Technology, Community, and the Self

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Abstract

But suppose now that technology were no means, how would it stand with the will to master it?

Martin Heidegger

Résumé

Mais supposez maintenant que la technologie ne soit pas en moyen, comment ça se comparerait avec le désir de la connaître au fond?

Martin Heidegger

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Statement of Thesis

1. I take it as a given that there is, currently, an ecological crisis the nature and scope of which has never been known. We have known "ecological crises" during the Middle Ages, for example,[1] but it seems to me that there are good *prima facie* reasons for maintaining that the current ecological crisis is historically unique. It is unique, for example, in at least this sense: it is global and it is global because it is tied so intimately to modern science and technology. Accidents like that at Chernobyl serve to illustrate this. This is not necessarily a philosophical matter. But it is philosophically significant in that scholars are beginning more and more to think there is a connection between the kind of philosophical method Descartes promotes and the current ecological crisis.[2] There is hardly a book written on the effects of modern science and technology that does not express concern over the role Descartes' philosophy plays in the modern preoccupation with ecology. But although Descartes helped replace the organic world-view of the Middle Ages with a reductionist view of the world as a machine and thereby set the stage for the "mastery" of nature,[3] we must be careful not to characterize Descartes in a fuzzy, incomplete manner, as some kind of power-monger. Martin Heidegger's interpretation of the Cartesian programme in terms of power, as the precursor to Nietzsche's metaphysical principle of the will-to-power, is perhaps the paradigm example of such characterizations.[4] This is a philosophical matter.

That Descartes is no power-monger, at least in intention, is easily demonstrated. He is one of a number of Seventeenth Century optimists, concerned with the improvement of

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1 For an account of this see Jean Gimpel, *The Medievel Machine: The Industrial Revolution of the Middle Ages* (New York: Penguin Books, 1976), especially Chapter 4, entitled "Environment and Pollution," pp. 75-92.

2 One of the more popular accounts of Descartes in this vein is found in Fritjof Capra's *The Turning Point: Science, Society, and the Rising Culture* (New York: Bantam Books, 1983).

3 See, for example, Carolyn Merchant's *The Death of Nature: Women, Ecology and the Scientific Revolution* (San Francisco: Harper and Row, 1980) for an account of the loss of the organic world view and the dangers of the metaphor of mastery.

4 See especially Heidegger's essay entitled "The Word of Nietzsche: 'God Is Dead'," in *The Question Concerning Technology and Other Essays*, trans. William Lovitt (New York: Harper & Row, 1977), pp. 53-114. See also the chapters entitled "The Fundamental Metaphysical Positions of Descartes and Protagoras" and "Nietzsche's Position vis-à-vis Descartes" in Heidegger's *Nietzsche , Vol. IV: Nihilism*, trans. Frank A. Capuzzi and ed. David F. Krell. (New York: Harper & Row, 1982), pp. 119-122.

mental and physical health, optimistic, for example, that by treating the body as a machine, life can be prolonged.[5] He is convinced that the new science will provide practical benefits, which will make for a more worthwhile life. Modern science will bring "about the invention of innumerable devices which would facilitate our enjoyment of the fruits of the earth and all the goods we find there, but also, and most importantly, for the maintenance of health, which is undoubtedly the chief good and the foundation of all the other goods in this life."[6] Descartes prefaces this hope with his belief that the adoption and promotion of modern science constitutes a *moral* imperative. He says that

> as soon as I had acquired some general notions in physics and had noticed, as I began to test them in various particular problems, where they could lead and how much they differ from principles used up to now, I believed that I could not keep them secret without sinning gravely against the law which obliges us to do all in our power to secure the general welfare of mankind. For they opened my eyes to the possibility of gaining knowledge which would be very useful in life, and of discovering a practical philosophy which might replace the speculative philosophy taught in the schools. Through this philosophy we could know the power and action of fire, water, air, the stars, the heavens and all the other bodies in our environment, as distinctly as we know the various crafts of our artisans; and we could use this knowledge—as the artisans use theirs—for all the purposes for which it is appropriate, and thus make ourselves, as it were, the lords and masters of nature.[7]

The general improvement of mankind,[8] then, is the motivational root for Descartes' break with the Tradition. Thus his admonition that men "become the lords and masters of nature" identifies what he, Descartes, thought to be the best way to improve man's lot. It is an approach that does not spring from a lust for power but, rather, as one commentator carefully points out, "is from the start connected with the aim of liberating humanity from disease, hunger, and toil, and of enriching life with learning, art, and athletics."[9] Descartes' admonition to dominate nature is indicative of means, not end.

2. The apparent flaw in power-based interpretations of Cartesian philosophy is their *reductio ad absurdum* nature: inherent in the charge that Descartes is the quintessential

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5 See "Description of the Human Body" in *The Philosophical Writings of Descartes*, Vol. I, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1984), p. 314.

6 Ibid., in the "Discourse on Method," p. 143.

7 Ibid., p. 142.

8 I use "man" and "mankind" in the generic sense, although I do not discount the possibility that what I am about to offer is a "male-centred" account of technology, the community, and the self. I briefly address a feminist contribution to thought on technology in the Conclusion.

9 See Albert Borgman, *Technology and the Character of Contemporary Life: A Philosophical Inquiry* (Chicago: The University of Chicago Press, 1987), p. 37.

modern Prometheus is the implication he is an irrational man, as only irrational men pursue power as an end in itself. But, as demonstrated above, Descartes is not imprisoned by such an open ended or unlimited venture. The end in itself he desires is his understanding of the good life. One can argue, indeed, that Descartes' understanding of the good life is closer to an Aristotelian conception than any other.[10] Thus an interpretation of Descartes as a classical rational man, rational in *form*, is clearly a more analytically coherent one.

But the *reductio ad absurdum* nature of the Promethean interpretations of Descartes cannot be dismissed in one short *modus tollens*. Rational men, in *practice*, do not employ means that frustrate the end they desire. The conclusion that Descartes is a classically rational man begs current ecological concern, or the thesis, that there is a connection between Descartes' approach to nature and the environmental crisis, that there is something askew, on the one hand, with Descartes' optimism and, on the other, his reliance upon the domination of nature as the means to realize the end that drives his optimism.

I do not intend to consider the thesis that there is a relation between Cartesian methodology and environmental degradation, that, as one critic declares, all of "Descartes' thought rests precariously on an edge: on the edge of modernity, on the edge of disaster."[11] Whether this is true is (perhaps) too much an empirical matter, rendering philosophical treatment inadequate. I wish, rather, to prepare for an analysis, to be undertaken in what follows, of one of the more startling philosophical positions it suggests: that "power-based" science could be *necessarily* at odds with the good life. The philosophical force of the ecological thesis is just this suggestion of radical discontinuity of modern means with classical end. The thesis I wish to defend, then, is just this, that modern means can be necessarily at odds with the good life, that technology itself has come to take on "praxial" significance.[12] I want to suggest that this is rooted in what I will call the "modern dilemma"

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10 John Cottingham argues Descartes had little interest in "ethics," that his "provisional moral code" was not an attempt to subvert conventional morality but rather to indicate he was not interested in calling everything into doubt. It is clear, Cottingham continues, in Decartes' correspondence with Princess Elizabeth of Bohemia and in his *Passions of the Soul* that "what he means by 'ethics' is something closer to what Aristotle meant." See Cottingham's treatment of this in his *Descartes* (Oxford: Basil Blackwell, 1986), in a sub-chapter entitled "The Good Life," pp. 152-156.

11 See Marjorie Grene, *Descartes* (Sussex: Harvester Press, 1985), p. 92.

12 Thus I am interested in the relationship between man and technology to the extent that this relationship can be distinguished from that between man and the environment. Obviously the human/machine/nature interrelationship exists as a whole and can only be separated into constituent elements for analytical purposes. So when I suggest above that the relationship between man and nature is "too empirical" for philosophical treatment I do not mean to imply that this relationship does not *require* philosophical treatment. There are certainly moral aspects to this relationship. Merchant, for example, argues that the organic view of nature in the Middle Ages

and explicate this dilemma in terms, as Martin Heidegger says, of technology's threat to the "essence" of man, which essence I will interpret in terms of ontological security.

But to phrase the thesis statement in terms of "can" rather than "is" is perhaps somewhat troublesome to those who wish for a definitive statement on technology. If we were to draw a spectrum of views on technology and its place in the modern world, many of those at what could be called the romantic or "radical" end of the spectrum, driven by ecological but also religious, political, aesthetic and cultural concerns, would have modern technology at odds with the good life in any case. This end of the spectrum can be deeply pessimistic. And those approaching and nested at the other end, who are by far in the majority and are driven by both sophisticated and unsophisticated notions of progress, would have modern technology as that which is, all things equal, in service to the good life. Those at this end of the spectrum, which can be called the moderate and/or conservative end, are often deeply optimistic. Does, then, the thesis that modern means *can* be necessarily discontinuous with classical end invite (much dreaded by either side) compromise, or at least a philosophical search for a middle ground upon which compromise can be had? As will become apparent in the arguments that follow, it is my intention to avoid the search for compromise. Rather, I wish to analyze and point out insufficiencies in all views and then to reconsider the radical position on technology. The reconsideration of the radical view of technology will be for the purpose of arguing for an objective solution to (what I hope will be a demonstration of) the modern dilemma, which is raised by those in the minority but, yet, not adequately addressed by those in the majority.

3. The main argument begins with an introduction to the two polar positions on spectrum, which are outlined and criticized in terms of Martin Heidegger's account of the

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implied a system of values that we describe today as "ecological": "The image of the earth as a living organism and nurturing mother served as a cultural constraint restricting the actions of human beings. One does not readily slay a mother, dig into her entrails for gold, or mutilate her body...As long as the earth is was considered to be alive and sensitive, it could be considered a breach of human ethical behavior to carry out destructive acts against it." See *The Death of Nature*, p. 3. The moral aspects of the human/nature relationship are also connected to more metaphysical ones, and these in turn to problems inherent in finding a solution to the ecological crisis as a whole, as is well covered by Neil Everdeen in his *The Natural Alien* (Toronto: University of Toronto Press, 1993). Nevertheless, there are empirical aspects to the human/nature relationship (historical and physical) that prevent one from deducing or drawing a neat line from a set of moral or metaphysical truths to truths, or at least principles, about technology itself. The organic view of nature in the Middle Ages did not prevent an industrial revolution *during* the Middle Ages, as is pointed out by Gimpel (above). As will become apparent, I wish to argue in this essay that this is not or at least is less the case with regard to the human/tool relationship and suggest that philosophical reflection on man and tool be considered as part of the solution to the current ecological crisis.

nature of technology and his identification of the modern dilemma (Chapter 1). The first, that technology is "neutral," is identified as an element of what can be called the tool-use model of productive activity. The second, that technology is "autonomous," is identified as a radical reversal of the former. It is concluded that the latter is a philosophical nonstarter but that it does hold critical promise whereas the former does not. To rescue what is philosophically valuable from the autonomy position, it is further argued that the modern dilemma must be seen in terms of man's relationship to technology and not the other way around. It is not, that is, a matter of the "effects" or "impacts" technology "has" on man that is of philosophical concern. What is philosophically interesting is rather the self's relationship to technology and, therefore, the nature and proper analysis of contradictions within modern productive *practice*. To penetrate the philosophical significance of technology in these terms, I introduce two conceptions of man, classical man and Cartesian man, and suggest that the former is, ontologically, a "secure self" and the latter a necessarily "insecure self." I want to argue ultimately (in the Conclusion) that it is through comparison and contrast between these ideal types and the nature of the security and insecurity manifested in them that a solution to contradictions inherent in modern productive practice can be generated out of the analysis of that practice.

Having established that what is philosophically crucial about technology is its role in productive practice, Karl Marx's views on the nature of man and his account of man's relationship to technology are investigated (Chapters 2 and 3). This relationship is shown to be communal. The turn to Marx involves constructing systematic descriptions of i) productive activity in terms of Aristotle's concept of *praxis* and ii) technology, in terms of Marx's concept of "forces of production." I then investigate the nature of the relationship between technology and praxis and conclude that Marx supplies us with an ontology of technology—that technology is "conductive" rather than neutral or autonomous—which serves, at the very least, as a basis for the refutation of the tool-use model. But Marx declines, as it were, to meet the concerns about technology that are raised by those who hold technology is autonomous, that there is contained (somehow) in technology an *inherent* threat to the self. Thus, in an attempt to find an account of productive practice that is consistent with Marx's but focuses on "the tools themselves" *and* that might give us an idea of what the ontological structure of the threat technology poses to the self is, Heidegger's account of tool use is analyzed in terms of the interrelationships between the self, the community, and "equipment" (Chapter 4). But in the Conclusion I argue that Heidegger's account of tool use does not live up to its promise and attempt to demonstrate

why it does not. This forces me, in the end, to appeal to conceptions of ontological security as manifested in Classical and Cartesian man to prove my thesis and attempt to draw some philosophical lessons from it.

Technology and Modern Man

I

1. Heidegger thinks that modern man is "homeless," and that technology is the factor responsible for this plight. Modern man is homeless in the literal sense that he has lost his roots in his villages and towns and his native soil. Heidegger observes, for example, that following the Second World War Germans "have been caught up in the turmoil of the big cities, and have resettled in the wastelands of industrial districts."[1] But this phenomenon is more than mere geographical displacement, for "those who have stayed on in their homeland...are still more homeless than those who have been driven from their homeland."[2] Chained to radio, television, picture magazines, and motion pictures that give the illusion of a world that does not exist, modern man loses direct contact with "the fields around his farmstead...the sky over the earth...the conventions and customs of his village [and] the tradition of his native world."[3] In losing his home, modern man, whether situated in a city or an industrial district or even in his village, loses a rootedness fashioned through original relationship to village, farm, and community.

Heidegger tells us that in one sense technology plays a role in man's displacement because it embodies the "spirit" of the age. The atom bomb, for example, presents itself as the symbol for most of a "new era of happiness." The logic of this sentiment states that although the bomb has the capacity, granted by modern science, to destroy life on earth, atomic energy can be used for peaceful purposes. It now seems possible to supply all men with energy for all time. Regardless of their geographical situation, men need no longer worry whether they will have access to dwindling supplies of coal, oil, and timber, to fuel their productive processes. The flight from home—from village or town, farm and community—is motivated by the promise of productive security. Thus the decisive question for those caught in the spirit of the age, Heidegger says, "is no longer: Where do we find sufficient quantities of fuel? The decisive question now runs: In what way can we tame and direct the unimaginably vast amounts of atomic energies, and so secure mankind

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1 Martin Heidegger, *Discourse on Thinking* , trans. J. Anderson and E. Freund (New York: Harper & Row, 1966), p. 48.

2 Ibid.

3 Ibid.

against the danger that these gigantic energies...break out somewhere, 'run away' and destroy everything?"[4] An answer to the latter question is urgent because, as Heidegger says, it "would be foolish to attack technology blindly. It would be short-sighted to condemn it as the work of the devil. We depend on technical devices; they even challenge us to greater advances."[5]

But herein lies what one might call the modern dilemma. With the successful taming of atomic energy and its world-wide distribution, an era of technical development has begun within which it is impossible to predict and thus control the radical changes ushered in. Heidegger states that

> technological advance will move faster and faster and can never be stopped. In all areas of his existence, man will be encircled ever more tightly by the forces of technology. These forces, which everywhere and every minute claim, enchain, drag along, press and impose upon man under the form of some technical contrivance or another—these forces, since man has not made them, have moved long since beyond his will and have outgrown his capacity for decision.[6]

Having lost his ability to make decisions crucial for the control of modern technology, it follows that no

> single man, no group of men, no commission of prominent statesmen, scientists, and technicians, no conference of leaders of commerce and industry, can break or direct the progress of history in the atomic age. No merely human organization is capable of gaining dominion over it.[7]

2. Even if we could gain control over atomic energy—"even if the hydrogen bombs do not explode and human life on earth is preserved"[8]—Heidegger cautions, the threat that technology presents would not be diffused, for an "attack with technological means is being prepared upon the life and nature of man compared with which the explosion of the hydrogen bomb means little."[9] In his technological stance, modern man "places before himself the world as the whole of everything objective, and he places himself before the world."[10] Plant and animal are "in" the world, but man, due to his calculating or representing consciousness, which enables man to "set up" the world in scientific

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4 Ibid., p. 51.

5 Ibid., p. 53.

6 Ibid., p. 51.

7 Ibid., p. 52.

8 Ibid.

9 Ibid.

10 Heidegger, "What Are Poets For?" in *Poetry, Language, Thought*, trans. by A. Hofstadter (New York: Harper & Row, 1971), p. 110.

objectivity, is "before the world."[11] In and through his calculative thinking, man objectifies the world as a self-representation and thus "delivers Nature over to himself."[12] As such, man expresses himself as a self-assertive or willing being. "The willing of which we are speaking here," Heidegger states, "is production...and this in the sense of objectification purposely putting itself through, asserting itself."[13] Thus it is "not the much discussed atom bomb, as one particular kind of killing-machine, that is so deadly. What has long menaced man with death, even with the death of his essence, is the absolute of pure willing, in the sense of the conscious imposition of man's will upon everything."[14] The threat to man's nature, then, in some sense precedes rather than follows the threat of nuclear war or the threat of environmental degradation.[15]

Modern, homeless man, then, is a producer. What he recognizes as his world is nothing more than what can be produced by him.[16] Man relates to the world through a "technical interface" in which things exist only insofar as they stand ready for use in the various ways in which modern productive practice attempts to usher in a new era of happiness. In this way, the "earth and its atmosphere become raw material."[17] Moreover, man himself becomes human material, to be disposed of as the earth and its atmosphere are, to attain the ultimate goal of productive security.[18] What is at stake, here, is a threat to man's nature. Heidegger says that what

> threatens man in his very nature is the willed view that man, by the peaceful release, transformation, storage, and channeling of the energies of physical nature, could render the human condition, man's being, tolerable for everybody and happy in all respects. But the peace of this peacefulness is merely the undisturbed continuing relentlessness of the fury of self-assertion which is resolutely self-reliant. What threatens man in his very nature is the view that this imposition of production can be ventured without any danger, as long as other interests besides—such as, perhaps, the interests of a faith—retain their currency.[19]

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11 Ibid., p. 108.

