AMERICAN PHILOSOPHY OF TECHNOLOGY: THE EMPIRICAL TURN

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4. Donna Haraway: Cyborgs for Earthly Survival?

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In 1985, Donna Jeanne Haraway, a professor of women's studies at the University of California at Santa Cruz, published an article entitled "Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s." Though a difficult and complex text, it brought Haraway instant renown, and ever since its publication her name has cropped up with greater and greater frequency in discussions about the role of science and technology in contemporary culture, especially among feminist circles.

In her article, Haraway invited her readers to consider reality through the eyes of a cyborg. A cyborg is a bionic being, partly human and partly robot—a being in which the border between nature and (technological) culture is blurred in a body that mingles flesh and titanium. Cyborgs figure in many popular science fiction novels and films, such as those in the RoboCop, Terminator, and Star Trek series. Cyborgs are constructions lacking a fixed, pre-existing, natural identity; they are made, not born. Cyborgs are partly fictitious—but they also partly reflect the predicament of contemporary human beings, whose existence is inextricably bound up in a technological framework, whose lifeworld has become dominated by technology, and whose body is a field of possible and real technological suggestions and interventions.

Haraway uses a wealth of empirical data in her texts; nevertheless, her philosophy of technology is chiefly speculative in nature. She uses the image of a cyborg as a speculum; as an instrument with which she can bring to light the hidden mechanisms and possibilities of our social and political reality that are dominated by technoscience. Cyborgs, Haraway contends, offer us a glimpse
into things that can disrupt our current essentialist modes of thinking. In these essentialist modes of thinking, our ethics, politics, and conceptions of social reality and historical progress are founded in an anthropology in which the essence or nature of human beings is fixed. In these ways of thinking, our ethics, political order, and so forth should ideally correspond to this unique and original human nature. But such conceptions are out of the question for cyborgs. They have neither an original, pre-existing nature nor a stable identity; they are endlessly transformable constructions. The identity of a cyborg is not a primeval essence, but rather a temporary halt in an ongoing series of constructions. This, Haraway finds, is precisely what makes the cyborg perspective so suited for shedding light on identity as a construction.

Identity-as-construction works on a large scale when one speaks about the "human condition" and assumes this to take the form of a white Western male, thereby defining what it means to be a human being and implicitly excluding non-white, non-Western, non-male human beings from participating in humanity. But identity-as-construction also works on a small scale. The personal identity of each individual human being is not some "originary self" from which springs one's thinking and behavior, and from which one can be alienated—an alienation that is necessarily supposed to be inauthentic. Rather, identity is a temporary halt in an ongoing life history, which a person continually reconstructs in his or her biography—meaning all the stories that one tells about and to oneself. Identity and biography, evidently, belong to each other.

IDENTITY AND BIOGRAPHY

In a short, autobiographical essay, Haraway wrote:

I find myself compelled by the way we repeatedly rehistorize ourselves by telling a story; we relocate ourselves in the present historical moment by reconfiguring our identities relationally, understanding that identity is always a relational category and that there is no such thing as a subject who pre-exists the encounters that construct that subject... Identity is an effect of those encounters. (Bhavnani 1994, 21)

This is a particularly revealing passage. Not only does it sketch out the background and motivation for her approach to cyborgs; it also shows her applying that approach to her own identity. Haraway, it seems, is a cyborg herself—in fact, we all are, she would claim. We can gain an idea of what she means from her own biography.

Donna Jeanne Haraway grew up in Denver, Colorado, in an Irish Catholic environment. She earned a degree from Yale University, and in 1970 began full-time teaching in the General Science Department of the University of Hawaii in Honolulu, where she initially devoted herself to biology. But in Hawaii she grew acquainted with a completely different world, which gradually made her aware of the political, racial, historical, and geographical situatedness not only of herself as an individual, but also of the biological science that she was teaching. In Hawaii's polyethnic society composed of Japanese-Americans, Hawaiians, Chinese-Americans, and Samoans, in which Americans of European ancestry were a minority, she first became conscious of racial, colonial, and post-colonial social relations. This realization was underscored by Hawaii's role, in the early 1970s at the end of the Vietnam War, as the center of the Pacific Strategic Command.

From her middle-class Denver background, in short, Hawaii came as a culture shock. Initially, however, this new perspective barely registered in her intellectual development. In 1971 she and a female colleague began giving courses on the biology and psychology of sexual differences, but, as she would later say, in an unmarked fashion. That is, she and her colleague weren't aware of the problematic of the racial differences between women, and taught women's studies from the unproblematic perspective of a white Western female. At the same time she began a professional evolution from biologist to historian of biology. This was another crucial point of departure. For historical research, especially when guided by a feminist political sensitivity, can bring to light the role of very significant human choices in the development of science, choices that, once enounced as dogmas in the orthodox practice of science, rarely came up again for discussion.

Haraway's stay in Honolulu came to an abrupt end in 1974, when her husband, who was gay, lost a tenure case in which, she says, homophobia played a role. Haraway and her husband had already decided to terminate their marriage, which proved to be not a good forum for their intense friendship and sexual relationship. After this traumatic experience with homophobia, they left Hawaii, separated, and each found a job elsewhere. Haraway obtained a position in the History of Science Department at Johns Hopkins University in Baltimore. In contrast with the University of Hawaii, Johns Hopkins was a powerful and wealthy university, one that carried out important work in defense and nuclear research. Its medical faculty was outstanding, and its political science department played an influential role in the development of U.S. foreign policy. At Johns Hopkins, she was fully and freely encouraged to develop her interests in the history of science. At the same time, she was very conscious of the economic and social circumstances that had made this development possible: "Again the kind of money that was available in the United States, through the 1960s and 1970s just can't be underestimated in making people like me into intellectuals" (Bhavnani 1994, 21–22). For Haraway, the pretense of innocence was gone forever.

