

## Animals and Technoscience

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The current issue of our journal features a special section on technoscientific developments and animals, an extremely sensitive and highly politicized issue. There is widespread unease and even outrage, at least in many Western societies, over the use and treatment of animals in various sectors, particularly in food production, in technoscience, and in entertainment. The spectrum of opponents to certain uses and treatments of animals extends from those who wish to see better protection of animals to proponents of far-reaching animal rights. On a political level, recent decades have for example seen animal protection included in the German constitution [1] and the use of great apes in animal testing banned in several countries. Such activities are often based on animals being perceived as fellow beings and categorically different from objects. If we look at German history in particular, however, we are reminded that such appreciation of animals often goes hand in hand with a depreciation of some of our fellow human beings, or at least—and not only in Germany—with animals being seen as innocent creatures requiring protection against the maliciousness of humankind.

The relationships between technoscience and animal rights proponents are fraught with problems. Some radical animal rights activists engage in illegal “direct action” to combat the use of animals in technoscience; small parts of the animal rights movement even resort to

means dangerous to human life, prompting charges of terrorism, followed by counter-accusations of disproportionate sentencing for property damage. On the other hand, and this is something I have witnessed on a number of occasions during my working life, researchers often tend to harden their hearts against the widespread concerns prevalent in many Western societies, perhaps psychologically rationalizing their own discomfort with some of the practices in the labs. Pointing out that there are relatively strict regulations in place concerning ethical aspects of the use of animals in technoscience—as compared to their treatment in other sectors (such as food production)—some scientists seem to shy away from engaging in discourse on our relationships with our closest natural relatives.

Against this backdrop, the journal *NanoEthics*—for quite some time now a forum for animal ethics, and more broadly for animal studies [2–8]—has opened its pages to contributions from members of the critical animal studies (CAS) community. CAS features all the usual characteristics of an academic field that is closely related to activism, including strengths as well as weaknesses. I believe it is important that both natural scientists and scholars studying new and emerging science and technology should engage with the views of CAS scholars. Some or even all of the contributions to this special section on technoscientific developments and animals may be deemed provocative by certain readers of *NanoEthics*. I would specifically like to invite these readers in particular to respond to the views expressed in this special section, or to present their own views on the topic.

Why is it important to engage with this topic? The use of animals in technoscience has of course many

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ethically relevant aspects. We should continue to discuss these aspects, particularly in light of scientific and technological developments which have the potential to change the “rules of the game,” for example concerning animal testing and the notion of personhood. This applies for instance to cost-benefit considerations regarding animal testing against the backdrop of new methods of testing as well as to discussions about the notion of personhood which, however, quite often display alarming tendencies to devalue certain forms of human life by comparing them with animal life.

There are further aspects which deserve our attention, however. One of the most widely cherished developments in modern times is the inclusion of ever more groups of human beings in a community of persons with equal rights (e.g., the proscription of slavery), and one might argue that this inclusion should be expanded to animals. John Weckert, the founding editor of this journal, has argued in a similar context that we “must be wary of placing too much weight on our intuitions” ([9], p. 40). Still, we might feel uncomfortable if groups of non-human beings were to be included in such a narrative of cultural progress. On the other hand, there are intuitions and deep-seated feelings with regard to animals that are equally questionable. In the early 1870s, the proto-transhumanist Winwood Reade addressed the “blessed ones who shall inherit that future age of which we can only dream,” the “pure and radiant beings who shall succeed us on the earth”:

[W]hen you turn back your eyes on us poor savages, grubbing in the ground for our daily bread, eating flesh and blood, dwelling in vile bodies which degrade us every day to a level with the beasts, tortured by pains, and by animal propensities, [...] when you think of what we are, and compare us with yourselves, remember that it is to us you owe the foundation of your happiness and grandeur, to us who now in our libraries and laboratories and star-towers and dissecting-rooms and workshops are preparing the materials of the human growth ([10], pp. 538–539).

This strange Victorian voice combined contempt for our animality with an extreme glorification of the human mind. Reade expressed the expectation that human corporeality would be improved or even superseded by a new form of artificial corporeality produced by technoscientific means. Subsequently, scientists such as J. B. S. (John Burdon Sanderson)

Haldane and J. D. (John Desmond) Bernal further developed this transhumanist vision of the future [cf. 11]. According to Bernal, “mechanical man”—the product of merging humanity, or rather human brains, with technology—would usher in a new epoch in human history, in which the human mind would be emancipated from its natural organic basis. Mechanical man, in Bernal’s view, only appears to break with organic evolution and is actually “the logical outcome of the type of humanity that exists at present” ([12], p. 42)—while “normal man” is an evolutionary dead end.

Transhumanism, whose core ideas were developed by Bernal and his contemporaries and immediate fore-runners, devalues the “flesh”, i.e., human corporeality, which it characterizes as deficient. This denigration of the human body, at least in the case of the transhumanist pioneers, might well go hand in hand with contempt for its animality. On the other hand, we might intuit that our societies could only become fully humane—or transhuman, if you like—if we were to refrain from treating our fellow animals as food or as objects to use in experiments. Nonetheless, we might feel uncomfortable with defining animal liberation as the logical extension of the liberation or emancipation movements of women, slaves, or Jews. I believe we have these feelings because such inclusion of animals in a narrative of cultural progress could create a slippery slope in the sense that the most vulnerable members of humankind would then be treated “like animals.” Theodor W. Adorno and Max Horkheimer wrote:

