Ethical Considerations in the Use of Transgenic Animals

Raymond Giraud
Stanford University

Presented at San Francisco State University's Symposium on the Societal and Ethical Issues of Recombinant DNA, Session IV: "Transgenic Animals and their Uses," held at the University of California at Santa Cruz, August 22, 1990.

It may seem strange that a professor of literature should be addressing biologists on ethical issues related to recombinant DNA. My literary interests and teaching, however, have been concentrated for some years on what Jean-Paul Sartre called *littérature engagée*, writing that confronts political and social issues, that is consciously in and of the world and involved in the transformation of reality, rather than standing outside it.

Together with other like-minded faculty, I also got involved in political struggles at Stanford during the era of university complicity in the conduct of the war in Vietnam. That was a time when many in the academic world were moved to undertake an analysis of the university's function in society, to criticize its "corporatization," and to participate in adversarial action against its administrative leadership on many fronts.

But the expression of ethical qualms about the political impact of the university in the world ought not to be limited to extra-curricular activity. Ethical issues in academe are too often subordinated to skill development and the transmission of ideas, with scant attention paid to their moral implications. Teaching also often tends toward the promotion of careerism and a conception of success narrowly defined in terms of

professional achievement (for one's students and also for oneself).

Like many others, I have also come to the conviction that the struggle for human rights and social justice cannot be isolated from concern for the welfare and the rights of nonhuman animals, whose exploitation and abuse have taken place on a scale that dwarfs that of even the most oppressed human beings. As a result, of course, a number of my friends in the medical school, allies in other struggles, are now on the other side of the fence. Even so, many thoughtful scientists have serious reservations about the biotechnical revolution and, not least among its marvels, the creation of transgenic animals.

It is eminently understandable to view the development of transgenic animals as an exciting area of research, a new technology, promising new biologically engineered solutions to many important problems—among them, food and health.

But, like many other areas of modern scientific research and development, the history of biotechnology has also been marked by less altruistic promises: fame, promotion, and, of course, financial reward for individuals, as well as immense potential profits for the institutions that employ them.

For some universities, grants from the National Institutes of Health have become so important in the budget that they have taken the place of the Department

PHILOSOPHY

of Defense funding that these institutions had come to be heavily dependent on during the Vietnam war. With the new sources of income provided by the biotechnology revolution, in which the creation of transgenic animals is now at the forefront, both individuals and institutions have flung themselves into a race for patents, with the prospect of wealth beyond the dreams of avarice.

I shall not make the mad scientist or "Frankenstein" argument, accusing biologists of seeking to play God by tampering with the divine scheme of providence. But there is a variant of that argument that more than one scientist has invoked, quite independently of any fundamentalist religious dogma: namely, the risk of replacing the evolutionary process with a humanly engineered universe of artificially created plants and animals, including perhaps engineered human animals as well. A colleague of mine at Stanford, biology Professor Dow Woodward, for example, recently invoked the risk of a "genetically engineered world replacing the one produced by natural selection," going on to say: "What is already on the drawing boards of a few people shows an audacity roughly comparable to that of last century's eugenicists." Others who have issued comparable warnings include George Wald of Harvard, Erwin Chargaff of Columbia and Robert Sinsheimer of Cal. Tech. But important as prudence in these matters might seem, it often runs afoul of very powerful inducements to go full speed ahead and, as it were, damn the torpedoes.

Among the moral issues that I believe biologists might consider encouraging their students to reflect on is, first and foremost, *the pain suffered by the animals*. Many thoughtful ecologists who contemplate our manipulation of animals of other species than our own are troubled by a fear that the evolutionary process will be affected or that Nature's rich array of species will be impoverished. What is often forgotten, however, is that for the individuals of a species, there can also be intense pain and terror, not to speak of the almost inevitable deprivation of life. One might call this an ontogenic concern, as opposed to the predominantly phylogenetic concern of ecologists. These hurts and deprivations are far from being negligible, as, for example, when medical researchers take a blow torch to the body of a living pig in order to study the pathology of burns or break the back of a rat to learn how that affects the animal's capacity for penile erection. In these, as in an almost infinite number of other experiments—many of them

useless by any reasonable standard—the researcher's right to know, and possibly to profit from the knowledge acquired, collides with the individual animal's right not to be mistreated in this way.

Similarly, in the creation of transgenic animals, pain is a factor that should not be left out of whatever equations one constructs: pain for the fleshy pigs whose skeleton is inadequate to bear added weight, for cows whose distended udders scrape the ground and make it difficult for them to walk. The only sensitive comment on this that I have so far encountered in a scientific journal was a letter from a Canadian veterinarian published in *Nature*, I believe, in which he protested the neglect of this consideration in the literature he had read about transgenic animals. (He was referring specifically to the physical discomfort implicit in the introduction of genetic characteristics into an organism unprepared for them by its previous evolutionary development.)