In this period she also became a member of the Women's Union, a biracial
(African-American and European-white) socialist-feminist organization. Thanks to it, the most important components of her later thinking began to come together: history of science, Marxist philosophy of history, feminism, and the struggle against racism. "[I]t was a period when, as a historian of biology, a historian of science, I became much more aware of the history of Marxist discourse in the history of science, the development of feminism in science-related issues, the importance of the struggle against racism embedded in the history of science, the very important radical science history against the electronic battlefield, chemical and biological warfare, biological racism and sexism—those kinds of issues became the core of my intellectual work, my writing" (Bhavnani 1994, 22).

This new departure did not show up immediately in her writing. In 1976 she published Crystals, Fabrics, and Fields, in which there is scant trace of her new feminist political involvements. It is a solid but unsurprising analysis of twentieth-century biology, analyzing the work of three key figures: Ross G. Harrison, Joseph Needham, and Paul Weiss. In the book, Haraway sought to discover whether in twentieth-century biology the older mechanistic and vitalistic models had been replaced by organismic metaphors and models, and whether this change could be thought of as a paradigm shift in the sense articulated by Thomas Kuhn (Kuhn 1970). This book contained no indications of the political agenda that Haraway by then had set for herself. Marxism entered the book only in passing, in connection with Needham's Christian socialism, which adopted dialectical materialism as an alternative to earlier, more static ways of thinking, both mechanistic and vitalistic.

However, the book does provide a glimpse into the ways in which Haraway practiced history of science. Using historical analyses, she shows how the concepts, methods, and models that compose the orthodoxy of an established "normal" science—in this case, biology—are the contingent outcome of a historical process that constitutes the character and identity of that science. Internal scientific motives and arguments play a role in this process of construction—but also political interests and religious opinions, as well as unarticulated conceptions about the relations between races, classes, the sexes, nationalities, nature and culture, and so forth. In the book Haraway also points to the significance of metaphors in this constructive process. The identity of a science is the temporary outcome of a network of stories that it tells about itself and about its objects. In this sense the identity of a science resembles that of a person.

In 1978–79 Haraway published the first articles in which she is clearly politically engaged: "Animal Sociology and a Natural Economy of the Body Politic, Part I, a Political Physiology of Dominance" (1978a), "Animal Sociology and a Natural Economy of the Body Politic, Part II, the Past Is the Contested Zone: Human Nature and Theories of Production and Reproduction in Primate Behavior Studies" (1978b), and "The Biological Enterprise: Sex, Mind, and Profit from Human Engineering to Sociobiology" (1979). These articles subsequently formed the basis of the first part of her book Simians, Cyborgs, and Women (1991). Here her history of science is clearly politically inspired from the outset, and directed toward a particular field of research: the history of primatology, and specifically the ethology of humanoid apes.

"It was in that period that I started working on Primate Visions," Haraway once remarked (Haraway 1989).

I began to think of primates as "figures," as these germinal entities into which many people's imaginations are condensed. I saw primates as these creatures on the boundary between what counted as nature and culture, onto which a great deal of racial discourse was projected in the United States in the 1960s and after. I began to see how primates were part of popular cultures, movies, technical field studies, part of social psychology, part of evolutionary biology, and part of zoo management. These creatures existed at the boundaries of many constituencies that figured and carried the meanings of many kinds of stories in their bodies. The western animal/human boundary was, from the start, a heavily racialized story. Think of the entry of the white women to Africa, women such as Jane Goodall or Dian Fossey, who became the surrogate for man, and who went to make contact with the animals, across the chasm between nature and culture. They were figured as "alone" in nature. And this was happening in the early 1960s, when the very areas of the world in which these animals lived were gaining national independence as the culmination of decolonizing struggles. So fifteen African nations achieved national independence and UN membership the year Jane Goodall goes to nature to be alone with the chimpanzee? "...She goes at just the moment of repossession of territory on the part of African nationalists, who, of course, developed very different stories about the plants and the animals inside their own national boundaries and very different stories about the peoples and about ethnicities." (Bhavnani 1994, 22–23)

Haraway shows how the relation between nature and culture is defined and constructed in scientific studies of humanoid apes—whose existence straddles the boundary between human beings and other animals—and how concepts of race, class, and sex play important roles. This occurs, for instance, when field research is depicted as an idyllic meeting of white male humans with nature, transpiring in an empty landscape where the native inhabitants appear as stage props; or when Western museums display animals in "authentic" scenes in dioramas; or in attempts such as that of Professor Calmette of the Pasteur Institute, who in 1924 tried to civilize chimpanzees through an educational program in which native women were assigned the roles of waitresses and nannies.
In each case the primates functioned as "figures"; as blanks onto or around which were projected various meanings—of human beings, of animals, of women, of "man," of black, and of white.

In 1980, Haraway left Johns Hopkins and took up a position as a feminist theorist on the History of Consciousness Board at the University of California at Santa Cruz. The university's History of Consciousness program is interdisciplinary and even, Haraway says, "antidisciplinary"; that is, it disrupts well-defined demarcations between different scientific and philosophical disciplines and literary genres by making them interfere, thereby contaminating them with each other's language games, and creating an unfamiliar but revealing discourse: a heteroglossia. Haraway had already done this, for instance, in her research on primatology, which combined scientific data, museum representations, and also images drawn from popular cinematography. In Santa Cruz she continued her research on primates, but simultaneously began to develop a second figure: the cyborg. The two figures are related, for both are border-crossing figures. But while the primate is situated at the border between humans and animals, the cyborg is situated at the border between humans and technology. From 1985 up until the present the cyborg has been a dominant figure in Haraway's writing.

