend them to us above those others.

In most of our dealings with animals we humans take advantage of our vast power to do with them whatever we please. We wipe their kind off the face of the earth; we drive them from the land we want; we crowd them into cages and stalls; we cut and burn them and give them fatal diseases; we work them to death and sacrifice them to our gods; we slaughter them in infancy to titillate our palates; even our pets are

overbred and distorted for our profit and amusement; and others we shoot for the fun of it. All these and many similar things we do with impunity, because we know that the animals are powerless against us.

Of course, being civilized people we advocate the humane treatment of animals and support numerous laws and organizations dedicated to protecting animals against cruelty. But this commitment to the humane treatment of animals is a puny thing. It is easily overridden by our desire to enjoy veal, to save a nickel on a dozen of eggs, to satisfy our curiosity, to discover an easy cure for our bad habits, to ostentatiously display our wealth, to have a suburban home, or to enjoy the comradery of our buddies while blowing birds out of the sky. There is hardly a human desire too trivial to justify overriding our commitment to the humane treatment of animals. There is hardly anything that we civilized people want that we don't feel is worth making animals suffer for.

Isaac Beshevis Singer, Nobel Prize-winning author and German refugee, put the matter simply: "in their behavior toward creatures, all men are Nazis."² But we don't feel like Nazis. Virtually all the suffering and death we inflict on animals we inflict with a clear conscience. Sometimes we tell ourselves that we make animals suffer and die for their own good. We say that deer hunters are good Samaritans out killing animals to save them from starvation and that duck hunters pay their licence fees so that marshes may be saved to provide homes for the wild fowl they so dearly love – to shoot. Less hypocritically, when we bother to think about the justice of animals suffering and dying so that we may satisfy even our most trivial desires, the conclusion we reach is that our exploiting animals is justified because we are a superior form of life. Is that a credible idea?

The ethologist Donald Griffin notes that "it seems plausible that animals would be more likely to survive and reproduce if their beliefs included confident faith in their own superiority and the assurance that exploiting other species was normal and correct behavior" (Griffin, 1984: 165). Our belief in our superiority and what it justifies does, indeed, look like a blind instinct, a mental knee-jerk. How does the fact that Mozart and Beethoven were human justify deer hunting? How does the fact that Albert Schweitzer and Florence Nightingale were human justify slaughtering calves and pigs in their youth? How does the fact that Thomas Jefferson and Abraham Lincoln were human justify killing beavers for their fur and driving baby monkeys insane in psychological deprivation studies? Setting aside our instinctive prejudice in favour of ourselves, how could we, as rational beings, even think that the fact that our species has produced some superstars justifies our being Nazis to animals? Such an argument is a logical embarrassment.

Still, that our species can be a morally superior life form seems possible. Our enhanced intellectual ability can provide us with the power to relieve suffering and to develop a richer environment than nature unaided provides. Our social instincts, capacity for extended sympathies, and ability to inhibit our desires out of respect for and fairness to others may even make it possible for us to use our great power to those good ends. But, so far these remain just possibilities. Where animals are concerned – and we are talking about the exploitation of trillions of them annually³ – we have been using our great power to expand, not inhibit, the reign of suffer-

ing, callousness, and injustice. At least part of the reason for this failure may well be that instinctive belief that the correlate of our superiority is the licence to be tyrants. It seems so blatantly obvious to us, the superior species, that it is fitting and proper that inferiors should be sacrificed to support their superiors.

However, in other contexts, where we would be the vulnerable ones, we do not accept such a correlation. Quite the contrary, we hold that the correlate of superiority in these cases is responsibility and stewardship. Who would welcome the coming of the Messiah, and "dominion [being] laid on his shoulders," (Isaiah, 9 verse 6) if he were going to exercise his dominion over us in the tyrannical way we have exercised our dominion over animals? His superiority is supposed to find expression—and confirmation—in a loving concern for his inferiors, which (especially) includes us. Again, in Plato's fair *Republic* the lives of guardians are to be carefully regulated so that the superior power to which their superior intellect entitles them is not used tyrannically but for the benefit of all citizens, the inferior as well as the superior.⁴

Thus, the anthropocentric perspective on the genetic engineering of animals—as on other issues concerning our treatment of animals—looks like the product of an instinctive prejudice in favour of our own species. If we are to become actually morally superior beings—and not remain just potentially so—we need to overcome that limited perspective and use the great power at our command sympathetically and fairly to create a better world not just for the favoured few but for all those who need our respect and help.

Overcoming our species prejudice and creating a world in which we treat those who are powerless against us sympathetically and fairly is what "animal rights" is about. A "right" is a moral and legal concept which we use—especially in the United States—to further interests and to protect them against exploitation. We codify our recognition that others are not to be treated as resources for exploitation by extending rights to them. Rights thus help insure that the interests of the powerless will not be routinely disregarded and sacrificed as the powerful pursue their own interests. Rights also help secure for all a fair chance at sharing in the goods of this earth. Thus, extending rights is a moral and legal expression of our respect for others and of our commitment to inhibiting self-interest in order to make the world a kinder, fairer place.

The example of the rights of children shows that the conceptual requirements for having basic rights—to life, liberty, and the pursuit of happiness—do not include understanding the concept of rights, being a moral agent, or any other sort of intellectual ability which only something like a normal, human adult possesses. Such intellectual ability is needed to inhibit one's behaviour in recognition of the rights of others; that is, such intellectual ability is needed to be a moral agent, but not to be a direct beneficiary of that agency, e.g., a rights-holder. All that is needed to be a rights-holder is to be capable of suffering and to be vulnerable to exploitation by those who can be moral agents. So, if animals do not yet have rights, it is not due to an inadequacy on their part but to a failure on ours—our failure to be fully moral agents. Overcoming our instinctive human chauvinism to adopt an animal-respecting moral perspective is needed to erase that failure. Part of that transition would be acknowledging that the generic identity of animals is not a resource to manipu-

late for human taste, profit, curiosity, or health without respect for the well-being of the animals themselves.

Notes

1. I am assuming that the benefit of reducing fat and cholesterol in one's diet by limiting—even eliminating—one's intake of pork need not be counter-balanced or outweighed by some adverse effect on one's health by not having as much—or any—pork in one's diet. That seems a safe assumption; I know of no studies even suggesting that those many millions of people who eat no pork are thereby condemned to an unhealthy diet.
2. "As often as Herman had witnessed the slaughter of animals and fish, he always had the same thought: in their behavior toward creatures, all men were Nazis. The smugness with which man could do with other species as he pleased exemplified the most extreme racist theories, the principle that might is right." I.B. Singer, *Enemies, A Love Story*, quoted in Wynne-Tyson (1985: 335).
3. The trillions are predominantly fish and other sentient sea life; excluding these, the figure is merely (!) billions.
4. Plato refers to the gold and silver elements of humanity as "helpers" and "assistants" and severely controls their living conditions to guard "against our helpers' treating the citizens (the way wolves treat sheep) and, because they are the stronger, converting themselves from benign assistants into savage masters." (*Republic* 416b, Shorey translation).

References

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