Throughout European history the idea of the human being has been expressed in contradistinction to the animal. The latter's lack of reason is the proof of human dignity. (...) ][F]ew other ideas are so fundamental to Western anthropology. (...) The behaviorists only appear to have forgotten it. That they apply to human beings the same formulae and results which they wring without restraint from defenseless animals in their abominable physiological laboratories, proclaims the difference in an especially subtle way. The conclusion they draw from the mutilated animal bodies applies, not to animals in freedom, but to human beings today. By mistreating animals they announce that they, and only they in the whole of creation, function voluntarily in the same mechanical, blind, automatic way as the twitching movements of the bound victims made use of by the

expert. The professor at the dissection table defines such movements scientifically as reflexes; the soothsayer at the altar would have proclaimed them a sign from his gods. Humans possess reason, which pitilessly follows its path; the animals from which they draw their bloody conclusions have only unreasoning terror (...). In this world (...) in which human beings (...) have become once more the cleverest animals, which subjugate the rest of the universe when they happen not to be tearing themselves apart, to show concern for animals is considered no longer merely sentimental but a betrayal of progress. In the best reactionary tradition Göring linked animal protection to racial hatred, the Lutheran-Germanic joys of the happy murderer with the genteel fair play of the aristocratic hunter. The fronts are clearly drawn; anyone who opposes Hearst and Göring is on the side of Pavlov and vivisection; anyone who hesitates between the two is fair game for both ([13, pp 203–204, 211).

It may very well be the case that we will have fewer scruples about doing to our fellow human beings that which we also do to animals. Against the background of the widespread contempt for the animality of the human body, our denigration of animals might be interpreted as a form of self-denigration or, more precisely, as hatred of our own corporeality.

In order to free ourselves from the web of conflicting intuitions—and to become enlightened with regard to them—we would be well-advised to reflect more thoroughly on the triangle of humans, animals, and technology [for the following, cf. 14].

Comparisons with animals can be deemed a feature of human identity-construction since time immemorial, as shamanistic practices, prehistorical art, and the food taboos in many religions testify. In modern times, the machine or, more broadly, technology becomes increasingly relevant to human identity-construction. The modern perceptions of humans as inspirited machines and of animals as inanimate ones depend on each other. The novel form of devaluing animals in comparison with humankind is based on identifying animals with machines. At the same time, what it means to be human is defined as being distinct not only from animals but also from machines. Perhaps tellingly, menageries became popular in the same epoch in which fascination with anthropomorphic and zoomorphic automata and pseudo automata peaked. The fact that some of the greatest

attractions of these times—such as the pseudo automaton chess player known as the “Mechanical Turk” (first exhibited in the early 1770s)—pretended to simulate human-like intelligence may be deemed an early forerunner of the visions of “strong” artificial intelligence of our own times.

By including humanity in a long lineage of animal species, the evolutionary biologists once again changed the role of animals in human identity-construction. In the final paragraph of *The Descent of Man* (1871), Charles Darwin wrote that “Man (...), with all his noble qualities, with sympathy which feels for the most debased, with benevolence which extends not only to other men but to the humblest living creature, with his god-like intellect which has penetrated into the movements and constitution of the solar system – with all these exalted powers – (...) still bears in his bodily frame the indelible stamp of his lowly origin.” Although Darwin’s theory, as Harriet Ritvo argued, “eliminated both the divine sanction for human domination and the separation between man and beast, it did not diminish human superiority. On the contrary, it described the very process by which that superiority had been established. (...) Ironically, by becoming animals, humans appropriated some attributes formerly reserved for the deity” [15, p. 40]. Human ascendancy was justified and in many cases even celebrated. In this context, Reade and his successors developed their early visions of human enhancement.

Today, modern technoscience is working both to zoomorphise and anthropomorphise the machine, in many cases still neatly separating the mind from the body in a (vulgar) Cartesian manner [for the following, cf. 14]. The “Mechanical Turk” has been replaced by “Deep Blue.” In the transhumanist visions of the future, uploading the human mind to a machine makes it virtually indestructible and allows it, like purely artificial intelligence—its partner or new master—to choose freely among all kinds of bodies, including bodies created by synthetic biology. While dreams of “strong” artificial intelligence and eventual emancipation of the adored human mind from its animal body are on the rise again, the pertinent virtual menageries and real-life trade fairs abound with zoomorphic machines. In other areas of robotics, we are witnessing a revival of the fashion for anthropomorphic automata, and zoomorphic as well as anthropomorphic machines are expected to become human companions, serving even our

emotional needs. Furthermore, new animal-machine hybrids—or animal cyborgs, if you like—have entered the scene. Experiments in the remote control of animals use not only insects and birds, but also rats, which may give rise to ethical concerns, also with regard to the prospect of remote-controlled humans. In other experiments, insects are used as sensors in a robot's control system. Yet other experiments involve connecting neurons from rodent cortex—grown in vitro on multi-electrode arrays—to robotic bodies; the resulting products are called “semi-living animals” by their developers.

As well as analyzing new and emerging applications of such animal-machine interfaces and mergers between animality and technology, we may consider it worth discussing whether these technoscientific developments—particularly those which make use of mammals—are also driven to some extent by a desire to merge with technology, and by related fears. Perhaps it is our “Promethean shame” (Günther Anders)—the shame of having been born rather than manufactured and of appearing deficient as compared with our machines—that prompts us to use animals to test whether it may be possible not only to view organic corporeality as machinery but also to fuse the two, eventually turning the one into the other. These experiments may simply be our attempt to use technological means to satisfy our displaced desires to overcome the mind-body dualism and to demonstrate that our breakaway from the animal kingdom was genuine and that all beasts are, in fact, “delivered into our hands.” Reflecting on animals in technoscience is neither relevant solely with regard to animal ethics in a narrow sense, nor is it irrelevant to philosophical discourse on new and emerging science and technology. After all, one of the most important insights (or rediscoveries) of modern science is that we are members of the animal kingdom ourselves.

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