12 Ibid., p.1 10.

13 Ibid.

14 I quote from some rough notes, and I am afraid that I have lost my record of where Heidegger says this.

15 Heidegger says that "Our age is not a technological age because it is the age of the machine; it is an age of the machine because it is the technological age." See Heidegger's *What is Called Thinking?*, trans. J. Glen Gray (New York: Harper & Row, 1968), p. 24. For further discussion, see Parvis Emad, "Technology as Presence: Heidegger's View," *Listening* ,16 (Spring 1981), p. 140.

16 Heidegger, *Poetry*, p. 111.

17 Ibid.

18 Ibid.

19 Ibid., p.116

Thus the modern dilemma is more than just a matter of controlling what Heidegger suggests is uncontrollable. It cuts, somehow, into the very nature of what it is to be a human being. The "issue," Heidegger says, "is the saving of man's essential nature."[20] In the modern era, man becomes merely one object among others. He becomes raw material, indistinguishable, for example, from dwindling supplies of coal, oil, and timber. "Nowhere," Heidegger asserts, "does man today any longer encounter himself, i.e., his essence."[21] Moreover, man only perpetuates this threat against himself with the vain thought that he can render, through the systematic disposal of raw and "human" material, the human condition happy in all respects. The thought is vain, Heidegger wants to argue, because it is not possible to bring to modern technological production some external end, one that might limit or contain that activity, as "though it were still possible for that essential relation to the whole of beings in which man is placed by the technological exercise of his will to find a separate abode in some side-structure which would offer more than a temporary escape into those self-deceptions among which we must count also the flight to the Greek gods!"[22] "Self-assertive man, whether or not he knows and wills it as an individual," Heidegger states, "is the functionary of technology."[23]

Modern productive practice, then, is not for Heidegger merely one activity among others, to which outside influences can be imposed. Rather, it serves as the ground or principle of explanation for all modern practices. Thus Heidegger argues that we have no choice but to attempt to understand technology from within itself. The source of calculative thinking, the production within which it is realized, and the threat to man's essential nature and how this threat is connected to man "not being at home" is to be found, then, in the "hidden nature" of technology. Thus it is the nature of technology we must first get clear on before we can investigate technology as a threat to man's essence. I will return to Heidegger's notion of homelessness near the end of the essay.

II

3. Heidegger makes a crucial distinction between "technology" and "the technological" on one side, and "the essence of technology" on the other. Technology is comprised by the

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20 Heidegger, *Discourse*, p. 56.

21 Heidegger, "The Question Concerning Technology," in *The Question Concerning Technology and Other Essays*, p. 27.

22 Heidegger, "Poets," pp. 116-7.

23 Ibid., p.116.

technological: "The manufacture of and utilization of equipment, tools, and machines, the manufactured and the used things themselves, and the needs and ends that they serve all belong to what technology is. The whole complex of these contrivances is technology."[24] But, for Heidegger, the essence of technology cannot be determined through definition of the complex of machines, their products, and the needs they satisfy. To offer efficiency, for example, as that by which modern technology ought to be judged, as the "standard of technology," would be to fall short of the full meaning of technology in the modern age. An analysis of technology in terms of its ability to facilitate the production of wealth, then, does not shed light on the manner in which modern productive activity embodies any kind of a threat to man. This kind of analysis, Heidegger suggests, merely "pushes forward" modern productive practice.[25]

One source of the analysis of technology in terms of efficiency, and by far the most pervasive, is the "tool-use" paradigm of productive practice. This model can be defined in terms of two elements. The first element is the thesis that technology itself is "neutral" and the second, which follows from the first, is the thesis that the use of technology is essentially ambivalent. The former has its roots in the notion that technology is something manipulated or used by an individual to produce objects to facilitate the accomplishment of an end, usually through a (relatively) simple manual operation. We think, here, of a discrete, linear relationship among the intention of a productive agent, the tools used, and the object produced. A cabinet maker conceives of a hutch, for example, and shapes the form of a hutch out of wood using saws, hammers, and like tools or instruments. The artifact itself, the concrete instance of it, closely resembles the preconceived idea. This is the test, as it were, of the neutrality of the instruments and methods used. Thus the notion that technology is neutral is rooted in the image of craft-like production, in which tools are purely instrumental. But also the objects produced are themselves tool-like or instrumental. We can use a hutch to store china but we can also use it to stop a draft in a wall. The second thesis comprising the tool-use model of productive activity is that technology and its products are essentially ambivalent. This thesis follows from the first, in the sense that craft production expresses complete control over the entire productive process on the part of a productive agent. The objects of production, for example, are subject to the will of the productive agent and only to the will of that agent. In general, as one critic puts it: "Since man has created technology, so man can control it."[26]

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24 Ibid., pp. 4-5.

25 Heidegger, "The Question Concerning Technology," p. 4.

26 Abraham Rotstein, "Technology and Alienation," *Journal of Ultimate Reality and Meaning* ,

Thus it becomes possible to say in accordance with the tool-use model that technology is neither good nor bad in itself, and that what really counts is the intention with which it is used. By transplanting the image of craft production from its own era to the modern age, or to the era of industrial production,[27] one can assert that "[s]cience and technology are essentially amoral and their uses ambivalent. Their miracle has increased equally the scale of both good and evil."[28] The logical implication of this assertion is that the end accomplished must be judged independently of the means used. The means themselves are amoral.[29] The actual use of tools is therefore embedded and contained within a spectrum of non-technical practice. Our conception of technology as "applied science" fits well under this image, in the sense that productive practice is merely one activity among others, with the implication that these other practices—political, social, and moral—can be brought to bear on technology to ensure its "proper" use.[30] Thus what is morally significant according to the tool-use paradigm is both and no more than i) the intent of the productive agent and ii) the separability or disjunction of that intent from the tool or from the object produced by the tool.

The initial difficulty with the tool-use model of productive activity would seem to be the notion that modern technology is neutral because premodern technology is (or appears to be) instrumental. This difficulty is based on the premise that an absolute distinction can

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Vol. 9, March, p. 15.

27 This can be seen as a consequence of the "naturalistic anthropology" that pervades the tool-use model of technology. Michael Zimmerman, in *Heidegger's Confrontation with Modernity* (Bloomington: Indiana University Press, 1990) p. xiv, comments that "according to such anthropology, consciousness is an evolutionary development which has made the human animal particularly adaptive to a wide variety of climates and material conditions. Humans have survived because they learned how to make and use tools and symbols. For such an anthropology, modern industrial technology is simply a sophisticated version of the tools used by primitive humanity. The major difference between earlier and later technology is simply that newer tools are designed and built in accordance with scientific principles unknown to earlier periods of human life."

28 See H.L. Neiburg, *In The Name of Science* (Chicago: Quadrangle, 1966), p. v.

29 David Dickson has explored this conception of technology in terms of the "use-abuse" model, which implies that social problems associated with technology should not be tied to technology itself but, rather, to the uses to which it has been put. These problems, Dickson says, "are seen either as the intended and often consciously-harmful effects of the attempts of one individual or group to impose its will on another, or as the purely accidental side-effects of economic or political processes." See his *The Politics of Alternative Technology* (New York: Universe Books, 1975), p. 16.

30 See William Lovitt, "Techne and Technology," *Philosophy Today*, Vol. 24, #1/4, Spring, 1980, p. 62: "Usually we see machine technology and its developments as the consequence of earlier events, especially the rise of modern science. Viewing technology as one human activity among many, we tend to think of it as something upon which outside influences can be brought to bear."

be made between man and tool or man and object. The second difficulty with the tool-use model seems to be that once the neutrality of technology is accepted on the basis of the instrumentality of craft tools, its use becomes externally related to moral, social, or political practices. This difficulty is premised on the ambivalence of technology. We make technology and therefore we control it. But this does not seem to square with Heidegger's observation that modern man is the functionary of technology and that it is vain to think it is possible for modern man to bring external ends to technology. Throughout this essay, I will argue against the tool-use model of productive activity by comparing and contrasting it to models of productive activity found in the writings of Marx and Heidegger.

Nevertheless, Heidegger, for example, is willing to admit that an account of technology in the terms adumbrated above is "correct." Given that the traditional notion of essence indicates what something is, its *quidditas*, then it follows that man's productive apparatus is, in fact, a man-made means to an end established by man. It is, therefore, logically consistent to say both that i) "Technology is a means to an end," and ii) "Technology is a human activity."[31] And it is also correct to hold that the "two definitions belong together. For to posit ends and procure and utilize the means to them is a human activity."[32] Moreover, this account of technology would seem to hold true of technology in any era. Even though "we maintain with some justification that [modern technology] is in contrast to the older handwork technology, something completely different and therefore new," it is also possible to maintain that the latter is just a more primitive version of the other.[33] Finally, implied in this account is the correlate to technology's neutrality; that is, the notion that technology can be and needs to be mastered: "Everything depends on our manipulating technology in the proper manner as a means. We will, as we say, 'get' technology 'spiritually in hand'. We will master it."[34]

4. But the correct definition of technology, valid as it is, suffers from two crucial disadvantages: i) ontologically, it is an extension of technology, in that it, too, is grounded in the motivation that fuels the calculative thinking of modern productive man, who would achieve productive security through the absolute control of his world, and ii) it screens the seeming empirical reality or, perhaps, the strong intuition that modern technology embodies

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31 Heidegger, "The Question Concerning Technology," p. 4.

32 Ibid.

33 Ibid., p. 5. For a discussion on the ambiguity of the distinction between modern technology and ancient technology see Don Ihde, "Technology Over Science," in *Philosophy and Technology*, ed. by Paul Durbin and Friedrich Rapp (Boston: D. Reidel Publishing Co., 1983), pp. 250-252.

34 Heidegger, "The Question Concerning Technology," p. 5.

more than a production process, that it is, in fact, problematic. With regard to the former, Heidegger refers to the correct definition of technology as a or a "representation," which signifies the species of thinking through which modern man, as noted above, sets up the world and stands before it, in which stance he is in a position to master it. Heidegger says that

> modern representing...means to bring what is present at hand before oneself as something standing over against, to relate it to oneself, to the one representing it, and to force it back into this relationship to oneself as the normative realm. Whenever this happens, man 'gets into the picture' in precedence over what is.[35]

As a representation, then, the correct definition of technology is itself technological, a natural extension of the will to master: "So long as we represent technology as an instrument, we remain held fast in the will to master it."[36] Thus the instrumental/anthropological definition is true in the sense that it is a natural outgrowth of or internally consistent with the spirit of technological age or the epoch within which it arises. As Heidegger states: "What is 'natural,' is not in the least 'natural' in the sense of being self-evident to every man, no matter who he might be or when he might live. The 'natural' is always historical."[37] Moreover, as a natural extension of the modern technological relationship with nature and the self, the modern conception of technology acts, as well, as the basis of a moral imperative: it fulfills our notion of the way we ought to relate to technology, that is to say, as an entity that must be put "spiritually in hand."

With regard to ii) above, the representation of technology as instrumental suggests critiques of modern technology like those of Jacques Ellul's and Langdon Winner's defence of Ellul's account, both of which address technology as more than productive by describing it as autonomous.[38] Winner states, in direct attack on the tool-use model of technology, that the "term autonomous technology is understood to be a general label for all conceptions and observations to the effect that technology is *somehow* out of control by human agency."[39] Ellul, for example, is adamantly opposed to the view that one can

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35 Heidegger, "Age of the World Picture," in *The Question Concerning Technology and Other Essays*, p. 131.

36 Heidegger, "The Question Concerning Technology," p. 32.

37 As quoted in W. B. Macomber, *The Anatomy of Disillusion* (Evanston: Northwestern University Press, 1967), p. 30.

38 Jacques Ellul, *The Technological Society* , trans. by J. Wilkinson (New York: Vintage Books, 1964). Langdon Winner, *Autonomous Technology: Technics Out of Control as a Theme in Political Thought* (Cambridge, Mass.: MIT Press, 1977).

39 Winner, *Autonomous*, p.15. (Emphasis added.)

distinguish between technology and its use, that any end technically accomplished can be judged in non-technical manner. He states that there "is no difference at all between technique and its use. The individual is faced with an exclusive choice, either to use the technique as it should be used according to the technical rules, or not to use it at all. It is impossible to use it otherwise than according to the technical rules."[40] Thus is Ellul also opposed to the common-sense notion that technology is one activity among others, to which external ends can be brought to bear. Technology is not, for example, applied science. Indeed, Ellul goes so far as to state that in "the twentieth century, [the] relationship between scientific research and technical invention resulted in the enslavement of science to technique."[41] And, finally, Winner, arguing from the aforementioned and from other considerations, offers a concise rebuttal to the notion that non-technical practices can be brought to bear on modern productive activity: "technology in true sense *is legislation*...technology is itself a political phenomenon."[42] According to Ellul and Winner, then, the moral significance of person's intent drops out of the picture altogether. One could try to be a saint, yet very possibly end up a Hitler, when one tries to "use" modern technology.

However we might want to judge the description of technology as autonomous, it does possess a certain critical force. It stands as an uncompromising attempt to address technology in terms other than efficiency and, therefore, provides a sharp, and as I will argue in later portions of this essay, fruitful focus on the intuition that there is more to modern productive activity than meets the uncritical eye. David Noble, for example, admits that there "is a core of truth in the view—a common theme in modern mythology—that human creations tend to assume an existence independent of their creator's will."[43] Indeed, Noble goes on to state, there is enough truth in this view that it has

> become fashionable to account for the myriad social changes attendant upon the extension of technological activity tautologically, by simple reference to the supposedly essential nature of that activity: it expands. Thus a stock device of recent social analysis is to view modern technology as though it had a life of its own, an internal dynamic which feeds upon the society that has unleashed it. Propelled according to its own immanent logic and operating through witting and unwitting human agency, it ultimately

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40 Ellul, *Technological Society*, p. 98.

41 Ibid., p. 45.

42 Winner, *Autonomous*, p. 323.

43 David Noble, *America By Design: Science , Technology, and the Rise of Corporate Capitalism* (New York: Oxford University Press, 1977), p. xvii.

> outstrips the conscious activities which gave birth to it, creating a society in which people are but functional parts of the mechanism.[44]

But Noble argues that problems arise when the metaphor "autonomous" is "substituted for history, when the rich complexity of the social process is reduced to the inexorable logic of formalistic technology."[45] He calls into question Winner's definition of autonomy, which states that technology has "somehow" developed what must be considered a *dynamis* or a power and potential of its own. The logical implication of Noble's criticism is that the description of technology as autonomous suffers from its roots in the correct definition of technology, that is to say, as, in effect, a radical reversal of the means/end representation of technology. As noted above, the two elements of the "correct" definition of technology are distinct, yet related. Man, according to this definition, has the ontological primacy in the relation. It is he, the logic of the definition states, who necessarily possesses control. But for Ellul and Winner, it is not so much man who enjoys primacy over means; rather, instrumentality somehow "takes" control. They would revise the correct definition to a description of technology as an autonomous/anthropological power, as if instrumentality or pure productivity takes over something of man, his ability to make decisions grounded in any practice other than the practice of efficiency, and "marches on" according to its own logic. As Ellul states: "Technique has become autonomous; it has fashioned an omnivorous world which obeys its own laws and which has renounced all tradition."[46]

As metaphor, the notion of autonomy, at least as it stands as a description of the fact of massive technological innovation, is thought-provoking but, yet, philosophically a dead-end: How does one reconcile this description with the implication that either inert matter or configurations of inert matter contain a principle of movement? The description of technology as autonomous does not cohere with other, long-standing descriptions we have of the nature of matter. Thus the notion that technology, no matter how highly organized, has a "life" or a "purpose" of its own falls short of constituting ground for a philosophically coherent criticism of technology. Sadly, it only leaves one with profound sense of pessimism. Ellul, for example, concludes his account of the technological society, in a chapter entitled "A Look at the Future," by stating that it is vain to pretend that technology can be checked or guided, that technology's new order has

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44 Ibid., pp. xviii-xix .

45 Ibid., p. xviii.

46 Ellul, *Technological Society*, p. 14.

> evolved autonomously in such a way that man has lost all contact with his natural framework and has to do only with the organized technical intermediacy which sustains relations both with the world of life and with the world of brute matter. Enclosed within this artificial creation, man finds that there is no "exit"; that he cannot pierce the shell of technology to find again the ancient milieu to which he was adapted for hundreds of thousands of years.[47]

5. Heidegger does have a great deal of sympathy for both the account of technology as autonomous and the basis upon which the account is made, the attack on the tool-use model of instrumentality. He states that "the approaching tide of technological revolution in the atomic age could so captivate, bewitch, dazzle, and beguile man that calculative thinking may someday come to be accepted as the only way of thinking."[48] And Heidegger agrees with Ellul that modern productive practice is not merely applied science, one activity among others that is neutral with regard to theoretical, political, social, and moral practices. He warns that we "are delivered over to it in the worst possible way when we regard it as something neutral...."[49] But even though Heidegger admits that technology seems to possess "an inherent natural power,"[50] he stops short of the logical jump from non-neutrality to outright autonomy. He states that even though we find ourselves in bondage to technology, still

> we can act otherwise. We can use technical devices, and yet with proper use also keep ourselves so free of them, that we may let go of them any time. We can use technical devices as they ought to be used, and also let them alone as something which does not affect our inner and real core. We can affirm the unavoidable use of technical devices, and also deny them the right to dominate us, and so to warp, confuse, and lay waste our nature.[51]

Thus the nature of Heidegger's break with the autonomy position is one based on optimism. To the extent that one can tease an argument out of the autonomist's descriptions of modern industrial society, it would seem to start from the sub-premises if and only if man can make non-efficient (for example, political) decisions does he have control and (seemingly) man cannot stop the ever-rising tide of efficiency, to the premise: man is not in control of the forces of efficiency. This is followed by another premise stating efficiency is embodied in technology, to the conclusion: Technology is "in control," that is to say, autonomous. In effect, the force of the autonomist's argument is a restatement of ii)

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47 Ibid., p. 428.