Also among the innocent victims of this sort of experimentation are the millions of transgenic mice who are sacrificed (the word of choice among researchers), in the ratio of thousands used to produce one mouse in whom a gene is successfully implanted—that is in such a way that the genetic characteristic actually expresses itself in the animal.

It is well known that AIDS, in the form that afflicts human beings, is a condition—"a syndrome"—that has not naturally manifested itself in other species. Yet, a medical technology that has refused to liberate itself from the obsolete procedure of seeking cures for human ailments and injuries by making healthy nonhuman animals sick or injuring them is still engaged in attempts to create artificially a transgenic animal that will carry the virus, despite the misgivings of many researchers who believe that clinical studies offer the best hopes of success.

We have, I believe, a moral obligation to consider what effect is produced on an animal—any sentient creature—by introducing a genetic characteristic that is not part of its own species history, a change imposed invasively only to make use of the animal for some purpose alien to its own being.

That purpose can, in fact, be very self-serving (publication, prestige, profit). There was, for example, not much interest in AIDS in the bio-medical industry before the money started flowing. I know of at least two of my colleagues at Stanford, who run what are known in the medical school as "mouse factories," who

expanded into the AIDS business with loud cries about their service to humanity and have just started up their own profit-making companies. We may justly question the ethics of scientists who seek to enrich themselves not only through the suffering of countless animal victims, but also from research initially funded by grants of the taxpayers' money.

We should also not forget that the bio-medical use of animals has mushroomed into a multibillion-dollar industry, including, amid the breeding for sale of many species, a veritable explosion of marketable strains of transgenic mice. The manufacture of food, cages, stereotaxic devices and a multitude of high-priced gadgets, is an immense business. For a glimpse at some of its not always visible dimensions, study the trade magazine *Lab Animal*. This week, Stanford's Department of Comparative Medicine is hosting what it calls a "rodent seminar," complete with refreshments (wine and cheese!), sponsored by the Charles River Breeding Laboratories, the world's largest lab animal factory—one example among many of the ties between today's universities and the corporate world. (See Martin Kenney's book, *Biotechnology: The University-Industrial Complex*, Yale Univ. Press, 1986, for a wealth of documentation on this.)

I might here invoke two of those major moral concepts that we presumably honor in our conduct toward other human beings (although often more in the breach than in the observance), but which we dismiss out of hand when it comes to our treatment of non-human animals:

MIGHT DOES NOT MAKE RIGHT. There is no question that we could not do what we do to animals if they were not powerless to resist us. What we do is "right" only for those who embrace an ethical philosophy that legitimizes power.

THE END DOES NOT JUSTIFY THE MEANS used to attain it. (See Simone de Beauvoir's *Pour une morale de l'ambiguïté* for a perceptive analysis of this often grossly simplified issue.) Assuming that the ends sought by the creation and use of transgenic animals are desirable (an assumption that deserves to be freshly questioned in each instance), does this end justify the means? How legitimate is it to "use" sentient creatures as means to an end? Moral philosophers have long argued against treating human beings as means

to an end, rather than as ends in themselves. Kant's is doubtless the most familiar formulation of the concept: "So act as to treat humanity, whether in thine own person or in that of any other, in every case as an end withal, never as means only." On the threshold of the twenty-first century, we ought to be morally advanced enough not only to actualize at long last that precept for human beings, but to consider its extension to nonhuman animals.

Or are we to cling to our self-appointed role of master species, as some of us refuse to relinquish the myth that they are a master race or a master gender? Are nonhuman animals so alien, so inferior to us, as Jews and gypsies were to the Nazis and people of color to white supremacists, that we are morally at liberty to discard ethical principles when it comes to what we do with and to them?

Certainly, in practice our species has proceeded generally on that assumption, and has used nonhuman animals as economic resources to exploit and as products for consumption. To abandon these practices and the attitudes that legitimize them will doubtless represent a revolutionary ideological and behavioral change for humankind. We might recall, however, that it has been only recently in the history of our species that the legitimacy of slavery came into serious question (for example, the framers of the U.S. Constitution resisted proposals to deal with the issue in that document), as well as the use of women for breeding children and for cheap labor. In fact, the treatment of women as the property of their husbands and as a morally, intellectually and physically inferior "subspecies" continues unabated in many areas of the world.

In theory, too, we have still not liberated ourselves (or our nonhuman animal victims) from the archaic idea that even very bright men, like the great 17th-century French philosopher and scientist René Descartes, clung to, namely, that nonhuman animals are soulless automata, animated not by thought or feelings, but by some sort of clockwork mechanism.