As should be clear even from this short biographical sketch, Haraway considers her political identity, and her oppositional thinking and activity, to have arisen from a number of very concrete, diverse, and situated encounters and adventures. The cyborg is, as it were, the central figure/representation in her thinking and activity, but it also embodies the situatedness of every identity. The rest of this chapter will therefore be devoted to the figure of the cyborg in her writings, and its role in her reflections on the meaning of technology.

THE CYBORG: CORE CONCEPT OF A POSTMODERN ANTHROPOLOGY

The seminal article, "Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s," which appeared in 1985, has a short pre-history. It grew out of earlier studies she had done for her contributions to a conference in April 1983 at Barnard College: "New Machines, New Bodies, New Communities: Political Dilemmas of a Cyborg Feminist," and "The Scholar and the Feminist X: The Question of Technology." That October she finished an article that would become an early version of the cyborg manifesto, which appeared in 1984 in Germany in Neunzehnhundertvierundachtzig (Haraway 1984).3 But there are striking differences between this early version and the later cyborg manifesto. While the early version is addressed almost exclusively to genetic engineering, and the concept of the cyborg is introduced al-

most at the very end, in the final version in Socialist Review the concept plays a much greater role, together with other technologies, especially information technology. This final version of 1985 also appeared, under a slightly different title, in Simians, Cyborgs, and Women, followed by other articles that take up the theme of cyborgs.

But what precisely is a cyborg, and what does Haraway think she is bringing to light with this concept? A straightforward answer to this question is impossible because cyborgs themselves lack a single distinct meaning or identity, and according to Haraway are not meant to have any. Cyborgs, she insists, have a "broken identity." This idea can be clarified by discussing three different facets of the cyborg concept.

1. Origin and Extension of the Cyborg Concept

The term cyborg was coined, not by Donna Haraway, but rather by Manfred Clynes, a space travel researcher, and Nathan Kline, a psychiatrist, in 1960 (Clynes 1960; Haraway 1996, 51-52). Clynes and Kline proposed that the physiological aspects of space travel would require the development of "self-regulating man-machine systems," and named such systems "cyborgs," a bastardization of "cybernetics" and "organism." They actually developed an example of such a system by implanting into a laboratory rat an osmotic pump that continually injected chemicals into the animal's bloodstream—thus, a living creature whose digestive system included a technological accessory. In this meaning of the term, human beings have already become cyborgs with the advent of such things as implanted insulin pumps and pacemakers, artificial heart valves, hip joints and eye lenses, and so forth, not to mention the temporary taking over of an organ's functioning by a dialysis or heart-lung machine. Technology is already grafted on to us humans; it is already embodied in the literal sense of being under our skin.

But the term cyborg can mean more than these routine facts, for it is also a figure in technological expectations. Consider the article "Will Robots Inherit the Earth?" by Marvin Minsky, a professor of artificial intelligence at MIT. The answer is already contained in its subtitle: "Yes, as we engineer replacement bodies and brains using nanotechnology. We will then live longer, possess greater wisdom and enjoy capabilities as yet unimagined" (Minsky 1994). Minsky goes on to paint a compelling picture of a technological future in which science and technology overcome the limitations of our naturally endowed body through gene replacement, organ replacement, and the extension of human brain power with the help of information processing accessories, connected via electrodes with the corpus callosum, the largest database in the brain. In this technological future, natural selection will be superseded by a con-
Haraway proposes that we should imagine cyborgs similarly, as beings that blur boundaries, bastardizations of humans and technology. This was already the view of Clynne, Kline, and Minsky. But Haraway has much more to say. The discussions of Clynne, Kline, and Minsky reveal the cyborg as blurring the boundary between fact and fiction. This much is not new: cyborgs figure as easily in the most trashy SF-comics as in the most cutting-edge scientific research, where they are not only talked about but realized. But for Haraway there are three further fundamental boundary breakdowns to be identified, which find their origin in science and technology and which lie at the foundation of the ontology of cyborgs. The first is the erosion of the difference between human and animal brought about by modern biology. The second is the undermining of the difference between the animal-human organism and the machine. Pre-cybernetic machines did not yet exemplify the principle of self-movement or self-regulation, but contemporary machines are autonomous in a way that makes us no longer sure of the difference. The third boundary breakdown is that between physical and nonphysical. By this Haraway means not so much the bridging of the gap between mind and matter but rather the fact that contemporary technology, although obviously a material reality in a strict sense, by miniaturization and informatization tends to make itself more and more invisible and intangible ("inmaterial"), thereby gaining a power that becomes increasingly uncontrollable.

Science and technology lie at the basis of this boundary blurring, and this is as true from the point of view of theory—we no longer know where to draw the exact boundary between human and animal, nature and artifact, material and immaterial reality—as from the point of view of practice—we are now in the position of being able to realize endless fusions or bastardizations between such heterogenous components. One result, for instance, is the OncoMouse™ (Haraway 1996, 78–80): a strain of mice, for which the firm DuPont de Nemours requested and received a patent, whose genetic material, invisibly, includes information from a human breast-cancer gene. A living being as an invention; an animal that carries a human carcinogen! The OncoMouse™ is a contemporary chimera, one that can be purchased for a mere hundred dollars each.

Like mythical chimeras, cyborgs have something monstrous about them. They embody something un- or anti-natural. They evoke revulsion in us because they muddle or defile the natural order of things. That is, they evoke revulsion from those for whom something like a natural order is still a fundamental value. But they are also monstrous in the sense that they de-monstrate something. As human constructions, they reflect the self-image and situation of contemporary human beings, whose lifeworld is shaped by the integrated circuit of science and technology. In this self-image, a human being no longer understands him or herself as a particular instance of a unique and origi-
3. Obey! Concpire and Guanidines

The Cyprian is never a simple being, but a personified product of the Western project of domination over nature. But as produced and conditioned, the Cyprian is a human, a woman whose nature is culture—constructed and constantly situated in the social and historical environment.