48 Heidegger, *Discourse*, p. 56.

49 Heidegger, "The Question Concerning Technology," p.4.

50 Heidegger, "Poets," p.112.

51 Heidegger, *Discourse*, p. 54.

above—the strong intuition that modern technology embodies more than a production process—in a deductive manner, without a hint of what a *systematic* or objective solution might look like.[52] At best it amounts to a purely formal demonstration that there is more to technology than productivity, that, as Heidegger says, man is "the functionary of technology." Specifically, the claim is that technology is not instrumental but, rather something oriented from within, defined by itself through its self-contained possibilities[53] and that this has real political, social, and cultural consequences. But although it may be possible to ascribe to the autonomist's position a logically valid argument, its conclusion still leaves one with the question: Assuming that technology is, in fact, autonomous, how has it come to be this way and, because of this autonomy, what is the structure of the threat to man's essence such that one can generate out of the analysis of the problem a solution that could act as the base for optimism?

Thus it seems more philosophical ground can be made if less is thought about the fact of massive technological innovation and more about the nature of the relationship of the self and technology. This entails investigating the nature of modern productive activity. Heidegger is willing, for example, to accept, as the autonomists are not, that there exists some truth in the standard or traditional account of productive practice. As such, he invites us to work within the tool-use model of technology and push it to its limit. Unlike the autonomists, the locus of Heidegger's attack is i) above, the motivation that fuels the calculative thinking of modern productive man. He asks: "But suppose now that technology were no mere means, how would it stand with the will to master it?"[54] This question leads us away from what are the obvious effects of technology to the nature of productive activity itself.

I propose to follow Heidegger's approach for this reason: it invites one away from the radicalization of the correct definition of technology, and the purely formal attraction inherent in it, to perhaps what promises to be a coherent philosophical perspective on the modern dilemma, one that attempts to penetrate through the given framework of the "mastery of nature" and does not leave one hanging as one tries to understand how

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52 Winner does have some sober thoughts on finding "solutions" to the problem of technology and ends up calling for the "careful and deliberate dismantling of technologies," or epistemological Luddism. See *Autonomous*, pp. 325-335.

53 See, for example, Gunter Ropohl, "A Critique of Technological Determinism," in Durbin and Rapp, p. 86: "...the hard core of all these conceptions is the assertion that technical development does not depend on external factors but determines and dominates the mental and social situation of men as the driving force of social change."

54 Heidegger, "The Question Concerning Technology," p. 5.

"somehow" technology has become autonomous. Heidegger's critique of technology starts by focusing on human motivation or, specifically, what we might call for now the "human condition," rather than inert manner. If there is more to modern technology than mere productive activity, and that "more" is in fact a threat to man's essence, then the correct definition of technology must be shown to be inadequate in some way, Heidegger suggests, rather than radicalized. There is the philosophical danger, then, of defining away the problem of technology, of begging the modern dilemma with either the instrumental/anthropological definition of it or the radical description of it as autonomous. Thus Heidegger proposes to address modern productive activity in terms of man's relationship to technology, and not technology's relationship to man, which, as I have argued, is a philosophical non-starter.

Thus the only logical alternative left for a truly critical account of technology is to continue within the tool-use model of productive activity, with emphasis on the subject but with a more sophisticated understanding of subjectivity. This will also require, in the conclusion, an account of the notion of "autonomy" that is more philosophically palatable, but we are principally interested in an account of productive activity and whether or how there could be contained within this activity something inherently self-threatening. Before examining alternative models of productive activity in the following three chapters, I wish to outline below two conceptions of the self. I will need to return to these conceptions in the conclusion, in order to investigate the claim that, in the modern age, technology poses a threat to the self.

III

6. The modern age, Heidegger claims, is the age of subjectivity. As opposed to the age of the Greeks, Heidegger maintains that the modern age expresses a kind of freedom in which "the dominance of the subjective...guides modern humanity and its understanding of the world."[55] This achievement is realized in germ in Descartes' metaphysics, which was

> the decisive beginning of the foundation of metaphysics in the modern age. It was [Descartes'] task to ground the metaphysical ground of man's liberation in the new freedom of self-assured self-legislation.[56]

As indicated above, what I would like to do is interpret the relationship between the self and technology in terms of two ontological conceptions of the self, namely, the secure

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55 Martin Heidegger, *Nietzsche , Vol. IV: Nihilism*, trans. Frank A. Capuzzi and ed. David F. Krell. (New York: Harper & Row, 1982), p. 98.

56 Ibid., p. 100.

self and the insecure self. In what follows, I will attempt to capture or crystallize in these two conceptions Heidegger's understanding of the difference between "man" in the classical age and "man" in the modern age. Although I appeal to certain historical accounts in the following outlines, it is for illustrative purposes only. These conceptions are therefore not intended to be *historical* descriptions, meant to determine how individual men (and women) understood themselves before and after Descartes. Nor are these conceptions meant to detail in every respect Heidegger's "history of Being," a project that falls outside the scope of the argument in this essay. What these conceptions *are* are tools that one might employ to pursue a critique of technology that it not nested in ideology. This, of course, is not to define away the possibility of making (some kind) of judgment on technology, one that is roughly "Heideggarian" and that indeed might be attractive to either the left or the right (or others). An outline of this ontological approach follows, then, beginning with descriptions of the two selves.

7. Both selves are embodied in various ways in different moments in ideal types I will call premodern or "classical" man, or modern or "Cartesian" man. Insecure self has this base description: it exists in such a way that it cannot provide an answer to the question Who am I? A self C is insecure if and only if C cannot provide a self-description.[57] (Precisely what a *determination* of a self-description involves will be articulated near the end of the investigation.) A preliminary sketch of a secure self is drawn by reference to classical man.

One way to begin to fix a conception of secure self is to describe the constitution of the ontological security that underwrites the identity of classical man. This description can then be compared to the security of the self embodied in modern or Cartesian man. By taking this approach, I do not mean to identify classical man unequivocally with secure self. Insecure self, as will become evident, can manifest itself in classical man, although not, as can be shown, as an essential feature of his identity.

Classical man's being resides in membership in a *polis* or church. Common to both is the notion that he *is* to the extent that he *is of* something: citizen of the *polis*, person of such and such a tradition, place-holder in a hierarchy of Being, or creature of the earth, etc. He enjoys a secure self minimally inasmuch as he is part of an integrated whole, in which (in Heideggarian language) he can be said to "dwell" or "be at home."

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57 I must leave debate over whether the secure self is itself a good for another place.

Classical man is a secure self by virtue of the fact that his identity is essentially tied to the internal relations constituting the integrated whole he is part of. To the question Who am I? the answer can follow: I am an element of such and such a web of social relations. Alasdair MacIntrye explains that in "many pre-modern, traditional societies, it is through his or her membership in a variety of social groups that the individual identifies himself or herself and is identified."[58] Classical man is, for example, essentially a brother of x, a friend of x, a member of x: there is no leftover residue in the form of an asocial or absolutely *unique* self, which exists outside of and in opposition to these relations. As it is essential or internal to being a brother that a relation of sibling to sibling exist, it is essential or internal to being a person that a relation to a greater whole exist. The self, for classical man, is secured in a certain ontological realm constituted by a set of interlocking social relationships that expresses a natural unity.

The set of interlocking social relationships, in turn, naturally constitute a community. Thus pre-modern man can be described as a social or a political animal. Aristotle puts the point in terms of an attribute of the *polis*, self-sufficiency: man is a social and political animal because he is not self-sufficient alone.[59] The self is secured, on this view, by virtue of holding a place in a web of social relations, which, in turn, means being identified as a member of a community. To be more precise on the securing of the self, one can opt for Charles Taylor's version of the relationship between the individual and his community:

> The community is not simply an aggregation of individuals: nor is there simply a causal interaction between the two. The community is also constitutive of the individual, in the sense that the self-interpretations which define him are drawn from the interchange which the community carries on. A human being alone is an impossibility, not just *de facto*, but as it were *de jure*.[60]

Taylor's view holds that participation in a community facilitates the individuality of the self. This by virtue of the fact that a counterpart of communal participation is participation in language. A shared linguistic form of life serves as i) a public medium of communication, which ii) constitutes social experience by enabling self-interaction through common conceptual structures, and, furthermore, iii) constitutes individual experience by giving the self terms with which to interpret experience *as* unique. Individuality is thus an

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58 Alasdair MacIntrye, *After Virtue* (Notre Dame: University of Notre Dame Press, 1984), p. 33.

59 See, for example, Charles Taylor, "Atomism," in *Philosophy and the Human Sciences: Philosophical Papers 2* (Cambridge: CUP, 1986), p. 189.

60 Ibid., p. 8.

achievement founded on social existence. But there must be a rider put on the phrase "social existence," insofar as it is understood in terms of linguistic behaviour. Language is a paradigm of social experience precisely because it enables *coherent* interaction between individuals. It is in the coherence of self-interaction that self-identity can be fixed. Individuality, then, is a self-achievement essentially tied to the natural coherence of a linguistic form of life.

Finally, to view the self as a static substance masks its existential nature. Heidegger maintains Dasein, which, roughly, means being human, is a form of activity or *agency*:

> I *live* in the understanding of writing, lighting things up, walking in and out and the like. More precisely, I am—as Dasein—speaking, walking, understanding, intelligible dealings. My being in the world *is* nothing other than this being-in-motion that already understands in these modes of Being.[61]

One has, here, a picture of life-as-an-event or self-as-activity, or as engagement in some intelligible dealing, like buying a fishing pole. Existence described in this manner implies purpose. If I engage in activity, especially that like "intelligible dealing," I naturally expect some realization to come about. I negotiate the price of an Adirondack trout rod because I wish to purchase it. In purchasing the rod, I intend to catch fish and eat them. I become a fisherperson and, to an extremely significant degree, as will be outlined below, realize my self. My life is just that which takes place over time and takes shape in accordance with some end. As will be outlined in detail in Chapter 4, Heidegger maintains that selfhood is temporal and purposive, that it *is* which it is *not yet.*

A preliminary ontological definition of the secure self as it might be embodied in classical man has three components: i) it can be identified as purposive agency, which ii) interactively resides in a web of social relations, which, in turn, iii) will naturally constitute communities. It is crucial to emphasize, on this description of the secure self, that the field of social relations, within which security is fixed, is inherently teleological: citizen of the *polis* desires the good and member of the church prays for salvation. Neither citizen nor churchman lacks the first ontological prerequisite necessary for the determination of identity; that is, neither lacks a *limiting* end. Thus the very possibility of the self determining an answer to the question Who am I? is, classically speaking, tied to a meaningful structure of social relations that is meaningful in virtue of a *telos*.

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61 As quoted in Charles Guignon, *Heidegger and the Problem of Knowledge* (Indianapolis: Hackett, 1983), p. 88.

8. As will be noted immediately below, Heidegger thinks that modern or Cartesian man is driven by a quest for certainty. There is an influential school of thought that says this drive for certainty, as one commentator puts it, "must be understood as a response to the shattering blows dealt to the relative stability of Medieval Europe in the sixteenth century."[62] Factors such as revolutionary advances in science and technology, geographical exploration, demographic flux, the collapse of traditional political and economic structures all proved "incomprehensible within the traditional framework of medieval thought."[63] Also, Luther's protest, promoting the absolute authority of the individual, threatened the absolute authority of the church as the foundation of certainty of belief. In addition to being based on traditional religious and social taboos, Ellul, for example, notes that the relative stability of society was anchored in "natural groups" such as families, guilds, and groups formed by collective interests (the University, the Parliament, the Confraternities and Hospitals).[64] It was within these groups that the individual found "livelihood, patronage, security, and intellectual and moral satisfactions...strong enough to answer all his needs but limited enough not to make him feel submerged or lost."[65] The disintegration of these natural groups, Ellul concludes, left, as the sole sociological unit, an atomized individual in a disorganized, chaotic world.[66]

According to this school of thought, the above historical and sociological factors worked against an underlying ontological security that was once sustained in belief in divine creation. Classical man-as-Christian, for example, lived in a world viewed as "a *libre naturae*, a structure of symbols which expresses the divine plan in external creation."[67] Challenge or achievement in this world was seen in terms of realizing proper alignment with divine intention. The certainty that this ontological challenge was meaningful was a consequence or function of faith in church doctrine, which revealed or made intelligible the divine plan. Truth was established in virtue of a relationship between knower and known, and underwritten or guaranteed by God. Knowledge of any given being was knowledge of that being as it was ranked in a hierarchy of being in general.

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62 Ibid., p. 20. Guignon notes that he draws this interpretation from historical accounts of this period in Richard Popkin, *The History of Scepticism from Erasmus to Descartes* (Assen: Van Gorcum, 1960) and Theodore K. Rapp, *The Struggle for Stability in Early Modern Europe* (New York: Oxford, 1975).

63 Guignon, *Heidegger and the Problem,* p. 21.

64 Ellul, *Technological Society*, p. 50.

65 Ibid.

66 Ibid., p. 51.

67 Guignon, *Heidegger and the Problem,* p. 21.

Knowledge, in the end, was knowledge of the right relationship to God, ensuring salvation or enduring security.

In light of these considerations, the Cartesian drive for certainty might appear as rooted in a *reaction* to an assault on the ontological security classical man took for granted. But this "reactionary interpretation" of the Cartesian project must be weighed against Descartes' "provisional morality" as outlined in the *Discourse*, whereby he promises to obey the laws and customs of his country and to change his desires rather than "the order of the world."[68] Descartes, that is, gives no indication he is reacting to social disintegration. On the contrary, Descartes' provisional morality indicates that he was willing to ignore the social disintegration of his time for the promise of new gains.[69] The Cartesian project might then be better interpreted in proactive terms, when we take into consideration factors such as Descartes' excitement with the power over nature that the new scientific method promised and the fact that he considered its promotion, as noted above, something akin to a moral imperative.[70]

Whether one accepts the reactive or proactive interpretation of Descartes' search for certainty, the significant aspect of the Cartesian project for purposes herein is, as Heidegger recognizes, the "liberation" of man from the constraints of revealed truth and Church doctrine.[71] Thus the gain of anthropocentric liberty first presents itself through the freeing or *disengagement* of the individual from the certitude of salvation. Once so disengaged, man can "lay claim to a ground of truth found and secured by...himself."[72] In effect, modern man is characterized most profoundly by declaration of his own freedom. Man, Heidegger says, "frees himself to himself."[73] But there is an obverse to the liberation: man now has a new ontological responsibility to self-consciously develop a new kind of nontheocentric certitude, which can bind and sustain a new identity. Modern man must become "certain of himself *as the being that thus founds itself on itself*."[74] It is essential for

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68 See "Discourse on the Method" in *Philosophical Writings*, pp. 122-126.

69 Thus in introducing his moral code, Descartes states: "Now, before starting to rebuild your house, it is not enough simply to pull it down....you must also provide yourself with some other place where you can live comfortably while building is in progress." See Ibid., p. 122.

70 For a "proactive" account of the Cartesian project, see Charles Taylor's *Sources of the Self: The Making of the Modern Identity* (Cambridge, Mass.: Harvard University Press, 1989).

71 Heidegger, *Nietzsche*, p. 97. Heidegger states that "man's claim to a ground of truth found and secured by man himself arises from that "liberation" in which he disengages himself from the constraints of biblical Christian revealed truth and church doctrine."

72 Ibid.

73 See "Age of the World Picture," p. 150.

74 *Nietzsche*, p. 97. (Emphasis added.)

modern man, in his anthropocentric freedom, to establish just this kind of identity. This implies and begins to explain the necessity of an explicit need for power in the modern age. Heidegger draws an inference from anthropocentric freedom through ontological responsibility to the conclusion that power is the fundamental reality of the modern age:

> Because...freedom implies man's developing mastery over his own definition of the essence of mankind, and because such being master needs power in an essential and explicit sense, the empowering of the essence of power as fundamental reality can therefore become possible only in and *as* the history of the modern age.[75]

According to Heidegger, then, Cartesian man's freedom is a radical freedom. Unlike classical man, he is not *of* anything naturally binding: he *is* only insofar as he is in and for himself, that is to say, insofar as he is in *control.* His ontological challenge resides in the replacement of the certitude of dogma and the assurance of eternal life by guaranteeing for himself the certitude of the knowable. It is in this context that Descartes searches for a "self-grounding ground" or a *fundamentum absolutum inconcussum veritatis.*[76] Man's "liberation to" himself Heidegger summarizes as follows:

> Now Being-free means that man posits...such a certitude in virtue of which he becomes certain of himself as the being who in this manner poses himself on and as his own ground.[77]

How can such a man, whose disengaged stance to the world forces him to re-ground his identity through the explicit use of power, be described in terms of the ontological selves? Cartesian man is certainly not a secure self in the classical sense. His project is surely rather one expressing a *re-secured* self.

9. It is tempting to flesh out the nature of this re-secured self in terms of a modern form of secure self, capable of offering self-descriptions like the secure self, albeit in another (disengaged) language. But I want to argue that, upon reflection, Cartesian man must be assessed in terms of an insecure self, incapable, in the end, of offering meaningful self-description in the sense defined above. To make this argument, though, I must, at some point, describe the circumstances under which classical man can manifest an insecure self. I must also give reasons for not defining classical man in terms of an insecure self. The analysis, that is, must provide reasons for defining Cartesian man as that kind of man who can be described as a necessarily insecure self. This rests on a philosophically

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75 Ibid., p. 98.