Today's scientists who try to still their conscience as well as ours by denying animals of species other than our own the capacity to think and have emotions and feelings, including pleasure and pain, must confront the contradiction between that anthropocentric fallacy and the practice of exploiting animals because they are like us and may even be related to us (assuming we don't

wish totally to repudiate Darwin—who wrote, incidentally, with great warmth of individual animals for whom he had come to have real affection and a strong feeling of kinship).

The engineering of transgenic animals inevitably brings to mind all the disputes about eugenics, as applied to the “improvement” of domesticated animals and human beings—a notion that received much attention in Hitler’s Germany, but which had been conceived and practiced earlier and is still with us.

There is, however, a substantial difference between the relatively slow process of selective breeding (not natural selection, but selective by human design) and what has come to be called genetic engineering, even though some of the scientists working in this field minimize the distinction, obviously because they hope that will make what they are doing seem less disturbing. (A striking example is the 1987 statement on “Introduction of Recombinant DNA-Engineered Organisms into the Environment” issued by the National Academy of Sciences.) It is true that both practices are alike in that they thwart the slow natural evolutionary process, but genetic engineering is far more radically invasive of the organism and destructive of its integrity.

But just how sacred is the “natural” evolutionary process? A group of scientists recently made modest newspaper headlines by declaring that we have always tampered with “nature” and that an absolute opposition to any interference with a “natural” environment calls into question practically all of human history. Their gambit seems to me on the order of setting up a straw man, the demolition of which proves very little. Of course, we have always “tampered with nature”; only the most benighted dogmatist would pretend otherwise. But it is equally evident that we have not always done so very wisely. Witness the massive deforestations both past and present and today’s truly criminal destruction of the environment. The real question is: how far do we go? Can we best deal with this problem by concocting a rigid formula for setting bounds to our interventions or should we be unrelentingly critical and constantly reevaluating a situation that is not fixed and permanent, but in perpetual flux? Above all, when the interests—indeed, the very lives—of groups other than the “tamperers” are involved, must there not be ethically guided control?

To pursue this line rigorously means to question the moral value, as well as the feasibility and utility, of every invention or innovation that promises to alter the

conditions of our existence and that of the other animals with whom we share the earth. Moreover, the questions and the decisions that follow them ought not to be left to scientists. In a democratic society, we should all claim the right to participate in decisions that affect all the inhabitants of the planet.

The question is thus not whether we are to refrain absolutely from transforming the world we live in. Rather, we, as thinking beings whose consciousness (or conscience) has come to require ethical decisions, must assume responsibility for oversight and regulation of the changes proposed by scientific activists.

This issue is related to what Jeremy Rifkin calls the “desacralization” of nature. In an argument he developed in his 1983 book *Algeny*, Rifkin describes the success of a mechanistic model of the universe, laying particular stress on the triumph of the Darwinian conception of evolution, which Rifkin sees as leading to the present-day mechanistic ideology of the genetic engineers—and, for that matter, of behaviorists like the late B.F. Skinner and the sociobiologists. For Rifkin, desacralization “allows human beings to repudiate the intimate relationship and likeness that exist between ourselves and all other things that live.”

Rifkin’s analysis of the profanization of nature and desacralization of animals is consonant with his critique of the reductionist definition of life as a code to be deciphered and of living entities as so many bundles of information. To be sure, that has become an important aspect of our contemporary conception of what a life-form is, what with the development of both DNA technology and computers, and also with what I might call the *desubjectification* of life in this century, in both the capitalist and the socialist countries. It should also be evident, however, that these perceptions amount to only a small segment of our experience of the total phenomenon of life.

What place does this reductionist vision offer to the ethical considerations which are not part of the genetically transmitted “code” of life, but which are inseparable from the human race’s history—not only the history that others have made in the past, but the history that we ourselves have the capacity to participate in making and which, when all is said and done we may well deem the most precious part of our identity?

There are other kinds of reductionism relatable to that of the mechanistic biological engineer, among them that view of economic and political behavior that minimizes moral factors so as to enable those who

control our society—like those who have come to dominate some areas of scientific activity—to subordinate ethical considerations to the quest for power and wealth. In what is now being called “corporate culture” (and, sad to say, university “culture” too), this can mean that the material success of the institution transcends the individuals who constitute it, although the individual is presumed to find personal fulfillment in helping the institution to realize its goals. It is that kind of thinking that has facilitated the corporatization of many of our universities—those (like the University of California, for example) that we call “public,” as well as those that call themselves “private” (like Stanford).

Our choice is, therefore, not simply between secularism and retaining a belief in the “sacredness” of life. Without having a set of beliefs consistent with those of the established supernatural religions, without divinizing “Mother Nature,” one may still reject or at least be skeptical of the impoverished mechanistic reductionist conception of life that we associate with both Descartes and Skinner.