The Cyprian is always a paradox, a person who cannot be fully understood within the confines of a single identity. Through this paradox, the Cyprian emerges as a complex figure, a being that is never fully formed or complete. This paradox is what makes the Cyprian a figure of great importance in the study of gender and identity.

The Cyprian is always a person who is constantly in the process of becoming. This process of becoming is never complete, and it is this process that allows the Cyprian to exist as a figure of great importance in the study of gender and identity.
its own cleanly marked-off domain with its own bundle of rules or form of rationality.

Rather, cyborgs play the game of intertwining language games. From the standpoint of the pure and proper use of language, the language of cyborgs is corrupting, a heteroglossia. That means they have a talent for constructing “illegitimate” relations between language games with a possible result being the creation of powerful and incisive stories that are not as simple or easy to identify as those of science or fiction, social analysis or historical description, biography or poetry. Haraway’s manifesto is itself this kind of story, which transgresses the borders between myth, science, technology, body, and language.

CYBORGS FOR EARTHY SURVIVAL: CYBORGS AND POLITICS

The cyborg as the avatar of boundary blurring—part fiction and part fact, part nature and part culture—forms the central figure in Haraway’s representation of the postmodern human condition, as dominated by the integrated circuit of technoscience. Such a monstrous portrait of the human condition might tempt us to think that Haraway is merely adding another voice to the rising clamor of technophobic prophets of doom, who fear any display of technology and who are ultimately motivated by a nostalgic longing for a return to nature. Another temptation might be to go the opposite way, and rank her among those postmodernists for whom the lack of a “nature,” of “true reality,” or of a “universal language” leads to open flirtation with the aesthetics of meaninglessness.

Neither would do justice to what Haraway is up to. She sees the former temptation, technophobia, as implicitly guided by naturalistic essentialism, a position that she unambiguously attacks. And she sees the latter temptation as paralyzing political activity by undermining it from the start with cynicism. In an article for Configurations, she describes her project of deconstructing original nature with the aid of the cyborg figure as follows: “Queering what counts as nature is my categorical imperative. Queering specific normalized categories is not for the easy frisson of transgression, but for the hope for livable worlds” (Haraway 1994, 60). And the heading of a subsection in Simians, Cyborgs, and Women is entitled “Cyborgs for Earthly Survival.” Apparently, not all utopias are antithetical to Haraway’s thinking; only those that offer hope of a return to an innocent past can count on her unsparing critique.

Indeed, Haraway’s politics are present in every single page of her post-1978 writings: the analysis of power workings and power relations that lead to the cyborg, and of the new kind of power workings in a cyborg world—and all this from a socialist, feminist, and anti-racist perspective. In this sense she has always remained faithful to the political program that took shape for her in the mid-1970s.

How, then, does the cyborg figure in Haraway’s political analysis? Here, too, figure a number of related points, but first a preliminary remark: Haraway’s cyborg thesis is not meant as a philosophical, historical, sociological, or political position, which one can accept or reject, take a stand against, or use to initiate a debate. Rather, her cyborg thesis is a description of an anthropological condition in which political issues are at stake. A cyborg, for her, is not a political theme or slogan, but rather a signpost that points to novel ways of political conduct.

1. The Failure of Naturalism

It should already be clear that the cyborg—the denaturalized being par excellence—is meant to drive a stake through the heart of naturalism. But to grasp the relevance of this attempt we first need to take into account the role of naturalism in the consciousness of its victims. Naturalism, as Haraway conceives it, represents as necessary what is really contingent; it defines as original what is actually the product of a historical play of forces. But for Haraway, definition itself is a form of the exercise of power. Haraway finds this at work, for instance, in the Western image of man, which naturalism takes to be universally valid and applicable to each individual person, the basis of the “essential” unity of all human beings. But the Western image of man is, according to Haraway, a historical construction, the product of a play of forces in which this particular image arose and gradually became adopted as normative for “human being.”

This Western image of man/human beings is not, however, an explicit, philosophically rigorous determination of human nature, but rather a figure in the sense in which the primate and the cyborg are figures—something that is implicitly present in the orchestration of narratives, practices, and theories about reality, that becomes visible only when one explores what is not in the narrative, which motives behind the practices are not made explicit, which perspectives in the theories are not brought up for discussion, and what things in it are not taken into consideration. In short, the unity of this image of man is the product of many processes of control and exclusion. But this image of man is not only the product of control. It bears control in itself as an essential feature, one that is reproduced and intensified by science and technology—man as a Cartesian “lord and master of nature”—that realizes itself as such through science and technology. The unity of this image of man, considered by naturalism to be the ontological basis of the alleged universal “we” of all human be-
ings, is produced by excluding "outsiders" as an indefinite group of "others." Haraway leaves no doubt about her political agenda when she identifies the exclusions brought about by transnational capitalism, colonialism, racism, and sexism.

Does this mean that Haraway is setting herself up as the advocate, representative, and activist for all these groups of outsiders, in whose name she is writing? The answer is a resounding no. For a "natural" common group feeling or language, on the basis of which she could pose herself as representing a group, is exactly what these outsiders lack. And it is precisely at this point that the political relevance of Haraway's cyborg thesis emerges. Central to it is what one could call the irony of history.

2. The Irony of History

The awareness that science and technology are characterized by domination and control, and that the culture in which they have emerged and flourished has a patriarchal character, is hardly Haraway's own discovery.