76 See "Age of the World Picture," p. 148.

77 *Nietzsche*, p. 99.

coherent answer to this question: What is it about an ontological disposition to the explicit use of power that necessarily manifests an insecure self? Again, ultimately I want to outline what it means for Heidegger to say that in the modern age, man longer encounters himself in his essence, that, roughly, man's teleological structure can be frustrated by the manner in which man produces his material security, in terms of the selves outlined above. This requires turning first to models of productive activity offered by Marx and Heidegger to determine the structure of the technological threat.

Praxis And Technology

I

1. One of the conclusions reached in the previous chapter is that a critical account of technology is to be found through emphasis on the subject. This, in effect, is to continue within the tool-use model, because it is the use of tools by a subject that is of philosophical interest. The alternative viewpoint, that (somehow) tools use subjects, is attractive, to be sure, yet a philosophical nonstarter. But to continue within the tool-use conception of productive activity is not to accept its truth uncritically. The tool-use model can also take on mythic proportions and thus far we have no reason to reject the autonomist position that, pushed too far, the tool-use paradigm exhausts its explanatory power and becomes a mere paean for modern, technological practice. Nevertheless, the conception of productive activity as tool-use does guide the systematic critic away from the attractiveness of or seduction to the notion that "technology is out of (or in) control." And once it is admitted that the tool-use model is suspect, then the challenge becomes one of finding or constructing a more sophisticated account of productive *activity*, one, for example, that might not separate man's intentions and his use of tools.

Emphasis on the subject, then, must take the form of accounting for the subject's conduct. But too often discussions of productive activity—what the proper "role" of technology is, whether "it" is ethical or unethical, and the like—take place (heatedly) without a clear conception of what "technology" is. As Ellul, for example, admits: "In my early studies on technology, I employed this term as a concept without explaining it, thereby giving rise to countless misunderstandings."[1] Therefore, the search for a clear conception of what productive activity amounts to must be combined with the search for a clear conception of what "technology" is or, at least, what a description of technology amounts to.

In what follows, I wish to suggest that both a clear conception of productive activity and a good, working description of technology can be had through reference to Marx's account of "activity." Marx leaves no doubt that central to an account of the subject is an account of practical activity and that central to practical activity is the "use of tools"

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1 Jacques Ellul, *The Technological System* , trans. J. Neugroschel (New York: Continuum, 1980), p. 21.

and, moreover, that the use of tools is socially and historically significant. I wish to argue, in essence, that Marx's account of the subject can be seen in Aristotelian terms and that once viewed this way, it becomes possible to abstract out of Marx's account of practical activity a general description of technology. Recent analytic work on Marx's philosophy of history makes the latter challenge manageable.

But with regard to the former, or with regard to Marx's philosophical anthropology, it will be necessary to stick close to Marx himself, taking, as noted, an Aristotelian perspective and buttressing this with material that supports the contention that, for Marx, man has an essential nature and that this nature is best captured in terms of Aristotle's concept of *praxis*. That Marx believes man has an essential nature is not difficult to establish but that this nature is praxial requires some interpretation, both of Aristotle and Marx. One, that is, can offer arguments supporting the interpretation that Marx holds man to be essentially a being of *poiesis*, a being that is a productive animal and no more than that (a "tool-making" animal); or one can reasonably interpret Marx as *saying* that man is a being of *praxis* but really *meaning* that man is a poietic being; or, finally, one can argue for an interpretation that Marx holds man as strictly a being of *praxis* in that his productive activity expresses what Aristotle calls "doing." I will argue for the third interpretation, that man's productive activity has a goal within itself and must be distinguished from *poiesis* or "making," which aims at bringing into existence something distinct from the activity itself.

II

2. Certainly Althusser is extreme in asserting that the "mature" Marx came to reject the idea of a human nature, that he "broke radically with every theory that based history and politics on an essence of man."[2] On close inspection, it must be the case that Marx holds, in one way or another, at least something invariant or universal about "man," which can be said of all "persons." He cautions as late as *Capital* that we must "first deal with human nature *in general* and then with human nature as modified in each historical epoch."[3] But, by the same token, doubtless Marx thinks that *certain* conceptions of human nature or "the essence of man" are empty. He states, for example, that the human essence is no abstraction inherent in each individual," that to "abstract from the historical process...and to

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2 Louis Althusser, *For Marx* , trans. B. Brewster (New York: Pantheon Books, 1970), p. 227. (Emphasis added.)

3 Karl Marx, *Capital*, Vol. I, trans. Moore & Aveling, ed. Frederick Engles (New York: International Publishers, 1967), p. 571. (Emphasis added.) Hereafter cited as *Capital*.

presuppose an abstract—isolated—human individual" leads one to a concept of "essence" that "can be comprehended only as 'genus', as an internal, dumb generality which naturally unites the many individuals."[4]

The "abstract individual" in reality "belongs to a particular form of society" and it is *social* relationships that are common to or unite men; rather than an abstract human essence, the proper "standpoint...is human society, or social humanity."[5] Marx states that "to be avoided above all is establishing 'society' once again as an abstraction over against the individual. The individual *is* the social being. The expression of his life—even when it does not appear immediately in the form of a *communal* expression carried out together with others—is therefore an expression and assertion of *social life*."[6] And he adds that even when "my activity is a scientific one, etc., an activity that I can seldom perform directly in company with other men, I am still acting socially since I am acting as a man. Not only the material of my activity—like language itself for the thinker—is given to me as a social product, my own existence is social activity."[7] Marx, then, *begins* with a conception of man as man-in-society, allowing for no antithesis between the individual and the community, the constitution of which might be explained, for example, in terms of atomized individuals united through a "social contract." Marx emphasizes that society "does not consist of individuals, but expresses the sum of interrelations and relations within which these individuals stand."[8]

Marx's social perspective does imply, then, as Althusser says, that it "is impossible to *know* anything about people except on the absolute precondition that the *philosophical myth* of man is reduced to ashes."[9] For the mature Marx, central to the transition from the myth of isolated individuals containing an abstract essence to knowledge of the nature of man is not a theory of man as such but one of man's practical activity, his "praxis." Man is in reality a social being and *as* social he is essentially practical: "All social life is essentially practical. All mysteries which lead theory to mysticism find their rational solution in human

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4 See Marx, "Theses on Feuerbach" in David McLellan, ed., *Karl Marx: Selected Writings* (Oxford: Oxford University Press, 1977), p. 157.

5 Ibid., p.158.

6 See Marx, "Economic and Philosophic Manuscripts" in *Writings of the Young Marx on Philosophy and Society* , ed. and trans. Loyd D. Easton & Kurt H. Guddat (New York: Doubleday & Company, Inc., 1967), p. 306. Hereafter cited as "Economic and Philosophic Manuscripts."

7 Ibid.

8 See Marx, *Grundrisse: Foundations of the Critique of Political Economy*, trans. Martin Nicolaus (New York: Random House, 1973), p. 265.

9 Althusser, *For Marx* , p. 229.

practice and in the comprehension of this practice."[10] This does not mean, however, that an account of human conduct, or a theory of history, forces one to deny of that conduct historically invariant features.[11] Indeed, one may argue that the analysis of society with concepts like the forces and relations of production *requires* a further non-structural or general concept of human nature for explanatory force. So although Marx begins with "society," man will always have certain characteristics that are universal—capacities and needs[12]—and presupposed in a theory of history that takes its standpoint from man's social being.[13]

To say that the essence of man is "necessarily grounded" in praxis does not entail strict identity between his nature and his social structures, as might be interpreted in statements like "in its reality it is the ensemble of the social relations"[14] or, as in immediately above, where Marx says that society "expresses the sum of interrelations and relations within which individuals stand." These statements do not entail, that is, that Marx espouses an ontology of "pure relations," wherein there exists no independent entities like "individuals."[15] Rather Marx can be seen to be espousing traditional Aristotelian ontology wherein what exists as an independent entity is the concrete individual and that relations are

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10 Marx, "Theses on Feuerbach," p. 157.

11 See G. A. Cohen, *Karl Marx's Theory of History: A Defence* (Princeton: Princeton U.P., 1978), p. 150 f. For systematic accounts of Marx's conception of human nature in general and as historically modified see Bertell Ollman, *Alienation* (Cambridge: CUP, 1973), pp. 75-127 and John McMurtry, *The Structure of Marx's World-View* (Princeton: Princeton U.P., 1978), pp. 19-53. See also W. Peter Archibald, *Marx and the Missing Link: Human Nature* (Atlantic Highlands, NJ: Humanities Press International, Inc., 1989).

12 For a schema of needs see McMurtry, *Marx's World-View*, pp. 33-4. I deal with capacities below.

13 Ibid. p. 19. McMurtry puts it thusly: "Of the forces of production we may say...that for Marx they necessarily involve developed labour-power competences, and they are by definition capable of making material-use values. But labour-power competences and material use-values themselves presuppose, respectively, definite capacities and needs of man himself out of which they are developed and to which they are useful. Forces of production therefore presuppose such needs and capacities, and a notion of human nature in these respects is implicit in Marx's theory from the start." McMurtry adds that Marx himself tells us that "man develops his slumbering powers" and that there is "no production without needs." Also note Norman Geras, *Marx and Human Nature: Refutation of a Legend* (London: Verso, 1983), Chapter Three, for an argument along similar lines.

14 Marx, "Theses on Feuerbach," p. 157.

15 C.C. Gould, *Marx's Social Ontology* (Cambridge: The MIT Press, 1978), p. 31, for example, argues that such a view ignores Marx's repeated references to real, concrete individuals: "...the being of the *relata* would be nothing apart from the relationship, nor would there be a 'that which' stands in relation to something else. We would have an ontology of pure relations, with 'entities' having no independent ontological status whatever accept as nodes of relations or moments of relationship."

properties of these individuals, through which these individuals can be known.[16] According to this ontology, individuals and relations are not separable concepts. The argument that relations are separate entities can only be made, as Marx realizes, in abstraction, just as "in general, relations can be established as existing only by being *thought*, as distinct from the subjects which are in these relations with each other."[17] A social relation is rather a "definite relation between individuals."[18] Marx can say that the human essence is not an abstraction inherent in each individual because he sees relations as secondary substance, as that which makes the abstract particular into a concrete individual. Thus it can be argued that human nature, for Marx, is either manifested in the ensemble of the social relations and/or conditioned by them.[19]

To say that man "is" an ensemble of social relations is, then, to establish the location of man's essence but not to establish its nature. Thus to say that Marx "begins" with a conception of man as man-in-society is to say he has a conception of concrete individuals as individuals-in-relation, or social individuals. But his nature is established in virtue of that which it is potentially or what it can become in actuality.[20] As for Aristotle, Marx finds that what is distinctive about man is his activity. Man, as will be argued below, is a being of praxis, such that man is essentially a productive being and that it is his material production that determines the existence of his social structures and the existence of the "individual."

But we must be careful not to read *praxis* as "practice," at least in the sense in which contemporary uses of this term and its cognate "practical" call to mind base or mundane activity in the everyday world. Rather Marx's philosophy expresses, as has been pointed out, an account of man's practice in a "higher" or classical sense, one not far removed from or at least in the spirit of Aristotle's use of the term to designate the disciplines and activities inherent in man's ethical and political life.[21] Thus when Marx speaks of man's "practical" or "concrete" activity, he intends nothing more than that this

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16 As Aristotle states in the *Categories*: "All substance appears to signify that which is individual [and] everything except primary substances is either predicated of a primary substance or is present in them, and if these last did not exist it would be impossible for anything else to exist.'" As quoted in Gould, *Social Ontology*, p. 33.

17 Marx, *Grundrisse*, p. 143.

18 Ibid., p. 239.

19 See Geras, *Marx and Human Nature*, p. 46.

20 For a summary discussion of Marx's conception of human essence along these lines, see Sanchez Vaquez, *The Philosophy of Praxis*, trans. M. Gonzalez (New Jersey: Humanities Press, 1977), pp. 342-3.

21 See R.J. Bernstein, *Praxis and Action* (Philadelphia: U. of Pennsylvannia Press, 1971), p. x.

activity is actually existing or that it is empirical. So it is within an Aristotelian framework that Marx's *account* of this activity resides, and not by appeal to a (pejorative) utilitarian sense of practice. A brief account of Aristotle's concept of *praxis* is necessary, then, for an analysis of what Marx has in mind when he speaks of man's nature.

3. The practical life, for Aristotle, is the life of active participation in the *polis*, and is to be distinguished from the life of *theoria* or the contemplative life, one divorced from political partnership and practical necessity and with its own, distinct end (truth).[22] Aristotle also drew a distinction between *praxis* and *poiesis* or between "doing" and "making."[23] We "do" politics but "make" artifacts; that is, doing is governed by or has as its *telos* successful performance of the act itself (*eupraxia*), but making is governed by something external to the act, the product: "since making aims at an end distinct from the act of making, whereas in doing the end cannot be other than the act itself: doing well is in itself the end."[24] Moreover, Aristotle maintains that the life of man is *praxis* and not *poiesis*: "life is action and not production."[25] *Praxis*, in this restricted sense, designates action proper, conduct that expresses deliberation and self-direction, or rational and purposeful conduct.[26] Aristotle does not deny that productive activity is rational and purposeful conduct as well. But making, for Aristotle, does not define what is truly distinctive about man, his ethical and political activity: "it is the peculiarity of man, in comparison with the rest of the animal world, that he alone posses a perception of good and evil, of the just and the unjust, and of other similar qualities, and it is association in these things which makes a family and a polis."[27]

Aristotle's use of *praxis* in its technical sense, then, does not encompass what is presupposed for the good life but, rather, what practical life in its fullest sense entails: full participation in the activities of the *polis*. For Aristotle, productive activity, as will be discussed below, is that which serves the community, it is *for* the community, whereas ethical and political activity constitute the community, it is *of* the community. Thus "practice" and its cognate "practical" in the classical sense designates i) conduct that

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22 Aristotle, *Politics*, VII, 1-3, trans. Ernest Barker (Oxford: Oxford University Press, 1958), pp. 279-89.

23 Aristotle, *Nichomachean Ethics*, VI, trans. H. Rackham (Cambridge: Harvard University Press, 1982), p. 335.

24 Ibid., p. 337.

25 Aristotle, *Politics*, I, p. 10.

26 Aristotle, *Nichomachean Ethics*, VI, p. 335.

27 Aristotle, *Politics*, I, p. 6.

naturally constitutes a community with intrinsic purposes, ii) which conduct is free, purposeful activity, and iii) which activity serves to distinguish man from other beings.

III

4. As suggested above, man's productive activity determines the existence of his social structures. This is to say that society, which Marx defines as "the sum of interrelations within which...individuals stand,"[28] is a function of man's nature. Marx states, for example, that social structures obtain when men find themselves in close relationship because "their needs—therefore their nature—and the manner of satisfying them creates between them reciprocal links (sexual relations, exchange, division of labour)."[29] Marx, that is, takes society to occur naturally as "the product of men's reciprocal activity," expressing a reposition on a base requirement for (intra-species) cooperation.[30] Man's reciprocal activity is delineated as follows: "Animals are unable to combine the different attributes of their species, and unable to contribute anything to the *common* advantage and comfort of the species. It is otherwise with *men*, amongst whom the most dissimilar talents and forms of activity are of use to one another."[31] Thus society is also a function of man's talents, his powers or capacities. And it is the context in which those capacities are realized, the context in which they are "of use." Marx says that when man "cooperates systematically with others, he strips off the fetters of his individuality, and develops the capacities of his species."[32]

Man's social being is, then, a function of his *need* for cooperative behavior, which is to say that his social being is a function of his nature, which "nature" can be identified with his activity. Marx says that "men create and produce their communal nature by their natural action; they produce their social being which is no abstract, universal power over against single individuals, but the nature of each individual, his own activity...."[33] Thus, for Marx, man is a being of praxis in at least the first sense of the classical conception of practice outlined above, in that his conduct naturally constitutes a social structure within

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28 Marx, *Grundrisse*, p. 265.

29 See "The German Ideology " in *Karl Marx, Frederick Engels: Collected Works* (London: Lawrence & Wishart, 1975), p. 437. I have used Ollman's translation, in *Alienation*, p. 106.

30 Karl Marx and Frederick Engles, *Selected Correspondence, 1846-1895*, trans. Donna Torr (New York: International Publishers, 1942), p. 7.

31 As quoted in Jon Elster, *Making Sense of Marx* (Cambridge: Cambridge University Press, 1987), p. 67 (from the Economic and Philosophic Manuscripts).

32 Marx, *Capital*, p. 312.

33 Marx, "On James Mill," in McLellan, *Selected Writings*, p. 115.

which he can "develop his capacities." But, as noted above, relations are not abstractions for Marx. Society is rather a constituted entity, dependent on the actions of individuals and, therefore, that which can only be understood through the individual's conduct. Individuals are not products of social relations.[34]

Marx claims that what is most exemplary of man's conduct is material productive activity: "The production of ideas, of conceptions, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men, the language of real life."[35] Thus a further relation, that between man and nature, underlies that between man and man, such that man is a social being *in* and *through* his productive activity.[36] "Individuals producing in society" is identical, for Marx, to "the socially determined production of individuals."[37] Marx states that

> Man is in the most literal sense of the word a *zoon politikon*, not only a social animal, but an animal which can develop into an individual only in society. Production by isolated individuals outside of society—something which might happen as an exception to a civilized man who by accident got into the wilderness and already dynamically possessed within himself the forces of society—is as great an absurdity as the idea of the development of language without individuals living together and talking to one another.[38]

5. Social structures are informed by cooperative behavior but the nature of man is not identical to these structures. As Marx cautions above, we must "first deal with human nature in general." Still to be accounted for, then, is "the nature of each individual," which Marx identifies immediately above with that individual's "activity." The fundamental form of this activity, as we have also seen, is production, which will denote "material" production throughout the following unless otherwise noted.[39] Thus, in order to conceive

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34 For a related discussion, see Gould, *Social Ontology*, Chapter 3.