Compare the present ideology of the scientific establishment (as represented by some of its avatars, like the American Medical Association, the American Association for the Advancement of Science, the National Academy of Sciences and the great established research universities), characterized by its reverence for material achievement, with Albert Schweitzer’s doctrine of reverence for life, mindful that he, too, was a scientist, a practicing physician, and not a comic-strip guru. Which do we want to impart to our students?

Do we want students at our universities to be coopted into a creed of greed, that subordinates humane values to financial gain (a concept that also expresses itself in oppressive labor policies and indifference to political and social justice)? Do we want them to internalize the values of academic administrators who have supported the selling of the universities to corporate interests and the racist apartheid regime in South Africa with their investment policies and continued war research and the production of nuclear weapons as part of the university’s mission?

Are these the attitudes, the goals, the values we prize? Let us not be naïve. Neither the universities’ institutional behavior nor their ideology is truly impartial or neutral. Our science is not value-free, and we should have the candor to recognize that. Our science, like our other institutions, is oriented toward

the maximization of profits and the minimization of human values and ethical concerns. (Indeed, we have seen something of a new discipline developing in some faculties: the study of ethics as a branch of learning dedicated to legitimizing in pseudo-ethical terms what humane ethics condemns as monstrous and inhumane.)

What then is our bottom-line choice? I suggest that it is, broadly speaking, between two ethics, two courses of action:

- A. The perpetuation of a mechanistic science dedicated to the survival of a profit- and power-oriented society. We might also recognize that the treatment of both human and nonhuman animals as objects under our control and made to serve our ends, instead of as conscious subjects—what Rifkin calls desecralization—reflects an ethic of domination, in which control of both animals and humans is associated with a general domination of nature. At least since the Renaissance, our civilization (“Western Civilization”) has seen nature as our adversary, to be fought, conquered, mastered, harnessed, “raped,” and, of course, exploited for economic advantage—an aggressive, invasive, selfish and totally anthropocentric and doubtless phallocentric view of the world.
- B. The inculcation of an ethic of compassion and empathetic understanding that respects the subjective experience of other sentient beings, both human and nonhuman, and an intellectual attitude that questions authority, distances itself from subservience to the corporate world and to those who seek to corrupt our institutions of higher learning by making them dependent on it for trickle-down handouts.

Is what I have said tantamount to intransigent opposition to any modification of the genetic structure of animals? Not quite. I can conceive of legitimate applications of genetic research, provided that they are not exploitive of human or animal subjects (*i.e.* acknowledging their *subjectivity*) or inconsistent with their welfare. That would, I fear, rule out almost everything presently going on in our laboratories, because the welfare of the nonhuman animals experimented on there is totally disregarded. Transgenic animals are being created primarily to benefit corporate

interests, researchers and the institutions they serve. Most are condemned to death and even the survivors are treated as objects without moral value.

One last word. If the subject is not to be exploited, even benevolent action intended to promote its welfare presents a moral issue. Can it be imposed without being invasive? The "informed consent" that only recently has been required for experimentation on human subjects is obviously out of the question for nonhuman animals. It is, therefore, imperative that their interests be represented, however imperfectly, by human advocates. I should like to believe that some of those advocates who will lend their voice to speak on behalf of the animals will be found among our students. Why should they not include students of biology—the science that studies and that should respect—if not revere—life?

Star-Nosed Mole

To live beneath the earth
Is to change. You must learn
To swim without water.
Your bones become coral.
Your hands grow wide as
Paddles, and your nails
Sharpen into the cutlery
That can dig you through.
Nothing can wave you back.
You are the maker of bridges.
You bridge the sky and the earth.
You let the air to tunnel down,
The noon sun to spill into
The darkness that blinds you.
All day beneath the roots,
You must dance, beneath
The burrowing beetle
Where the fallen bird has gone to fly,
You, its only star.

Kathryn Winograd

Concerned about:

**Furs?
Zoos?
Factory
Farming?
Vivisection?
Hunting &
Trapping?
Wildlife Conservation?**

WE ARE TOO....

Did you know that philosophers have also made a contribution to the growth of the animal liberation movement? — Think of Regan, Singer, Clark, Magel, Rollin and Sapontzis.

Between the Species "is the only publication which allows such extensive examination of the philosophical basis for animal rights." — Brad Miller, Humane Farming Association

Subscribe today — and please send your tax deductible contribution — help us guarantee philosophers a forum in which to continue to evolve a sound basis for animal rights.

\$16.00 from
San Francisco Bay Institute
P.O. Box 254
Berkeley, CA 94701
Sample back issue \$3.00

Quarterly Journal
of Ethics

**PHILOSOPHICAL
ACTIVISM
NEEDS YOUR SUPPORT!**