However, she points out that the feminist opposition against it initially took the form mainly of the search for the essence of being female as the ground of women's own common identity, on the basis of which they could operate in a politically effective manner. But this attempt necessarily failed. "There is nothing about being 'female' that naturally binds women" (Haraway 1991, 155). Feminists soon discovered that each attempt to anoint an original essence reproduced the same mechanisms of exclusion and control as belonged to what they were repudiating: it usually took the form of the white, Western, intellectual middle-class woman who presumed to be able to speak in the name of her black "sister," suggesting an affinity where there was none. The outcome was a painful fragmentation among feminists along practically every conceivable fault line of ethnicity, class, nationality, and so forth. This brought Haraway to the realization that "identity" is in fact a sort of conglomerate resulting from a fusion of identities. "For me—and for many who share a similar historical location in white, professional middle-class, female, radical, North American, mid-adult bodies—the sources of a crisis in political identity are legion" (155). But none of this undermines the fact that the urgency of a mutual affinity is recognized all the more, although this affinity does not rest on a naturalist foundation.

So far, in this reflection on outsiders, we have been concerned only with Haraway's point that they have been brushed aside and excluded in the creation and perpetuation of the Western image of man. The irony of history is that outsiders have not only been created as the "other" of man/human being, but that—and at the same time!—an outsider figure has been created by the scientific and technological avant-garde as its realization, as its telos: the cyborg. To put this another way, Haraway refers to an "essential relationship" or "kinship" between, on the one hand, those existing beings who have been excluded by the realization of contemporary science and technology (the non-male, non-white, etc.) and, on the other, a new kind of being that has been brought into existence in this very realization (the cyborg). The concept "essential relationship" is inappropriate, of course; the essential relationship consists precisely in the fact that these beings cannot have an essential relationship in the naturalistic sense. Still, Haraway is proposing something akin when she suggests that "women of color"—the figure indicating the broken identity of the outsider—can be conceived as a cyborg identity, a powerful subjectivity composed of fused outsider identities (Haraway 1991, 174).

Nevertheless, Haraway's meaning is clear: the death of naturalism, which is represented by and embodied in the chimerical character of the cyborg, rings in an entirely new situation: that of the integrated circuit of high-technological culture. This new situation is characterized by a different logic of domination than the naturalistic one of control-by-normalization, so that the situation of the "outsiders" radically changes because the absence of an original model to identify with is no longer a sign of political impotence but instead an essential feature of culture itself. Haraway sets herself the task of exploring the possibilities of this new situation.

3. Cyborg Politics

It would be a complete misunderstanding of Haraway to say that she is led to these views by a naive faith in cyborgs and the "New World Order," as if the latest gadgets popping out of high-tech laboratories constituted "sister outsiders" riding to the rescue, or represented a new type of revolutionary class. Haraway harbors few illusions here. Ultimately, she says, cyborgs are illegitimate offsprings of militarism and patriarchal capitalism; modern warfare is a veritable "cyborg orgy" (Haraway 1991, 150), which should be sufficient to identify where they come from. But, she adds (with a sideways glance at Mary Shelley's Frankenstein), "illegitimate offspring are often exceedingly unfaithful to their origins" (151). In place of lost innocence, she claims, new possibilities loom for denatured beings—and she stresses the importance of investigating these possibilities, both for their livability and for their horror.

These new possibilities are couched in cyborg ontology, which Haraway specifies further as the "art of surviving in diaspora," or again as "play," a deadly serious play of life and death that deserves to be conducted with the proper
sense of responsibility. At this point Haraway's approach is a very prudent one, as can be observed repeatedly, beginning with the way she characterizes her own relation to constructivism. Her constructivist bent should be clear from the foregoing: outsiders are the constructed "others" of man/human being, and cyborgs are constructed and constructible beings. Ultimately she will recommend that women play along with the pleasurable game of boundary blurring and the construction of hybrid identities. But this constructivism is qualified. In writing about the social construction of science—an approach with which she heartily agrees—she observes that this should not be taken to imply that every (scientific) proposition reduces to pure rhetoric or to a strategy of persuasion.

So, I think my own problem and "our" problem is how to have simultaneously an account of radical historical contingency for all knowledge claims and knowing subjects, a critical practice for recognizing our own "semiotic technologies" for making meanings, and a no-nonsense commitment to faithful accounts of a "real" world, one that can be partially shared and friendly to earth-wide projects of finite freedom, adequate material abundance, modest meaning in suffering, and limited happiness.

She adds: "We need the power of modern critical theories of how meanings and bodies get made, not in order to deny meaning and bodies, but in order to live in meanings and bodies that have a chance for a future" (Haraway 1991, 187).

Constructivism concerning (scientific) knowledge is cyborg epistemology par excellence. It implies recognition of the impossibility of a naïve realist correspondence theory of truth involving "true objectivity" as an ultimate court of appeal. Critical cyborg epistemology is an indispensable tool in the struggle against the claims of domination legitimated on "objective knowledge." But this explicitly does not mean that each truth claim evaporates! It receives rather the hermeneutic normative significance of truthfulness instead of blunt objective truth.

The normative significance appears when Haraway says that the game of constructing broken and hybrid identities must be responsibly played (Haraway 1991, 150). First of all, it should be noted that, as in games of love and power, rules for this game cannot be given in advance. In other words, it is not normed by a canon anchored in an extra-historical "nature of things." But this expressly does not mean that the subject is delivered over to a free-swinging boundlessness. Rather it means that this responsibility ought to find its expression in the fallible and situated tact with which the process of construction is carried out. It would therefore be a big mistake, she says, to think that the deconstruction of original identities means that the subject—as a moral sub-

ject—disappears from the stage. Haraway will have none of the poststructuralist "death of the subject."