35 Karl Marx and Frederick Engels, *The German Ideology*, ed. C.J. Arthur (New York: International Publishers, 1986), p. 47. Marx continues: "Conceiving, thinking, the mental intercourse of men, appear at this stage as the direct efflux of their material behavior. The same applies to mental production as expressed in the language of politics, laws, morality, religion, metaphysics, etc. of a people. Men are the producers of their conceptions, ideas, etc.--real active men, as they are conditioned by a definite development of their productive forces and of the intercourse corresponding to these, up to its furthest forms."

36 That the relationship between man and man is not separable from the relationship between man and nature is to say that Marx held no conception of society as distinct from nature: "The production of life, both of one's own in labour and of fresh life in procreation...appears as a double relationship: on the one hand as a natural, on the other as a social relationship." See Marx, *The German Ideology*, p. 50.

37 Marx, *Grundrisse*, p. 83.

38 Ibid., p. 84.

39 Marx also speaks, as note above, of the "production of ideas, of conceptions, of consciousness" in the same breath, using "production" as a covering term for all of man's

of or to describe human nature in general, we must abstract out of the social, or at least out of man's historical relationship to man, "the production process in general, such as is common to all social conditions, that is, without historic character, *human*, if you like...."[40] This will supply a view of "the productive activity of human beings in general, by which they promote their interchange with Nature, divested...of every social form...independent of society, removed from all societies...."[41]

The productive process is informed by the "labour-process," which, independent "of the particular form it assumes under given social conditions," is "a process in which both man and Nature participate, and in which man of his own accord starts, regulates and controls the material reactions between himself and Nature."[42] Through labour,[43] man "opposes himself to Nature as one of her own forces, setting in motion arms and legs, head and hands, the natural forces of his body, in order to appropriate Nature's production in a form adapted to his wants."[44] There are, finally, three interrelated elements or features of

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activities. For a discussion of this usage see G. Kitching, *Karl Marx and the Philosophy of Praxis* (London: Routledge, 1988), pp. 24-25.

40 Marx, *Grundrisse*, p. 320. Marx also states, p. 84, that "'Production in general' is an abstraction, but it is a rational abstraction, in so far as it singles out and fixes the common features, thereby saving us repetition."

41 Marx, *Capital*, Vol. III, trans. Moore & Aveling, ed. Frederick Engles (New York: International Publishers, 1967), p. 815.

42 Marx, *Capital*, p. 173. See also p. 179, where Marx states: "The labour process...is a human action with a view to the production of use-values, appropriation of natural substances to human requirements; it is the necessary condition for effecting exchange of matter between man and Nature; it is the everlasting Nature-imposed condition of human existence, and therefore is independent of every social phase of that existence, or rather, is common to every such phase."

43 "Labour" in the sense crucial to Marx's analysis of human conduct in general is, as is evident in Marx's early writings (the Manuscripts and The German Ideology), conscious, purposeful activity and not "alienated labour." Ollman, in his *Alienation,* noting that the German term *Arbeit* covers both work and labour, draws on a distinction made by Engels (*Capital*, p. 100) that the "labour which creates use-value, and counts qualitatively, is Work, as distinguished from Labour; that which creates value and counts quantitatively, is Labour as distinguished from Work," to assert that labour is, for Marx, really alienated labour, a concept "especially tailored to fit capitalist society." (p.178). The essence of Engel's distinction can be retained, though, by making a distinction between labour power and labouring activity , such that labouring activity itself has no value, cannot be sold, and thus not that which can be alienating. According to the latter distinction one can interpret Marx as speaking of labour, in the first instance, in terms of activity *per se*, that is to say, as an ontological category, designating conduct essential to and universal of man. I discuss this further below. (Perhaps more light is shed on these terminological points by G. Márkus, in his *Marxism and Anthropology* (The Netherlands: Van Gorcum Assen, 1978). Márkus, p. 62, notes that *Arbeit* translated as "labour" "means the technological process taken independently of its social form" and is connected to Marx's early use of "production,"[*Produktion*], by which Marx meant productive activity in the non-economic, anthropological sense.)

44 Marx, *Capital*, p. 173.

the process through which man relates himself to nature: "activity *adjusted to an end*, that is, *work itself, its object* and *its means* [instrument]."[45]

Productive activity is, then, the fundamental form of human conduct and it is defined by the labour process, which process is self-initiated, regulated and controlled toward an end, and which reaches its fulfillment in the creation of an object or a "form adapted to need" through the use of an "instrument of labour." Marx defines an instrument of labour as "a thing, or complex of things, which the labourer interposes between himself and the subject of his labour, and which serves as the conductor of his activity."[46] There are two things of note that surface in this schema: i) the notion of "activity adjusted to an end" and ii) the definition of "means" or "instrument" as a *conductor*. I wish to address i) immediately, as it has relevance to the topic at hand, that is, Marx's conception of human conduct and whether it is Aristotelian, and discuss ii) in the following chapter, as it has relevance to an analysis of the tool-use model of modern productive activity.

6. Marx unpacks his conception of "activity adjusted to an end" by distinguishing between production by man and production by animal:

> We presuppose labour in a form that stamps it as exclusively human. A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality. At the end of every labour process, we get a result that already existed in the imagination of the labourer at its commencement. He not only effects a change of form in the material on which he works, but he also realizes a purpose of his own....[47]

Although Marx maintains that man can be distinguished from animals by virtue of their consciousness, their religion, or "anything else you like,"[48] he locates the *differentia specifica* of man's nature in the production of what might be called his own "material security": "They distinguish themselves from animals as soon as they begin to produce their means of subsistence."[49] But expressed in this behavior is, moreover, a differentiating *capacity*, whose description Marx gives above as this: "that the architect raises his structure in imagination before he erects it in reality." There is, here, more than a behavioral difference—the spider and the bee carry out "operations" and "constructions" as

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45 Ibid., p. 174.
46 Ibid.
47 Ibid.
48 Marx, *The German Ideology*, p. 42.
49 Ibid.

complex as those of any architect—and thus it is not technical proficiency alone that fixes the concept of man: man is *not*, for Marx, simply *homo faber*.[50] Rather what is definitive for Marx's conception of the nature of man is that man has the capacity to "raise a structure in his imagination" to "realize his own purpose." *Vis-a-vis* a description of human conduct, the technical activity of "erecting" the structure is that which is *subsumed* under imagination and purpose. It is not so much that the labour process is productive behavior but, rather, that the labour process is, in its first moment, "activity adjusted to an end," or purposeful activity, and it is this that differentiates man from animal.

Thus, when Marx speaks of productive life as species-life, he speaks of a specific kind of productive activity. Whereas, admittedly, animals produce, the "animal is immediately one with its life activity, not distinct from it. The animal is *its life activity*.[51] But when man engages in the activity of "erecting a structure" this activity is "not a determination with which he immediately identifies."[52] The type of productive activity Marx has in mind as the "species-character" of man's life is one that produces "free from physical need." This productive life expresses "free, conscious activity." Marx states that it is "conscious life activity" that "distinguishes man immediately from the life activity of the animal."[53] Conscious life activity is that activity within which man reflects upon himself and adjusts his behavior in terms of self-purpose, that is to say, within which "his own life is an object for him."[54] This is another way of capturing the freedom that characterizes man's productive activity; that is, as Marx says, "because he treats himself as a *universal* and therefore a free being."[55] Furthermore, Marx draws the implication, in line with his description of man as a social being, that human interaction is qualitatively different than that of animals. Marx states:

> The fact that this need on the part of one can be satisfied by the product of the other, and vice versa, and that the one is capable of producing the object of the other's need, this proves that each of them reaches beyond his own particular need etc., as a *human being*, and that they relate to one another as human beings; that all know their species nature to be social. It does not happen elsewhere—that elephants produce for tigers, or animals for other animals.[56]

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50 See McMurtry, *Marx's World-View*, pp. 21-3.

51 Marx, "Economic and Philosophic Manuscripts," p. 294.

52 Ibid.

53 Ibid.

54 Ibid.

55 Ibid.

56 As quoted in Isidor Walliman's *Estrangement: Marx's Conception of Human Nature and the Division of Labor* (Westport, Conn.: Greenwood Press, 1981), p. 17. Thus Marx draws a contrast

Thus man's productive activity, as distinguished from that of animals, embodies a specific capacity that is man's and man's alone, that which allows him to "raise a structure in his imagination" and "erect it in reality." John McMurtry aptly describes this capacity as *projective consciousness*, which term designates the "legislative-executive agency" that informs man's productive activity.[57] As agency, projective consciousness is the potential for free, purposeful conduct. In short, projective consciousness, as the capacity that structures the entire spectrum of productive activity, serves both to define "activity adjusted to an end" as *the* human activity and the activity that distinguishes man from animal. Thus Marx's general conception of man's nature is of a being of praxis in the second and third sense of the classical conception of practice outlined above, in that man's conduct is free, purposeful activity, which activity serves to distinguish man from other beings. But that Marx's general conception of man's nature as a unique form of conscious activity is arrived at by abstraction from social *form* does not exclude man's inherent sociality. "Consciousness," Marx states, "is from the very beginning a social product and remains so as long as long as men exist at all."[58] To say that man has consciousness is to imply his sociality.

IV

7. Thus we might want to describe "productive man" in terms of the classical conception of practice in the sense that it is in and through his material production that he expresses the unique productive capacity of projective consciousness, wherein consciousness is always conscious production or wherein it is possible for man and only man to *intend* structures in his imagination and then erect them in reality. But is this to say that man can be described as a being of praxis in the original Aristotelian sense of *praxis*? Is there not hidden in a description of Marx's conception of man as praxial a confusion that

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between the unintended benefits of individual, selfish behavior that arise, for example, from a Darwinian "struggle for survival" and conscious, purposive behavior that is uniquely human. In a letter to Engles (18.6.1862), he states: "Darwin recognizes among beasts and plants his English society with its division of labour, competition and opening up of new markets, 'inventions.' and the Malthusian 'struggle for existence.' It is Hobbes *bellum omnium contra omnes*, and one is reminded of Hegel's Phenomenology, where civil society is described as a 'spiritual animal kingdom,' while in Darwin the animal kingdom figures as civil society." As quoted in Elster, *Making Sense of Marx*, p. 67.

57 See McMurtry, *Marx's World-View*, pp. 23-4.

58 Marx, *The German Ideology*, p. 51.

leads to a misclassification of this conception on a level higher or more elevated than can be teased out of Aristotle's conception of *praxis*?

Perhaps one commentator puts it most succinctly when he states that the "use of the word *praxis* should not be taken to imply an acceptance of its original meaning" and that "rigorous attention to the original Greek meanings...would demand the use of *poiesis* rather than *praxis*" such that what we are dealing with here is properly "the philosophy of *poiesis*."[59] Another commentator adds credence to this position by suggesting that Marx's use of the term praxis is "ironic," that in fact Marx's use of the term is more suggestive of "making" than "doing."[60] I wish to argue that there is no confusion or irony involved here, that Marx retains *more* than, as it is put above, an "Aristotelian spirit" in his account of human conduct, that, in fact, Marx retains an Aristotelian *structure* in his account of human conduct. This point is crucial for an analysis of the "tool-use model" from a Marxist perspective. As such, I propose to take another look at Aristotle's distinction between *poiesis* and *praxis* and argue that the classification of "productive man" as praxial in the original sense of *praxis* is logically consistent with Aristotle's schema.

Aristotle says that productive activity is to be distinguished from political and ethical activity on the basis of the "rational quality" or reasoning capacity inherent in both. The reasoning capacity inherent in "making" allows man to act as an efficient cause and bring something into existence that cannot come into existence on its own: "to pursue an Art means to study how to bring into existence a thing which may either exist or not, and the efficient cause of which lies in the maker and not in the thing made; for Art does not deal with things that exist or come into existence of necessity, or according to nature, since these have their efficient cause in themselves."[61] The artifact, as has been noted above, stands "distinct from the act of making." By contrast, political or moral reasoning, which structures activity whose "end cannot be other than itself," allows man to deliberate "about what is good and advantageous for himself, not in some one department, for instance what is good for his health or strength, but what is advantageous as a means to the good life in general."[62] Aristotle also adds this rider: "for himself" is not to be taken literally but, rather, to designate the community of man. He goes on to state that "men like Pericles are deemed prudent, because they possess a faculty of discerning what things are good for

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59 Vaquez, *Praxis*, pp. 1-2.

60 McMurtry, *Marx's World-View*, p. 23.

61 Aristotle, *Nichomachean Ethics*, VI, p. 335.

62 Ibid., p. 337.

themselves and for mankind."[63] Aristotle's conception of self-reflection, then, is both general and universal. Finally, both reasoning capacities and the activities in which they are manifested are mutually exclusive: "the rational quality concerned with doing is different from the rational quality concerned with making. Nor is one of them a part of the other, for doing is not a form of making, nor making a form of doing."[64]

Given Aristotle's dictum that the *forms of reasoning* germane to "making" and "doing" are logically independent, the description of productive man in terms of *praxis* does seem confusing or ironic. It seems to say that Marx, in order to get his project off the ground, identifies "making" with "doing," elevating, in effect, *poiesis* to a principle of human essence, which frustrates Aristotle's distinction. But this would be to say, given Aristotle's conception of making, that Marx conceives of projective consciousness as a form of reasoning that brings into existence and *only* brings into existence an object distinct from both process and producer. There are two objections to this, one obvious and the other less obvious but no less crucial to a coherent explication of the role Marx's gives technology in his *theory* of praxis. The first objection points out that Marx's conception of productive *activity* is more consistent with Aristotle's conception of *praxis* than with his conception of *poietic* activity. The second objection firms up what looks to be the case in the immediately preceding, that is to say, Marx's conception of productive activity *cannot* be classified as *poietic*, on pain of begging the "of" and "for" distinction characterized above as that distinction which grounds Aristotle's division of *praxis* and *poiesis*, a distinction that Marx must be faithful to in order to have a theory of praxis and not, merely, a "theory" of technology.

8. First, projective consciousness is that form of reasoning, as argued above, that both informs productive activity and expresses free, purposeful conduct. Productive activity is free in both a negative and positive sense. Marx says "man produces free of physical need and only genuinely so in freedom from such need."[65] And, as noted above, it is an activity within which "his own life is an object for him" such that "he treats himself as a *universal* and therefore a free being." A similar negative and positive account of free, purposeful conduct is found in Aristotle's *Politics*, where he states that a "state with an ideal constitution...cannot have its citizens living the life of mechanics or shopkeepers, which is ignoble and inimical to goodness. Nor can it have them engaged in farming; leisure is a

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63 Ibid., p. 339.

64 Ibid., p. 335.

65 Marx, "Economic and Philosophic Manuscripts," p. 294.

necessity, both for growth in goodness and for the pursuit of political activities."[66] *Praxis*, then, is that activity within which man is free from the life of a "mechanic or a shopkeeper" and within which, therefore, man has the "leisure" to deliberate about what is "good for himself and mankind." Aristotle, that is, envisages purposeful conduct as free and thus truly human, in the positive sense, in terms of universality and self-reference. And in its positive sense, Marx's characterization of man's "life activity" looks rather like Aristotle's characterization of *praxis*. Aristotle characterizes free, purposeful conduct as activity within which, as Marx says, man treats himself as an object, as a universal and therefore a free being. Thus the notion that "what men are coincides with their production"[67] can be taken to be an expression of the Aristotelian notion of free, purposeful activity as self-contained. Moreover, for Marx, that men produce their social being implies that men define themselves through their productive tasks.[68]

But yet Aristotle's conception of free, purposeful activity is phronetic and Marx's conception still seems too much of *poiesis*, in that it is material production and not deliberation that is central to Marx's conception of free, purposeful conduct. For Marx, the "real language of life" is the "material activity and the material intercourse of men." This is obviously not so for Aristotle, but it is crucial to outline why. Aristotle says that mechanics and labourers cannot be citizens and therefore "may be described as necessary conditions of the state."[69] His point is that there are members of the community who are integral to the community by virtue of active participation in political activity but, as a condition for the possibility of political activity, there are also members who provide a material basis for citizenship. He states that in "considering the social structure required in an ideal state, we must begin by making a distinction between 'integral parts' and 'necessary conditions.' The integral parts of the state are the full citizens who share actively in the full good life of the state: the necessary conditions are the ancillary members who make it possible for the full citizens to share in that life."[70] Mechanics and labourers, tied to life's bare necessities, are the ancillary or necessary conditions for the possibility of free, purposeful conduct. They stand to the community as the slave stands to his master: "Those who do menial

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66 Aristotle, *Politics*, VII, p. 301.

67 See Marx, *The German Ideology*, p. 42.

68 This is a an implication that McMurtry, *Marx's World-View*, sees. Note his discussion on projective consciousness, pp.. 22-4, where he also notes that "Marx's concept of man defining himself through his projects...prefigure[s]...the entire aiming-at-what-is-not-yet theme of twentieth-century existentialism." I will address this further in Chapter 4.

69 Aristotle, *Politics*, III, p. 107.

70 Aristotle, *Politics*, VII, p. 298.

duties may be divided into two classes—slaves, who do them for individuals, and mechanics and labourers, who do them for the community...."[71] Thus, for Aristotle, production, as has been suggested, is *for* the community and not *of* it.

Aristotle justifies his distinction thusly: "the conditions which are necessary for the existence of the whole are not organic parts of the whole system which they serve. The conclusion which clearly follows is that we cannot regard the elements which are necessary for the existence of the state, or of any other association forming a single whole, as being 'parts' of the state or of any such association."[72] Labourers and mechanics are not part of the community, not "organic parts of the whole," because they have nothing in common or are not identical with the ends of the community. Aristotle states:

> Now there is nothing joint or common to the means which serve an end and the end which is served by those means—except that the means produce and the end takes over the product. Take, for example, the relation in which building tools, and the workmen who use them, stand to the result produced by their action. There is nothing in common between the builder and the dwelling-house he builds: the builder's skill is simply a means, and the dwelling-house is the end.[73]

Given Aristotle's point that there can be no community between the end and the means, that they are logically distinct, the mechanic and the labourer are, therefore, *as* means, merely instrumental to the community. They having nothing in common with the community, or, more precisely, that which constitutes the community: the association of equals and as Aristotle emphasizes "*only* of equals," whose sole purpose "is the best and highest life possible."[74] The mechanic and labourer are a means for the production of an object, which object, in turn, is necessary for the conduct of political activity, in effect prohibiting the participation of the mechanic and labourer in that conduct. That the mechanic and the labourer are not identical with the end—that they cannot share in but can only provide service for the moral and ethical activities of the citizen—and, therefore, that they are not equal to those citizens, places their productive *activity* on par with their tools as means. Thus the mechanic and the labourer are not self-contained, they are not ends for themselves, but, rather, instrumental and *only* instrumental to the life of the community.

The objections to the identification of the producer and his tools are obvious, at least to the modern, post-Kantian ear and they are not missed by Marx. We no longer

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71 Ibid., III, p.108.
72 Ibid., VII, p. 298.
73 Ibid.
74 Ibid.

assent to the cutting up of humanity on the basis of communal function and thus no longer consider any man as a means to another. No longer, that is, are workers considered like slaves, as "animate tools" or "living instruments."[75] Each producer, *in virtue* of being a man, is a person with an end of his own and this is incompatible with his being an instrument. Marx's account of the labour process expresses this. The labour process, as has been noted, is comprised by three elements: free, purposive activity, the artifact, and the tool(s) used to form the artifact out of raw material. Now, for Aristotle, it is the first and third elements—the productive activity and the tools—that comprise the means. Thus Aristotle can say that labour is a means to the conduct of ethical and political activity, which conduct is separate and above productive activity. But for Marx, if, as he says, "we examine the whole labour-process, from the point of view of its result, it is plain that both the instruments and the object of labour are means of production, and that the labour itself is productive labour."[76] Labouring activity stands separate from the object of labour and the tools or instruments of labour. As opposed to Aristotle, the object and not the agent (or agency) is a means. Labouring activity, that is, does not stand as in the service of an end but as free, purposeful conduct, as that kind of activity which, as noted above, is self-contained. Marx's conception of productive activity, therefore, seems to be more logically consistent with that of *praxis*.

9. If Marx, for example, is to be interpreted as saying that productive activity is *poietic*, then that activity would have to be subsumed under the forces of production; that is, it would have to be construed as a productive force. To locate productive activity as a productive force is to say that this activity is a means of production, that it is *used* in production, in the same manner that raw material has productive use. This is to "suppress" the intentionality of a human being and use him as a physical object.[77] In terms of the argument being developed here, it would be to say of Marx that he flirts with a justification of slavery through the suppression of projective consciousness. This is to deny his stated position that all labouring activity is "productive activity of a definite kind, carried on with a definite aim."[78] But Marx was well aware of thinking nested in a society in which slavery was the norm and how this thinking could easily miss the significance of labouring activity.

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75 Ibid., I, pp. 9-18.

76 Marx, *Capital*, p. 176.

77 See Cohen, *Defence*, pp. 43-4. Cohen states that a "human being is not a productive force except when his intentionality is suppressed and he is used as a physical object. The Nazis used human beings as raw material for lampshades, and if their ovens had fueled production, they should have been using them as instrumental materials too."

78 Marx, *Capital*, p. 49.

Indeed, Marx (gently) criticizes Aristotle for not recognizing that human labour is the substance of the equivalence between commodities, that the attribution of value to commodities is "merely a mode of expressing all labour as equal human labour, and consequently as labour of equal equality."[79] Marx notes, in Aristotle's favour, that "Greek society was founded upon slavery, and had, therefore, for its natural basis, the inequality of men" and goes on to absolve Aristotle in terms of the "peculiar conditions of the society in which he lived."[80] Thus to construe man's capacity for a projective consciousness as that which has to do with "making" or to suggest that "what we are dealing with here is properly the philosophy of *poiesis*" is to misclassify the activity of labour along with tools and raw material, as that which is for the community.

Productive activity, for Marx, expresses "a definite form of activity," which is to say that that activity is "a definite form of expressing their life," such that "as individuals express their life, so they are."[81] Material productive activity cannot, as Marx says, be considered "simply as being the production of the physical existence," the production of man's material security per se, but, rather, man's self-definition. Thus production is not a "technological" category for Marx but, rather, an existential or teleological one. As self-contained activity, production and, therefore, labour, is standardly that of *praxis*. And a theory of *praxis* a theory not of the development of the *means* or the forces of production but, rather, a theory of the *purpose* of productive activity; that is, a theory of "the transformation of human nature."[82] What "we are dealing with here" is, then, not a philosophy of *poiesis* or of "making" but, rather, a philosophy of social (and therefore human) change. Marx does not have a philosophy of technology. The *manner* in which man produces or "makes" food, clothing, and shelter—a description of technology that will be defended immediately below—holds little or no *philosophical* (or scientific) significance for Marx. Marx's central technological concept, the "forces" of production, is a notion that is coupled with purely quantitative notions, such as the "level" of the productive forces, which is measured by their level of "efficiency" or their degree of productivity.[83]

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79 Ibid., p. 65.

80 Ibid.

81 Marx, *The German Ideology*, p. 42.

82 The full quote, in *The Poverty of Philosophy*, ed. F. Engels (Moscow: Progress Publishers, 1966), p. 128, is: "All history is nothing but the transformation of human nature."

83 Marx says at p. 831 in the *Grundrisse*, for example, that the "growth of the productive forces of labour means merely that less direct labour is required in order to make a larger product."

Moreover, an account of the forces of production amounts, for Marx, to (merely) a history of industrial technology.[84]

10. What does hold interest for Marx, to buttress and summarize the conclusion reached above, is what is *expressed* in production; that is, the relationship essential to labour. This relationship is that between the producer and his productive activity; as Marx says, the relationship that is "inside productive activity itself."[85] The product is only the "summary" or "résumé" of this relationship, its "externalization."[86] The activity of labour itself, when labour is taken in its universal sense, is activity which is of his essence. He "confirms" or actualizes himself through his labour. Precisely *how* this occurs must yet be explained (in the next chapter) but suffice it to say, for now, that Marx's position is that expressed in the production of an object is more than the mere satisfaction of a need, more than mere animal behavior. Marx is willing to admit that "eating, drinking, and procreation" and the like are "genuine" human functions, but he cautions they must not be separated from "the remaining sphere of human activities," else they become final and exclusive ends and therefore leave man as mere animal.[87] The final end of man, as noted above, is man and, as also noted above, "the other round of human activity" is that activity which makes man unique, his species-life activity, which is the power to treat himself as an object, as a universal, free being. "Productive life is...species-life," Marx says, it "is life begetting life."[88] For Marx, it is the "practical creation of an *objective world*, the treatment of inorganic nature [that is] proof that man is a conscious species-being, that is, as a being which is related to itself as a species-being."[89] Thus he states that "it is in the treatment of the objective world [that] man proves himself to be genuinely a species-being. Through it nature appears as *his* work and his actuality. The object of labor is thus the *objectification of man's species-life*: he produces himself not only intellectually, as in consciousness, but also actively in a real sense and sees himself in a world he made."[90] What is expressed in productive activity is, therefore, a process of self-actualization. What, at first glance, *looks*

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84 See Marx, *Capital*, p. 351. Marx states: "Darwin has interested us in the history of nature's technology...Does not the history of the productive organs of man, of organs that are the material basis of all social organization, deserve equal attention?" See George Basalla, *The Evolution of Technology* (Cambridge: CUP, 1988) for a theory of technological evolution.

85 Marx, "Economic and Philosophic Manuscripts," p. 291. (I have used McLellan's translation, at p. 80 in Selected *Writings*.)

86 Ibid.

87 Ibid., p. 292.

88 Ibid., p. 294.

89 Ibid.

90 Ibid., p. 295. I return to the notion of "objectification" in the following chapter.

like "making," the production of an object, is, as Marx says, merely a resume or a summary, the mere appearance of a *relationship* more complex than that envisaged by Aristotle.

One might want to retort that in concrete, historical situations, Marx's concept of alienated labour captures activity that is best described in terms of making rather than doing. Indeed, in its concrete, social reality, Marx seems to describe alienated labour as just that which is for the community, if we take Aristotle's (restricted) notion of the community, in terms of equality among those possessing leisure. Marx says, for example, that labour produces "marvels for the wealthy," it produces "palaces" and "culture," all the while enslaving the labourer.[91] And Marx also says that the object of labour stands to the maker as "alien," as a power independent of and opposed to him.[92] Thus his description of the object as alien seems, as well, to fit into Aristotle's definition of *poiesis*, in that the object produced stands distinct from the productive process, distinct, as Aristotle says, from the "act of making." But it must be recalled that the produced object is merely the summary of productive activity and that "inside this productive activity itself" is *relationship* between the maker and his activity. Marx says, for example, that labour is not the worker's own but "someone else's, that it does not belong to him, that he does not belong to himself in his labour but to someone else...to another man apart from the worker."[93] What is expressed in the self-activity of the labourer, then, is a definite social relationship. But it is not the kind of *apolitical* relationship between men who have nothing in common that Aristotle envisages; that is, one that is for all intents and purposes in "the nature of things."[94] For Marx, it is a relationship that is thoroughly political; that is, a class relationship, wherein the self-alienation of man unjustly "creates the domination of the nonproducer over production and over product."[95] Thus Marx envisages productive activity in its alienated form as, at root, a political phenomenon; that is, as standardly constitutive *of* the community.[96] Marx's concept of alienation is discussed further in the following chapter.

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91 Ibid., p. 291.

92 Ibid., p. 290.

93 Ibid., pp. 296-7.

94 See Aristotle, *Politics*, I, chapters IV-VII for his treatment of slavery.

95 Marx, "Economic and Philosophic Manuscripts," p. 297.

96 That class relationship, for Marx, is constitutive of the political realm and not law, as is the case for Aristotle, would seem to be immaterial to the argument that Marx sees productive activity as of the community. For Marx, the law can be reduced to class relationships. Moreover, the significance of Aristotle's insight that political activity is verbal is not lost by Marx. As he states above, "the material intercourse of men is the language of real life."

In its general form, then, Marx has a conception of labour as self-actualizing conduct. Described in its concrete, historical form, as alienated labour, it is, in essence, that which expresses a political relationship. Taking these two perspectives together, we can say that productive activity is praxial for Marx in i) a positive sense, in that it is an expression of a universal capacity of man to be a self-determining being and ii) in a negative sense, in that it expresses a situation in which that capacity is frustrated by class division or historical contingency. Thus Marx's call for an overthrow of class division—that is, for the abolition of private property—is based on his conception of (any) man's behavior as teleological, as that which is capable of (free) self-development. In this teleological sense, the *description* of productive activity in concrete, historical form takes on *prescriptive* significance. That man is actually or "objectively" alienated is not merely, for Marx, a statement of fact but, rather, a problematic that calls for a resolution of the gap that exists between what he is—his existence—and what he can become—his essence.[97] As one commentator argues, Marx does not measure "man's 'alienated state' either against a transhistorical human nature or against a 'logically predetermined' future. Rather [he] measure[s] it against a human potentiality revealed by the very phenomenon of alienation—against a human potentiality which though at first it emerges in an alienated state, allows one to envisage a previously unknown possibility of ultimate human self-actualization."[98] Productive activity is, then, for Marx, not a type of poietic activity but, rather, praxial activity in either a positive or negative form.

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11. But does not the argument that productive activity is nonpoietic collapse Aristotle's distinction, which he makes between types of activity that are either of or for the community? I have maintained that Marx must be faithful to at least the "of and for" form of Aristotle's distinction, otherwise Marx would have a philosophy of technology and not one of praxis. He would be trying to come to terms with or attempting to find something of philosophical or scientific interest in the (development of the) forces of production and not man's productive activity *per se,* or the contradictions that are expressed in concrete forms of that activity. And I have hinted that what is for the community are the forces of

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97 As Vaquez, *Praxis*, p. 338. puts it,: "a) man has an essence; b) his essence is labour; c) in his actual existence his essence only occurs in an alienated form; d) man's essence is therefore separated from his existence."

98 See Nicholas Lobkowicz, *Theory and Practice: History of a Concept From Aristotle to Marx* (New York: University Press of America, 1967), p. 315.

production but have used this notion synonymously with "technology" and offered a description of technology as "the manner in which man produces his material security." But this is rough and must be firmed up. The distinction, as Aristotle presents it above, expresses a difference between what is social and nonsocial; that is, between the slave-like life of a mechanic or labourer and that of a (true) citizen. As noncitizens, the former are "necessary conditions" of the community, in the sense that they provide the material basis for active participation in political and ethical discourse. Thus to argue that Marx does not collapse the Aristotelian distinction but, rather, re-interprets it, descriptions of technology must contain no social elements whatsoever. Only in this way can it be said that Marx retains a conception of what is of and for the community that is not based on a distinction between types of activity. All (human) activity for Marx, as I have argued, is praxial and therefore inherently social.

What can be noncontroversially argued as for the community, for Marx, are the "forces of production."[99] Marx states in *Capital* that the productive forces are "the *material* basis of all social organization."[100] For this to be a distinction between the material and social properties of the community in the Aristotelian sense, though, "basis" must be understood in the sense that the material features of a society must be *external* to its social features.[101] Only in this way can Marx be said to be faithful to the Aristotelian distinction between what is for and of the community, for both must be mutually exclusive. The forces of production must be said to be exclusively for the community and never in any way constitutive of it, never in any way relational. I take as a base characteristic of "social" what Marx says it is: "the cooperation of several individuals, no matter under what conditions, in what manner, and to what end."[102] I take as a base definition of "material," then, anything that is necessary to any given form of cooperation or to the set of relations expressed in that form, be that set economic, political, legal, etc. Thus to say of anything that it is to be deemed a force of production is to say that it cannot be a relation, that it is not something that holds between men. A "force" of production, then, must be either i) a property of an object or ii) an object bearing that property.[103]

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99 Marx gives a schematic analysis of the productive forces in *Capital*, p. 177 f.

100 Marx, *Capital*, p. 352.

101 Cohen, *Defence*, p. 30, that in one sense *x* is the basis of *y* such that *x* is that part of *y* on which the rest of *y* rests but in another *x* is the basis of *y* such that *x* is external to *y* and is that on which the whole of *y* rests. It is the latter sense of "basis" that is invoked here.

102 Marx, *The German Ideology*, p. 50.

103 Cohen, *Defence*, p. 28. I have followed Cohen's discussion on p. 28. He explains the above distinction on pp. 37-8, such that the distinction is between powers proper, such as labour power and particulars possessing productive force, such as raw materials and tools. Labour power is

Any force of production will count as possessing productive power or being a productive power if it is both *necessary to* and *used* (or can be used) in production.[104] That which enables a producer to work, then, are only those items that are *materially* necessary for the production of goods. Ways of motivating people or simply forcing them to produce (through incentives or pointed guns) do not count as productive forces,[105] for although they may be necessary for production (in cases where there exists a reticent work force), neither are necessary conditions of production in the sense that they are physically used. Obvious candidates to be included in the productive forces, then, would be the means of production, described by Marx as "the material factors" of production.[106] Thus one class of the forces of production would include both the "objects" of labour and the "instruments" of labour, the raw materials and tools indispensable for labour's "realization."[107] The means of production must be further distinguished by reference to the intentional structure of the labour process, such that raw materials differ from instruments of production "in that the purpose of production is to change the first and not the second."[108] It is not enough, that is, to say that an instrument is that which the producer works with and a raw material that which a producer works on: "the potter certainly works with clay, and the maker of lamp-stands works on a lathe."[109]

But the forces of production cannot be composed of "instruments" and "raw materials" only: "Nature builds no machines, no locomotives, railways, electric telegraphs,

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discussed below.

104 See William H. Shaw, *Marx's Theory of History* (Stanford: Stanford University Press, 1978), p. 18. Shaw states that the "'productive forces' are defined not just as those things which are necessary for production--since many things like laws or soldiers might be necessary for production to be successfully continued--but as those things which are the basic elements of the *actual* labour process, those factors which are used in this process." (Emphasis added.) And for this reason the "means of subsistence" are not normally counted as forces of production. See Shaw's discussion, pp. 17-8. "or can be used" is a rider McMurtry adds to the definition of a productive force, such that unemployed labour-power and idle factories will count as productive forces. See McMurtry's discussion in his *Marx's World-View*, pp. 55-6.

105 Force and incentive may be said to enable production but, as Cohen notes, they are not "grounded in the physical facts of the situation." See Cohen, *Defence*, p. 34.

106 Marx, *Capital*, Vol. II, trans. Moore & Aveling, ed. Frederick Engles (New York: International Publishers, 1967), p. 33.

107 Marx states that the "means of production in every labour process, regardless of the social conditions in which it takes place, are divided into instruments and objects of labour." See *Capital*, Vol. II, p. 164. As Cohen points out, Marx used the term "objects" of labour to designate both raw materials *and* "non-raw materials" such as fish in fishing and timber of the virgin forest. See Cohen, *Defence*, pp. 38-9, for a discussion of this usage. "Instruments" of labour will be dealt with below.

108 See Cohen, *Defence*, p. 48.

109 Ibid.

self-acting mules etc. These are products of human industry; natural material transformed into organs of the human will over nature, or of human participation in nature. They are *organs of the human brain, created by the human hand...*"[110] The means of production, that is, imply productive capabilities or labour-power.[111] Whereas the means of production can be considered the objective condition of production, labour-power can termed, as that which goes "hand in hand" with tools and raw materials, the subjective condition.[112] "By labour-power or capacity for labour," Marx says, "is to be understood the aggregate of those mental and physical capabilities existing in a human being, which he exercises whenever he produces a use-value of any description."[113] Labour-power denotes capabilities or skills of a *technical* nature, as Marx says, "the tricks of the trade."[114] In addition to skills can be added scientific knowledge, to the extent that that knowledge is "productively useful," and this to the extent that science is materially useful to production.[115] Labour-power, in line with the above definition of a productive force, is that which is both necessary to and used, or "consumed," in the labour process.