Still, there is something to be said for the idea that her cyborg thesis leads to a decentering of the subject. Haraway's ideas do not empty out the concept of the subject; rather, they broaden it and thereby detach it from its exclusively human character. This becomes abundantly clear, for instance, when she speaks of all the different kinds of actors that play roles in the process of construction, which include not only human actors but also technological artifacts. The ability of cyborgs to blur and confuse boundaries means for Haraway that the boundary between man/human being/subject and thing/object can no longer be sharply drawn, meaning in turn that the domain of "corrupt" subjectivity is extended far beyond human beings. This is clear in her remark that "OncoMouse" is my sibling, and more properly, male or female, s/he is my sister (Haraway 1996, 79). This remark is a form of heteroglossia; but it also vastly extends the domain of intersubjective relations. The cyborg, which incorporates the mechanical and the animal, comes to exist in another relation to the animal and the mechanical. That animal and mechanical are no longer simply the "other" of the I/subject, but correspond to the "otherness" within the bastardized I/subject.

Xenotransplantation—the result of technological strategies of control—could have enormous consequences for the ways in which human beings involve themselves with animals. Haraway proposes that cyborgs, thanks to their contaminated character, possess the possibility (no guarantees, though) of such a denaturalized engagement—a kind of temporary coalition on the basis of affinity, not identity, with relations by choice, not blood (Haraway 1991, 155). Here again appears the responsibility of choice. At the same time this coalition can constitute an effective strategy of opposition: "I like to imagine . . . a kind of cyborg society, dedicated to realistically converting the laboratories that most fiercely embody and spew out the tools of technical apocalypse, and committed to building a political form that actually manages to hold together witches, engineers, elders, perverts, Christians, mothers, and Leninists long enough to disarm the state" (154–55). For Haraway, political action principally means forging the opposition.

Ultimately the most crucial part of her thesis is that, once the radical constructibility and transformability of things, animals, human beings, and narratives is realized, their radical contingency, facticity, and partiality is disclosed. We should take up the challenge of affirming this situation rather than playing at murdered innocence; "surviving in the diaspora" without fear or regret may lead to a sometimes pleasurable and mostly risky way of life. This implies at the same time the challenge of developing oppositional strategies to dislocate
the apocalyptic and totalizing narratives. This is possible, because along with the loss of innocence and the myth of original identity so, too, the urgency to identify the Enemy perishes.

4. Body, Machine, Text

Much of what Haraway says is not really new; similar ideas are found in postmodernist thought following the so-called linguistic turn. Human beings are understood as interpreters of signs, their identities are understood as collections of stories they tell about themselves, and things are the subjects of multiple stories. In this sense one can say that “the electron,” “the neurosis,” “the mind,” and “the body” do not exist, although there do exist scientific, philosophical, and popular genres of narratives that have such things as their subjects, each of which possesses its own rules for meaningful discourse. Reality, in this view, is structured like language, concretized in many narratives and fixed in texts; knowledge becomes a form of textual interpretation and behavior a form of narrative telling or writing. This postmodernist approach, too, undermines naturalism, for it sees narratives as historical constructions and finds that there is no original text or “Book of Nature.” Further reflection on this linguistic approach leads to the idea that texts are polyinterpretable, contaminated, and fragmented; that mutually incompatible genres can be mixed; and even that this is inevitable. Clearly, the “human condition” inside this textual universe coincides with what Haraway attributes to her cyborgs.

There is indeed a compelling parallel here, but there is still more at work in Haraway’s thought. Cyborgs not only blur the boundary between human beings, animals, and machines, but also that between body and language. Modern technology textualizes reality, Haraway would say. This is clearly evident in information technology, a technology that is based on the manipulation of signs. But it is also evident in biological discourse about the body, which more and more tends to conceive of the body primarily as expressing or bearing the genetically coded information of DNA molecules. While for the eighteenth-century physician Luigi Galvani—who in 1786 brought a dead frog to “life,” causing it to move by giving it a small electrical “kick”—electricity was the secret of life, today the secret of life is thought of as inscribed in a kind of text, which it is the aim of the Human Genome Project to decipher and store in a database. Life is conceived as a vast process of reading and writing, with ribosomes as the transcribers in their scriptorium-cell. Meanwhile, the life sciences have become a form of textual reading practice and cryotechnology; the technology of genetic recombination is a question of quoting one passage of a DNA text in another; genetic mutations are a form of textual corruption; and so on.

In the interesting final chapter of *Simians, Cyborgs, and Women*, entitled “The Biopolitics of Postmodern Bodies: Constitutions of Self in Immune System Discourse,” Haraway illustrates this textualization of the body using the example of immunology (1991, 203–30). The entire discourse of this branch of medical science is permeated by notions of coding and decoding, of identifying and misrecognizing information and “passwords.” A virus, in this discourse, is a clever invader that sets out to produce an entirely new text that eventually is recognized as “foreign.” An autoimmune disease is a structural misrecognition of a password—a disruption in communication. Immunology is about the immunological system, defending the body against invaders from the outside, which must therefore be able to establish the difference between friend and foe, health and sickness. Immunologists understand this as a process involving original texts, textual corruptions, and the ability to recognize alien texts as such.

But Haraway makes a still more important point. From her socialconstructivist perspective she sees the immune system above all as an object in twentieth-century scientific narratives, and then asks herself what this narrative is saying. She claims, “[T]he immune system is a plan for meaningful action to construct and maintain the boundaries of what may count as self and other in the crucial realms of the normal and the pathological” (1991, 204). The ways in which the immune system figures in scientific narratives is as a defense mechanism that protects the “self” of the organism—the text—by closing it off against intrusion and corruption by an “other.” This type of scientific narrative leaves little to the imagination; it is a war story, complete with all the intrigues, strategies, and betrayals that belong to that genre. In fact, Haraway claims, the entire discourse of original integrity, the necessity of exclusion, and the defense against the corrupting boundary breakdowns is repeated in the medical-biological narrative of sickness—the original narrative of the “self” legitimates the war against the “other.”

But precisely this original narrative is problematic for cyborgs, for they, like OncoMouse™ are already corrupted mutants. And just as cyborgs have no need to defend their “original” identities against an “other,” so their sickness stories have no need to be war narratives. Haraway provides an example drawn from Winograd and Flores’s study “Computers and Rationality: The Myths and Realities” (1986) about the operation of computer systems in artificial intelligence. A central concept is communication breakdown, which Haraway then adopts, in her essay on immunology, as a metaphor for illness. Winograd and Flores conclude on the basis of their study: “Breakdowns play a central role in human understanding. A breakdown is not a negative situation to be avoided, but a situation of non-obviousness, in which some aspect of the network of tools that we are engaged in using is brought forth to visibility. . . . A
breakdown reveals the nexus of relations necessary for us to accomplish our task. . . . This creates a clear objective for design—to anticipate the form of breakdowns and provide a space of possibilities for action when they occur” (in Haraway 1991, 214).

Haraway draws here a connection between the political (war) narrative and the prevailing immunological narrative. She claims that Winograd and Flores’s interpretation points to a radically different kind of narrative than the prevailing one. “This is not a Star Wars or Strategic Computing Initiative relation to vulnerability, but neither does it deny therapeutic action. It insists on locating therapeutic, reconstructive action (and also theoretic understanding) in terms of situated purposes, not fantasies of the utterly defended self as a body as automated militarized factory, a kind of ultimate self as Robotic Battle Manager meeting the enemy (not-self) as it invades in the form of bits of foreign information threatening to take over the master control codes” (1991, 214–15). She adds that in these completely denaturalized systems another possibility for political action comes to light, quite different from that which was suggested by the military motives underlying their construction. This is precisely the irony of history to which cyborgs bear witness. And it is to be entrusted to responsible and tactful cyborgs to develop truthful narratives, such as that of Winograd and Flores. The construction or “writing” of such denaturalized narratives is one form of political action needed to disarm the state.

HOW RADICAL ARE CYBORGS?

In conclusion, a few passing remarks about Haraway’s thinking. One could take her thought as one long sustained critique of naturalist foundational thinking. But in the end, how radical is her critique? Thanks to the shocking and subversive way she talks about cyborgs, her position seems to be much more radical than it actually is. This can be made clear via two questions.

First, one may ask how much genuine philosophical credibility there is in the “naturalism” that Haraway attacks. Naturalism, as she depicts it, is based on empirical criteria that can identify a boundary between the self or proper “nature” of something—of human being, man, woman, organism, machine, text—and the “other.” This naturalism is thus a version of the “positivism of essences” or naïve essentialism. Haraway is right to say that this figure of thought plays a large role in the mechanisms of exclusion and in political legitimations determining the Enemy—the one who exemplifies the alienation from that which counts as the proper nature. But one cannot say that cyborgs are required to undermine this figure of thought. Since the transcendental turn in philosophy at the end of the eighteenth century (Kant), and the hermeneutical-linguistic turn in this century, naïve essentialism has been under sharp attack, and in fact it was philosophically stone-dead long before the first cyborg was constructed. But such philosophical outcomes do not have to affect political scenarios: naïve essentialism may yet linger on in political strategies. And in the form it can take involving national and ethnic anxieties over loss of identity when one mixes with the “other,” the obsession to determine enemies becomes alarmingly current. Philosophy is no match for such inclinations—but are cyborgs? There is reason to be skeptical. In my opinion, Haraway’s cyborg thesis should not be conceived as an original philosophical reflection but rather as a politically emancipatory strategy. The originality of her thesis consists in the fact that she reproduces the critique of naïve essentialism in the arena of technological development.

Second, one could ask whether cyborgs—assuming they blur the boundaries the way that Haraway says they do—have the political potency that she ascribes to them. What are we finally left with once we think through their boundary-blurring character radically and consistently? At first sight Haraway seems to undermine all fundamental distinctions between types of beings: distinctions between animal, woman, man, machine, kinds of texts, and so forth. However, in her own narrative one particular opposition is still left standing: living versus dead. Here is one distinction not yet overthrown. Haraway always dramatizes cyborgs as endowed with an (original) conatus, life force; the ambivalence of the cyborg consists in the different kinds of behavior that stem from this force. First, there is the cyborg as a project of militarist thinking, which serves “life” by being an actor in a defensive strategy in the battle of (one’s own) versus life-threatening other. Second, there is the cyborg as contemplated by Haraway, which deconstructs precisely that image, which is in the service of surviving in the diaspora, and which militates against the obsessive aim for an “apocalyptic unity” and against equally life-threatening enemy images. Haraway has made naïve essentialism her sworn Enemy; it stands for death and she combats it with a call to life.

Haraway claims that cyborgs stand in a different relation to death. Their surviving in the diaspora is characterized by situatedness, contingency, finitude, and vulnerability. They no longer know the dream of the total overcoming of all restrictions. Inside finitude they play the deadly serious game of surviving in the diaspora, the risky and sometimes carnivalesque construction of identities—all in the service of life. It may be that human beings can understand this lifestyle; it is questionable whether cyborgs can. If cyborgs are truly the boundary-blurring beings that Haraway represents them to be, then the breakdown of boundaries must be radically thought through and the possibility not be excluded that they also embody the blurring of the boundary between
“living” and “dead.” This would be the most monstrous irony: that ultimately in the battle for life versus death what becomes indistinct is the boundary between life and death. Cyborgs would then be not post-human but post-humous beings. The figure of the bionic man of science fiction literature would then flow readily into that of the undead Nosferatu in horror literature; a being that is partly alive, partly dead, or both together.14

Is it just chance that, today, the best representatives of Haraway’s “self-regulating man-machine systems” are the half-alive, half-dead occupants of certain restricted areas in any medium-sized hospital? Thus far Haraway does not seem to have written about these. Possibly they fail to interest her because her project of obliterating “nature” is ultimately in the service of the effort to create a livable world for outsiders, and in that perspective she naturally thinks in terms of concrete human beings with a life to lose and therefore in need of a political strategy. But it would not be surprising if it turned out that cyborgs make very poor coalition partners, because beings that in the struggle against death ultimately blur the boundary between life and death are politically worthless. What could they reasonably strive for? There is no more apolitical genre than this kind of horror—and aren’t cyborgs more at home in horror than in science fiction?