Labour-power must be distinguished from both labouring activity and natural capacities. Labour-power refers to nothing more than the worker's learned ability to carry out a specific work task. Labour-power is, then, a certain kind of *competence* the worker uses in the labour process, which Marx speaks of as a whole, as the "aggregate of mental and physical capabilities." Thus, although the competence that labour-power is is mental, made possible by training or education, it is not only that. It is the embodiment of the mental in the physical. If labour-power were only mental, or only sets of rules, then it could not be a productive force, because a productive force is standardly that both

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110 Marx, *Grundrisse*, p. 706.

111 Thus Marx refers to the development "of the material (and therefore also of the mental) productive forces." See Marx, *Pre-capitalist Economic Formations* , trans. Jack Cohen (London: Lawrence & Wishart, 1964), p. 105.

112 Marx speak this way at p. 495 in the *Grundrisse*.

113 Marx, *Capital*, p. 164.

114 Marx speaks of the development of the mental productive forces thusly: "Since there are always several generations of labourers living at one time, and working together at the manufacture of a given article, the technical skill, the tricks of the trade thus acquired, become established, and are accumulated and handed down." See Capital, p. 321.

115 Marx states that "the development of science ...is only one aspect, one form in which the development of the human productive forces ...appears." See *Grundrisse*, p. 540. The development of scientific knowledge can be seen as either going hand in hand with or subsequent to the development of the tricks of the trade. In the modern economy, for example, skills are often replaced with machines (robotics), yet that replacement often requires the development of new skills (the "tricks of the trade" in computer programming). See further discussion in Shaw, *Marx's Theory* , p.18 f. For a defense of the inclusion of (productively applicable) scientific knowledge as material, see Cohen, *Defence*, pp. 45-7.

necessary to and *actually* used in the labour process. That it is both knowledge and used in the production process defines it as a form of "know-how," involving "both mental and physical content in any given case."[116] One learns how to perform technical operations and possesses that know-how as a commodity. Know-how comprises a capability that can be bought or sold. But labouring activity itself is neither owned by the labourer nor used in production. Rather labouring activity *is* production.[117] Thus when Marx speaks of labour-power as a capability he is not speaking of human capacities either. The capacity of projective consciousness, for example, as that *implied* in or what makes possible man's productive activity, is not something any capitalist knows how to purchase. One learns and sells (or buys) capabilities but not so with activities or capacities implied in those activities. Capabilities are learned powers. Activities and the capacities that inform those activities are inherent to man's nature in general.

Production, as argued above, is an intentional activity informed by projective consciousness. Raw materials, tools, skills, and knowledge must all be distinguished in a material way from that activity and the capacity that defines it. Taking knowledge as the leading productive force, which all the others presuppose, productively useful science must be opposed to "pure science," in that the former is a form of knowledge that is "applied," and this squares with part of our common understanding of "technology," that is to say, applied science. But productively useful science, as the leading form of labour-power, is, as are skills, also a form of know-how. Thus our common understanding of technology and Marx's understanding of labour-power is rooted in the classical conception of *techne*, understood by the Greeks, as Heidegger points out, as a *poietic* form of knowledge, as indicating a knowing in the widest sense, to be well-versed or entirely at home with a craft.[118] Thus we might say that Marx does have a conception of *poiesis* contained within his understanding of labour-power. His conception, like Aristotle's, is material and designates a form of knowledge but, unlike Aristotle's, does not designate a form of activity. Labour-power, as pointed out above, must be distinguished from productive activity itself. The means of production and all forms of labour-power are, *as* material, used in a purely subsumtory manner to man's productive activity or to his purposes: they are for the community. As argued above, Marx describes man's productive activity in terms consistent with the logic of the classical sense of practice and in no other terms.

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116 See McMurtry, *Marx's World-View*, p. 59.

117 See Cohen, *Defence*, pp. 42-3.

118 Heidegger, "The Question Concerning Technology," pp. 12-13.

12. Finally, labour-power and the means of production can be said to comprise the *material* mode of production,[119] descriptions of which will count as overall descriptions of what is for the community.[120] A material mode of production can be described in general as "the way men work with their productive forces."[121] Conceptually, it is synonymous with technique, and thus descriptions of any given material mode of production will be descriptions of the *manner* in which man produces food, shelter and clothing or, in general, his material security. A material mode of production can be considered a force of production on the basis of textural evidence, as is indicated below, although its inclusion does not fit neatly into a rigorous account of Marx's theory of history. Forces of production as they have been defined thus far are necessary to and actually used in the labour process. And we often speak of "using" techniques to accomplish productive tasks. Although we would not want to deny that material modes of production are used in some sense, it is important to note the nature of this use and how it differs from the actual use of the productive forces themselves.

Generally, a productive force is used "immediately" in the labour process or, in the case of labour-power, is consumed and requires the replacement of energy exhausted in its use in the labour-process.[122] With regard to the latter, Marx says that labour-power "becomes a reality only by its exercise; it sets itself in action only by working. But thereby a definite quantity of human muscle, nerve, brain, etc., is wasted, and these require to be restored."[123] But a material mode of production is that which is assumed or implied in the *use* of forces of production. Given this distinction, perhaps it is more accurate to say that i) forces of production are used and in this use constitute a material mode of production,

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119 Marx speaks this way, for example, in the *German Ideology*, p. 42.

120 In the *German Ideology*, p. 42, Marx says that a mode of production "must not be considered simply as being the reproduction of the physical existence of the individuals. Rather it is a definite form of activity of these individuals, a definite form of expressing their life, a definite mode of life on their part." But to say that it must not be considered simply as "the reproduction of the physical existence of individuals" is to imply that it can be so considered, in the proper context; that is, when one is abstracting out of the social totality that which is material to all relations in that totality. Marx uses the term mode of production in a material sense, as well as in a social or mixed sense, as Cohen points out in his *Defence*, at p. 82.

121 See Cohen, *Defence*, p. 80.

122 With regard to the former, Shaw says this: "Productive forces are those elements which are both basic and essential to the production process, not in the wide sense of including all activities or factors which are necessary for society to carry on production, but in the narrow sense of the simple factors of the labour process--that is, those elements which analysis reveals as part of the immediate production process itself." See *Marx's Theory* , p.10.

123 Marx, *Capital*, p. 167.

which is *utilized*[124] but nevertheless ii) a material mode of production counts as a productive force in the relevant senses outlined above, in that it is obviously *necessary* to production and less obviously that which is indirectly used or utilized *to* produce.

To say that a material mode of production is utilized is to say nothing more than that it is a system or procedure, as in a *modus operandi*. It is followed or can be said to be followed by productive agents from observation of the use of productive forces by an independent observer. Thus a material mode of production can be taken as a blueprint for productive activity that is expressed in that activity.[125] And as Marx describes forces of production, it is something that productive agents "already find existing," a structure or a technique that is inherited and, therefore, presupposed in concrete instances of productive activity, as material condition of life in an indirect or passive sense.[126] To say that a material mode of production has changed, that, for instance, "our society has developed a new manner of producing material security," is to say that new productive forces have been developed. We do not (normally) stand back, as it were, and decide that all of a sudden we are going to change the overall manner in which we produce material security; rather, any given mode of production *evolves* out of the development and use of the productive forces themselves.

Marx also says that modes of production are always combined with modes of cooperation and he adds that modes of cooperation are themselves productive forces: "It follows [from the definition of social] that a certain mode of production, or industrial stage, is always combined with a certain mode of cooperation, or social stage, and this mode of cooperation is itself a "productive force."[127] One can take issue with Marx and argue for a distinction between *modes* and *principles* of cooperation, maintaining that a mode of cooperation is not an element used in production and therefore not a force of production.[128] Principles of cooperation, on the other hand, are used in production in that they are "part of

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124 This is a term suggested by Winner, *Autonomous*, pp. 228-9, that can be used to distinguish the simple, linear process of using a tool from the process in which one participates in a mode of production. What is important to emphasize here is that the latter process is rather more passive and suggestive of Marx's observation that men "inherit" their modes of production.

125 Even though a "blueprint" is a piece of technical knowledge, a set of rules, and thus would seem to be a form of labour power, a blueprint is not a piece of raw material or a tool as such; nor is it a competence or an "aggregate of mental and physical capabilities," as Marx defines labour-power above. In this sense it is not a form of know-how but, rather, an overall procedure within which the know-how involved in shaping matter into form is exercised.

126 See, for example, Marx's treatment of this in the "Letter to Annenkov," in *Selected Writings*, p. 129 f.

127 *German Ideology*, p. 50.

128 See Shaw, *Marx's Theory* , pp. 23-4 and Cohen, *Defence*, pp. 111-114.

the labour-power of certain agents in the productive process."[129] But this does not mean that we need re-read Marx and exclude modes of cooperation from the productive forces on the basis that they "give labour its social character."[130] Combined with techniques of production, modes of cooperation are obviously i) *materially* necessary for production and ii) are not relations *per se* but rather techniques utilized to set up relations or within which relations make sense.[131] Modes of production, then, are utilized as procedures within which the (scientific) management of labour-power is exercised, or within which the "material relations of production" are ordered.[132] As such, modes of cooperation must be included in descriptions of the material mode of production or descriptions of technology. Together, the material mode of production and the mode of cooperation that is "always combined with" it outline the manner in which production is carried out in any given epoch.

13. I propose to characterize descriptions of material modes of production as descriptions of technology in the *aggregate*; that is, "technology" can be understood broadly as the manner in which man produces his material security. But descriptions of technology as such would also include, in *particular*, the elements that are part and parcel of any given productive technique, namely, labour-power and the means of production.[133] With regard to the latter (and presumably holding for the former too), Marx says that it "is not the articles made, but *how* they are made, and by what instruments, that enables us to distinguish between different economic epochs."[134] "Technology" is, here, understood as the complex of the "technological," following at least the form of Heidegger's account

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129 Shaw, *Marx's Theory* , p. 24. There is "something in this conceptual area," as Cohen notes, that is a productive force and that something is, as he says, "the knowledge of ways of organizing labour." It is not the relations themselves that are a productive force but, rather, the knowledge required to set those relations up that possesses productive force. See Cohen, *Defence*, p. 113.

130 Shaw, *Marx's Theory* , p. 23 f.

131 Cohen states that a "mode of production cannot be identical with an economic structure, for a mode is a way or manner, not a set of relations." See Cohen, *Defence*, p. 79.

132 Material relations of production, or "work relations," are discussed in the following section.

133 M. Bober, for example, states that the "mode of production is the collective term embracing the elements engaged in the productive process, and productive forces refer specifically to these elements. The productive forces, 'the forces of production,' the 'productive powers,' give flesh, blood, physiognomy to a system of production. If the prevailing productive forces are elementary, the form of production is elementary." I take Bober's point to be (rightly) that the nature of the mode of production is a reflection of the type of tools that are employed in any given labour process, such that there is an internal relationship between the manner in which man produces and the tools that he has "at hand." The manner in which man produces in the modern age is not a technology that is constituted by hammers and ploughs. See M. M. Bober, *Karl Marx's Interpretation of History* (New York: W.W. Norton Company, Inc., 1965), pp. 17-8.

134 Marx, *Capital*, p. 175. (Emphasis added.)

outlined in the preceding chapter.[135] Descriptions of technology, then, are abstractions constructed out of the observation of the use of productive forces, which allow us to draw a blueprint of the manner in which or the technique by which any given community utilizes to produce material security. We would recognize from aggregate descriptions of technology whether any given community is, say, either "agrarian" or "industrial." And we could also recognize the same from the tools that comprise the overall system of production: "Instruments of labour not only supply a standard of the degree of development to which human labour has attained, but they are also indicators of the social conditions under which that labour is carried on."[136]

Descriptions of technology will only give a view of that which is materially necessary for productive *activity* to obtain in any given historical or situation or epoch. Descriptions of technology are not, then, descriptions of human activity; they are not descriptions of what *constitutes* the community. Otherwise the door is left open to descriptions of technology in terms of agency, which is to open further the door to characterizations of technology as an autonomous power, something argued in the previous chapter as a philosophical nonstarter. For the remainder of this essay, then, I will use the term "technology" to indicate, in the aggregate, the "mode of production," and in the particular, either "the forces of production," both subjective and objective, or "objects" produced by man, in virtue of the fact that all the aforementioned are for the community.

Technology, as that which is strictly for the community, is not, by nature, socially constitutive but is itself constituted (and re-constituted) by *activity* that is social by nature. The development and use of the forces of production, that is, not only constitutes a society's technology but, also, in the process, according to Marx's reading of history, a society's social structure or its relations of production, which, in turn, function as the "real foundation, on which rises a legal and political superstructure...."[137] Marx says that "in acquiring new productive forces men change their mode of production; and in changing their mode of production, in changing their way of earning a living, they change all their social relations. The hand-mill gives you society with the feudal lord; the steam-mill, society with the industrial capitalist."[138] Thus, to say that productive activity and not

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135 Although Heidegger includes in his definition of technology "needs and ends," the operative distinction is between a structure and the items or "contrivances" that comprise that structure such that "technology" is the sum of "the technological."

136 Marx, *Capital*, p. 175-6.

137 Marx, "Preface to a Critique of Political Economy," in McLellan, *Selected Writings*, p. 389.

138 Marx, *Poverty of Philosophy*, in McLellan, *Selected Writings*, p. 202.

technology is constitutive of the social and that what is for the community is completely asocial is to deny, from a materialist or Marxist point of view, explanatory force to the Aristotelian division between types of activity; that is, one cannot determine what is of or for the community on the basis of an activity distinction.

14. There are two objections within the Marxist analytic school that may be directly levied against this account. G. A. Cohen argues for an activity distinction, maintaining, for example, that "work relations," or the material relations of production, are constituted by asocial activity. He argues, in effect, that what I have described as technology—i.e., the manner in which man produces his material security—is set up by asocial activity. To make this argument, Cohen relies on what can be called a strong sense of social, namely, that "a description is social if and only if it entails an ascription to persons—specified or unspecified—of rights or powers *vis-a-vis* other men."[139] He says, for example, that if "you and I carry an object, positioned on either side of it, we set up material connections by virtue of which the carrying occurs. I exert force and move my body in coordination with you, and our physical interaction is separable from the authority structure informing our work."[140] This is to say that "you and I" are related independently of the social roles we occupy, that we "could be slaves serfs, proletarians, socialist producers, or independent...contractors."[141] Given the strong sense of social, then, Cohen argues (rightly) that the activity of carrying an object—i.e., of using a productive force—is an asocial activity, that it can be conceived of independently of a socio-economic role, and thus cannot be said to be constitutive of the relations of production proper.

But the activity of carrying an object is social in the sense of social that Marx defines above—i.e., "the cooperation of several individuals, no matter under what conditions, in what manner, and to what end"—which we can call, for purposes of this argument, a *weak* sense of social. Even if one grants that the physical interaction is separable from any given authourity structure, the interaction itself need not be deemed asocial: even as simple a process as carrying an object, *as* an interaction, requires cooperative activity and thus can be said to be social on that basis. Thus when Marx speaks of the material relations of production as the "necessary *forms* in which [man's] material and individual activity is realized,"[142] these relations can be taken to refer to work

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139 Cohen, *Defence*, p. 94. See also Cohen's chapter VIII, pp. 216-245.

140 Ibid., p. 93.

141 Ibid., p. 111.

142 Marx, "Letter to Annenkov," in *Selected Writings*, p. 192. (Emphasis added.)

relations, or relations between productive agents for the purpose of working on nature with the productive forces at hand, and thus not to be included as an instance of a productive force but neither to be denied the status of "social," at least in a weak sense.[143] These "forms," then, are social as Marx understands the concept in his philosophical anthropology.

Finally, William Shaw (I think) might counter that since work relations "link" labour-power with the means of production, they are not social relations because they are relationships to instruments, with the base requirement being that only one human agent be present for that relationship to obtain.[144] But this begs Marx's assertion above that production "by isolated individuals outside of society is as great an absurdity as the idea of the development of language without individuals living together and talking to one another." What may appear as production by an isolated individual, as a mere relation between man and nature through tool and nothing more, always presupposes the social development of the labour-power used in that process. And this, it would seem, *necessarily* supplies to that "individual's" activity a social content in the weak sense of social outlined above. Marx states that in "order to modify the human organism, so that it may require skill and handiness in a given branch of industry, and become labour-power of a special kind, a special education or training is requisite...."[145] In general, as Marx notes above, even when the "lone" scientist performs his duties, his performance is a social act *because* it is a human act. In particular concrete instances, it is logically impossible to imagine a productive process itself as asocial: "All production is appropriation of nature on the part of an individual within and through a specific form of society...."[146]

VI

15. I have argued that, for Marx, what is "of" the community or what constitutes the community is praxial activity and that what is necessary to that activity, what is "for" the community, is technology. I have also argued that technology is no more (and no less) than the *manner* in which man produces his material security and that technology can be

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143 Where the work relations would fit into an historical materialist schema is outside the parameters of this argument. Cohen , for example, thinks they belong outside of the economic sphere and that they are not a force of production but should be placed "alongside" the productive forces. See Cohen, *Defence*, p. 35.

144 See Shaw, *Marx's Theory* , pp. 32-6.

145 Marx, *Capital*, p. 168. That the use of tools is *always* and *necessarily* "public" whether another person is present or not is a point further addressed in Chapter 4 .