NOTES

1. Most of the material in the biographical section that follows is taken from this essay.

2. Jane Goodall and Dian Fossey were ethological field researchers. Fossey is above all known for her research into the behavior of mountain gorillas. She was murdered in 1985, presumably by a native poacher because of her efforts to protect “her” gorillas against the native population.

3. This George Orwell edition constituted part of the collected supplements to the journal Das Argument. Blätter der Westberliner Studentengruppen gegen Atomrüstung, which appeared in 1959.


5. Cybernetics, from the Greek kubernésis, means steering or the art of navigation. Today it refers to the technology of self-regulating devices and in a more general sense to information technology.

6. Haraway makes the comparison with chimeras explicit. One should also compare them with grotesques or pictures of hybrids of humans, animals, and plants. These bizarre figures are as much connected with the unheimliche or uncanny (a manifestation of the Freudian unconscious) as with carnivalistic vitality (e.g., Spek 1996, 84–85). Both characterizations also apply to cyborgs, which are at the same time monstrous and overflowing with life.

7. An integrated circuit is a technical term for a computer chip. Haraway uses it as a metaphor for the proper connection of things in high-technological culture—just as the global village is a metaphor used to emphasize the falling away of literal distances.

8. This thought is explained in the next paragraph: according to Haraway the unity is always the result of a process of exclusion, so that the obtaining of the ultimate goal has the character of the ultimate conquest of an “own” over an “other” in a sort of Star Wars apocalypse: a deadly unity.

9. The concept of language game was coined by Ludwig Wittgenstein, who saw different kinds of language games occurring in different areas, including ethics, science, and personal expression. The criteria for the validity of an ethical expression (“thou shalt not kill”) are of a completely different character from the criteria for the validity of a scientific expression (“iron expands when warmed”), and the criteria for each of these are in turn completely different from the criteria for the validity of a personal expression (“I love you”). Different language games therefore also involve different rules of argument, forms of rationality, and perspectives on reality. Ultimately, there are innumerable kinds of language games—praying, thanking, greeting, commanding, ordering, stating, and so forth. The universal language game, whose existence Wittgenstein denied, would offer an all-encompassing and universally valid perspective on all reality.

10. In the realm of literary representations, we are reminded here of the remarkable number of feminist authors of science fiction, who have transformed the “toys of the boys” genre into a literary laboratory in which to experiment with possible ways of existing in high technological culture (see Spek 1996). Haraway, whose writings can often be counted in that genre, sometimes refers to it explicitly (e.g., Haraway 1991, 173–81).

11. This situation is similar to that of a judge who must sometimes “construct” a sentence in the absence of a clear and unambiguous set of legal rules for dealing with the offense, while only partly being able to rely on historical precedent. Such a judge cannot be challenged for transgressing the rules, for these do not exist. The judge can, however, be challenged for his or her judgment. In this situation one can appeal to the classical subtilitas applicandi, to Fingerspitzengefühl, and to Aristotle’s subreptivus; the sort of practical wisdom or consideration that one gains only by living and learning; thus, only after innocence.

12. In her later work she frequently uses concepts such as “sibling” and “kinship” in order to affirm these intersubjective relations. She uses these concepts, of course, not to point to any “natural relationship” but rather to an awareness of conditions of connectedness that call for engagement.

13. Or perhaps better: practical oppositional activity, especially through the creation of new truths and narratives (“writing”). A model is given in the next paragraph on the basis of the immunological example.

14. Haraway’s later work contains discussions of the undead, in the form of figures like Nosferatu, Count Dracula, and vampires (Haraway 1996, 74, 133, 152, 216, and 309 n. 3). But without exception these are trotted out as representations of the denatured “other” that are abhorred or pursued as a result of the obsession for the preservation of oneself or one’s own. Haraway sympathizes with them, and would readily grant them a place among the living. She thereby overlooks the possibility that a being that obliterates the boundary between life and death could just as little appreciate a "place among the living" as a cyborg could the "Garden of Eden" (Haraway 1991, 151). But this last possibility disrupts Haraway’s own political agenda.
5. Don Ihde: The Technological Lifeworld

Peter-Paul Verbeek

What role does technology play in everyday human experience? How do technological artifacts affect people's existence and their relations with the world? And how do instruments produce and transform human knowledge? These are the central questions in Don Ihde's philosophy of technology.

Ihde, who was born in 1934, is a pioneer in two respects. First, he was one of the earliest philosophers in the United States to make technology the subject of philosophical reflection; and second, he was one of the first to apply to the study of technology the tools of the phenomenological tradition at a time when it was far out of the philosophical mainstream. Ihde studied theology with Paul Tillich, in the course of which he became interested in the philosophy of existence of Heidegger and Jaspers. He graduated from Boston University in 1964 with a thesis on the philosophy of Paul Ricoeur, which was the first systematic study in English of Ricoeur's work. Ihde continued to publish in the area of phenomenology, and in the early 1970s discovered and began writing essays on technology as an area of phenomenological exploration. He published his first book on the philosophy of technology, Technics and Praxis, in 1979, the first of over half a dozen books he has written in that field. He also began, and continues to edit himself, a book series devoted to the philosophy of technology, The Indiana Series in the Philosophy of Technology. Ihde's most important book, Technology and the Lifeworld, appeared in that series in 1990. This book draws together systematically the most important elements of his philosophy of technology.

Like the other philosophers discussed in this volume, Ihde develops a new