146 Marx, *Grundrisse*, p. 87.

recognized as such by abstracting descriptions of techniques out of the development and use of forces of production. Thus "technology" is that which evolves out of the use of instruments and labour-power.[147] If "technological determinism" is the power of technique to act somehow as the "motor of history," then it is not to be found in the picture of productive activity given above. Marx can be described as a technological determinist in the sense that he believes history is the result of man's practical activity or that history can be explained in a material way but descriptions of Marx as a technological determinist must contain the *proviso* that technology is the result of practical activity, not the other way around. As Marx says, "the *whole of what is called world history* is nothing but the creation of man by human labour...."[148]

Moreover, if technological determinism is the capacity of technique to prevail somehow against man's very essence, if it is in fact autonomous, then Marx will not shed much light on this, what I have called the modern dilemma, either. Man's essence, for Marx, is his activity, and technology is a result of his activity. But this does not mean that Marx's account of man need be expelled from an analysis of the modern dilemma. As I will argue in the following chapter, Marx's account of productive activity charts a course that can lead one out of the stranglehold of the common tool-use conception of technology and set the stage for a Heideggarian account of tool use, from which the structure of the threat technology presents to man can be outlined and analyzed in terms of the ontological selves outlined in the previous chapter.

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147 Abstractions out of man's use of tools and labour power are for purposes of describing a material mode of production, which will correspond to a social form. But they do not constitute a critical perspective; they are merely descriptions of what kind of technique is, in fact, in place in any given historical period, there for all to see.

148 Marx, "Economic and Philosophic Manuscripts," p. 314.

Technology And Praxis

I

1. In the previous chapter, I concentrated on a description of productive activity as a concrete form of praxis, such that the activity of production, for Marx, is in fact a form of what Aristotle calls doing. Technology I have described in the aggregate as a mode of production, which mode is composed of or informed by particular forces of production. Moreover, I have defined praxis as that mode of behaviour that is, in general, of the community, and defined technology as, in general, that which is for the community. In this chapter, I wish to consider the interrelation between technology and praxis. My reasons for this are twofold. First, I am interested in what a Marxist criticism of the tool-use model of productive behaviour might look like. I will argue, for example, that a Marxist critique of the tool-use model can be generated out of different characterizations of technology. I suggest that Marx sees technology in terms of "conductivity," as opposed to the tool-use conception of technology as "neutral." Second, my reason for pursuing the interrelation between technology and praxis in this way is to attempt to determine precisely where, or how, Marx differs from the autonomist position on technology, which is that technology itself is a threat to the self. Thus the bulk of what follows is an attempt to demonstrate that Marx is neither a neutralist nor an autonomist and why this is so.

But there is yet a further reason for pursuing this course of investigation. Often debates between critics of technology and Marxists, or social critics, are fought at cross emphases. In terms of what Marx calls the labour process and with regard to alienation, for example, the former will emphasize the *objective* side, arguing from the position of technology or the means of production. Their position is, typically, that what Marx calls alienation is really rooted in (large-scale) technology.[1] The Marxist position is that alienation is rooted in social relations, and this, indeed, is what Marx's conception of alienation is. Thus the Marxist will emphasize the *subjective* aspect of the labour process, and, therefore, argue from the position of ownership relations.[2] Furthermore, the Marxist

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1 Alienation so caused results in "man's alienation from nature," as is espoused, for example, by the deep ecology movement, in William Devall & George Sessions (eds.) *Deep Ecology* (Salt Lake City: Peregrine Smith Books, 1984).

2 Thus, as in S. Vogel, "Marx and Alienation From Nature," *Social Theory and Practice*, Vol. 14,

argues that alienation is not a *necessary* feature of a society with modern technology and the other side argues that to see alienation as merely a *contingent* relation is, again, to miss something inherent about technology. So the debate becomes a debate focused on alienation and revolves around restatements of basic positions, in an effort to determine how alienation is caused and what to do about it.[3]

I agree with the Marxist that alienation is rooted in social relations. Or at least I do not see any reason for attempting to change the concept as Marx originally understood it. But I would also like to suggest that the technological autonomist does not necessarily run out of philosophical ground because of this. If the autonomist position, in essence, is that technology itself is a threat to the self, then one possible avenue open to the autonomist is to rephrase what I refer to below as the "problem of alienation" in terms of the self, and then to investigate the possibility that technology can present a problem with regard to the self different *in kind* from that of alienation. Thus a further purpose of the chapter is to identify some conceptual ground that the technological autonomist might find philosophically productive. The approach will be to generate out of the determination of Marx as neither a neutralist nor an autonomist an interpretation of a social concept, alienation, in terms of an ontological one, the self, and then to suggest that Marx's solution to the problem of alienation may not include a solution to the "problem of technology."

II

2. As noted in chapter one, there are two connected difficulties with the commonly accepted tool-use model of productive activity. The first is that technology—either "tools" or "objects" produced with those tools—is neutral *because* it is instrumental and the second is that because technology is neutral its use is ambivalent. Thus the historical thesis, that technology is instrumental because it is craft-like, is conjoined with the philosophical thesis that man's intentions are the ground of his actions. To put it as Marx might, *what* and *how* man produces are independent of his intentions.[4] According to the tool-use model, then,

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No. 3 (Fall 1988), pp. 96-115, alienation from nature is discovered to really be alienation from man, in that nature is in fact "socialized nature" inherent in which is the problem of ownership relations.

3 See Gendron & Holmstrom, "Marx, Machinery, and Alienation," *Research in Philosophy and Technology*, 2, 1979, pp. 119-35, for a classic example of this kind of debate.

4 See the *German Ideology*, p. 42, where Marx states: "The premises from which we begin are not arbitrary ones, not dogmas, but real premises from which abstraction can only be made in the imagination. They are the real individuals, their activity and the material conditions under which they live, both those which they find already existing and those produced by their activity...They begin to distinguish themselves from animals as soon as they begin to produce their means of subsistence...What they are, therefore, coincides with their production, both with what they

the productive agent produces an artifact with a definite purpose in mind and it is the purpose or intention of that agent that really counts. The use of the artifact is itself ambivalent. It can be used for good or evil. Ontologically, the artifact and the productive agent belong to the two different and unconnected categories of "person" and "thing." Who a person is, then, is externally related to what he produces. In this way, tool-use adherents can assert i) that what we produce is external to our nature and ii) what follows from this, that it is people and not societies who produce, in the sense that it is the individual who produces and it is society that benefits or must be protected from this production through the quality of individual intention. These notions about the nature of what and how we produce need to be addressed in terms of man's relationship to objects before the issue of technology's neutrality and its ambivalence can be explored. We can begin with "what" man produces.

Marx's opposition to the tool-use ontology is rooted in his conviction that the productive agent and the object are internally related. And it is through a characteristic of technology to be identified and discussed below that enables the ontological connection of man and object to be *material.* But it is the general relationship between man and object that is of immediate interest. Artifacts, as noted in the previous chapter, are expressions of man's activity in a congealed or objectified form. Man's products are "objectifications" of his species-life, in which he "duplicates" himself. As Marx says, "this reproduction, although it appears as appropriation of the objects by the subjects in one respect, appears in another respect also as formation, subjugation of the objects to a subjective purpose; their transformation into results and repositories of subjective activity."[5] In the process of objectification, labour is transformed from activity into object: "Labour is not only consumed but also at the same time fixed, converted from the form of activity into the form of the object; materialized; as a modification of the object, it modifies its own form and changes from activity to being. The end of the process is the product."[6] Moreover, the product is a concrete expression of man's activity *necessarily*: man "can find [his] objective realization in natural objects only."[7] But man's activity *is* his nature. Thus in some sense what man produces *is* man.[8] Marx says he "is established by objects [that] reside in the very nature of his being."[9]

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produce and how they produce."

5 Marx, *Grundrisse*, p. 489.

6 Ibid., p. 300.

7 This passage is quoted in Ollman, *Alienation*, at p.85. (Ollman locates it in Milligan's translation of the Manuscripts at p.111 but I cannot find it there.)

8 Thus Marx says in the "Economic and Philosophic Manuscripts," p. 140, that "when

To say that objects are "repositories of subjective activity" or that man is "established by objects" is to say that man's species activity, labour, is a process of objectification. Objectification, for Marx, is a model of production that explains how it is that two independent entities, man and object, are related through man's labour. On the one hand, objectification is a process in which the individual forms objects that can be said to reflect his needs. Objectification is intentional. This much, both Marx, given that he defines the productive process as intentional activity, and the tool-use adherent may agree on. But the tool-use notion that man simply makes and uses artificial objects for predefined purposes fails to appreciate in what way artifacts are for the community, in what way they embody social purpose as opposed to (mere) utility. Artifacts are used, to be sure, and in a multitude of ways; some good, some bad. And to this extent the tool-use model is correct: we can use a hutch to store china but we can also push it onto someone we do not like. Artifacts are neutral in this sense. But in the particular uses of artifacts the artifact also refers back to man, as a concrete expression of his social nature.

This is to say that Marx's understanding of the process of objectification can be interpreted to mean that in the production of the object there is the material embodiment of a social order.[10] Artifacts have a normal or proper use that cannot be *systematically* violated without bringing to the fore a social sanction. For a hutch *to be* a hutch is for it to be used not according to the benevolence of intention but, rather, according to social norms that define it *as* a hutch. Marx says that the "object becomes *social* and [man] himself becomes social just as society becomes for him essential for him in his object."[11] The existence of an artifact—what it is or what it "means" or how it fits into to the day to day conduct of man—is internally tied to a network of norms that are social through and through. It is within this

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objective actuality [the objective world] generally becomes for man in society the actuality of essential human capacities, human actuality [the world of man's essential powers], and thus the actuality of his *own* capacities that all *objects* become for him the *objectification* of himself, become objects which confirm and realize his individuality as his objects, that is, *he himself* becomes the object."

9 This passage is quoted in Ollman, *Alienation*, at p.81. (Ollman locates it in Milligan's translation of the Manuscripts at p.156 but, again, I cannot find it there.) As Ollman says: "Man's species life, which is the operation of his essential powers, is said to become visible in production through the various modes adopted and products produced. Both are referred to, in Marx's peculiar terminology, as man's 'duplication' of himself in the real world." See p. 98.

10 Another way to make this point is to say that social institutions or practices, like voting or marriage, are embodied in physical objects, like the voting booth or the wedding ring. I depend heavily on Márkus, *Marxism and Anthropology*, pp. 7-8, for the more restricted interpretation of objectification in this and the two following paragraphs.

11 Marx, "Economic and Philosophic Manuscripts," p. 308.

network that the use of the artifact is grounded and which the artifact represents. Thus it is in this sense—that the artifact is essentially created for a *proper* use and that this use is a function of social sanction—that artifacts are objectifications of human praxis.

The social norms embodied in artifacts, then, are learned or "appropriated" *through* the use of the artifacts. In this way, the "user" can lead a normal human life; his everyday activities can take on a coherence that allows social interaction. "Humanized nature" is—given the primacy of material production—the most fundamental way in which modes and ways of action are learned. Through the development and use of tools and objects produced with those tools a structure of social norms is constantly created and recreated, and in this way the whole process of production leads to the making and remaking of *human* life. The objectification that "work upon Nature" is is, then, a way in which man's productive activity defines his sociality and deposits that sociality for future generations.[12] Artifacts, Marx says, "possess the same importance for the investigation of extinct economic forms of society, as do fossil bones for the determination of extinct species of animals."[13]

This is not to say, though, that artifacts are relations. Descriptions of artifacts are not descriptions of that which constitutes the community, which is human praxis.[14] Artifacts are repositories of social norms only in virtue of the human use they are created for and put to; *that* they can be repositories of social norms is a function of human praxis. Descriptions of artifacts as repositories of social norms, then, imply but are not descriptions of self-referencing behaviour or of man's creation of a social order, which defines him as who he is. In short, artifacts, as objectifications of man's capacity to create a

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12 Márkus, *Marxism and Anthropology*, p. 8, for example, says that "in the process of 'appropriation' of humanized objects...the individual transforms into living-personal needs and skills the historically created social wants and abilities objectified in the elements of his milieu—and in this way a material-practical transmission of tradition is realized in society, which constitutes the basis of historical continuity and at the same time renders social progress possible." Note also Marx's criticism of Feuerbach, in the *German Ideology*, p. 62, who "does not see that the sensuous world around him is not a thing given direct from all eternity, remaining ever the same, but the product of industry and of the state of society; and, indeed, ...it is an historical product, the result of the activity of a succession of generations, each standing on the shoulders of the preceding one.... Even the objects of the simplest 'sensuous certainty' are only given him through social development, industry and commercial intercourse. The cherry-tree, like almost all fruit trees, was, as is well known, only a few centuries ago transplanted by commerce into our zone, and therefore only by this action of a definite society in a definite age has it become 'sensuous certainty' for Feuerbach."

13 Marx, *Capital*, p. 168. See also *Capital*, p. 85, where Marx speaks of the commodity as a "social hieroglyphic."

14 This point is emphasized by Lawrence Krader in his *Dialectic of Civil Society* (Amsterdam: Van Gorcum, 1976), p. 247: "...technology is not the relation between human society and nature, but is the record of that relation."

social order, are expressions of his ability to create his own nature. Objectification is an intentional activity in the sense that it is an activity of self-transformation. Thus there is an internal relation between who man is and what he produces.

3. The relationship between "how" man produces and "who" he is is internal too, but it is more fundamental than just the type of technology he utilizes. In the more obvious sense, Marx says man's technology determines or corresponds to a type of society—feudal with the hand-mill or capitalist with the steam-mill—but in another, more fundamental sense, Marx goes on in the same context to emphasize that man always produces socially, that "production...presupposes the *intercourse* of individuals with one another."[15] The assertion that the subject's intentions are ontologically independent of his activity holds if and only if the subject is conceived of as independent of his social being. If he is not, then purposes, attitudes, intentions, and the like can be seen as originating not in the individual but, rather, in the social *form* that supplies the context for and meaning of that individual's intentional behaviour. Productive activity can be explained, then, as purposive conduct if man's "purposes" are seen as grounded in a socially and historically determinate *mode* of production. I refer, here, to the broad sense of "mode," as a form of life that Marx understands to refer to the relations between man's use of tools (which constitutes the *material* mode of production) and the social context within which that use takes place: "the entire technical and social configuration."[16]

Concomitant to the modern, narrow sense of practice and the simple "tool-use" model of productive activity that it premises is, then, a narrow, economic sense of "production," which is tied to the notion of utility. But this must be overcome and replaced by a notion of production, as Marx says, that designates a "definite form of activity" or a "definite mode of life," which is expressed in *how* the individual produces. This is to say that individual intentions are not the proper starting point for a *critique* of man's "use" of tools. The logical or methodological upshot is that rather than treating an individual's intentions as the ground of his action, the critic of modern productive practice must attempt to analyze the use of tools as grounded in a social whole. Marx criticizes Ricardo and Smith for conceiving of production as the production of "the individual and isolated hunter and fisherman" rather than the production of individuals "producing in society—hence socially determined individual production—[which] is, of course, the point of departure."[17] To take

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15 Marx , *The German Ideology*, p. 42.

16 This usage is identified by Cohen, *Defence*, p. 84.

17 Marx, *Grundrisse*, p. 83.

intentions as originating with the individual, to make the individual the author of his intentions, is to conceive of society, as do Ricardo and Smith, as a mere conglomeration of atomistic individuals rather than as a purposive whole unto itself. By taking forms of life as the primary unit of analysis, one is led to the conclusion that, as part of a form of life, the individual's intentions will be grounded in or formed by "rules" or unspoken presuppositions that pre-exist and make possible individuality *per se*.

The ontological upshot is that Marx's conception of the individual is an *objective* one. Man is neither subjective nor self-contained. Nor is he "natural." "Natural man," to the extent that he ever existed, disappeared when history began, or when the first tool was used, and thus production is always enveloped in a social form. The nature of the rules or presuppositions that ground the individual's intentions are historical and social and the individual thus grounded must be seen, primarily, as a social and historical *type*. This is to say, for example, that the intention to "do good" with a "tool" must be seen against the backdrop of the mode of life in which his productive activity actually takes place. The individual must be seen as a certain type of individual whose individual purposes can be seen in terms of or compared to the overarching or *common* purpose inherent in or characteristic of his form of life.[18] This is not to say that because the individual's intentions are necessarily determined by a form of life, they are necessarily mere reflections of what is socially standard. Individual's can and do make creative, spontaneous and even deviant choices. But what is standard and what, for example, is deviant are learned *together* and only make sense in the frame of reference that a form of life supplies. To take the social form as ontologically (and therefore analytically) prior to the individual is, then, to recognize that there is only a certain range of actions or that there are only certain types of acts possible in any given social form. What makes a type of individual and, therefore, the types of acts open to that individual possible, is what is of critical interest.

Marx states that the "point is rather that private interest is itself already a socially determined interest which can be achieved only within the conditions laid down by society and with the means provided by society; hence it is bound to the reproduction of these conditions and means. It is in the interest of private persons; but its content, as well as the form and means of its realization, is given by social conditions independent of all."[19] Man's use of tools, then, expresses an internal relation between intention and productive activity that the tool-use model of productive activity is incapable of analyzing. So related,

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18 On the notion of common purpose, see Gould, *Social Ontology*, p. 74.

19 Marx, *Grundrisse*, p. 156.

productive activity constitutes a form of life. The form of life thus constituted can be analyzed in terms of types of individuals that perform typical acts of production. Thus the relation between how man produces and who he is is internal.

4. The second difficulty associated with the tool-use model of productive activity is the issue of the ambivalence of tool use. At root, here, is the notion that the products of man's labour—objects produced with the use of tools or the tools themselves or "technology"[20]—are subject to the will of the agent and only to that will. We make technology therefore we control it. I suggested in the first chapter that the ambivalence of technology *follows* from the thesis that technology is neutral or instrumental. So if the former is false for Marx, that, as he says, it is false to conceive of "industry" from a superficial or "an external utilitarian way,"[21] then we should expect *pro forma* that he thinks the ambivalence of technology is false too. But Marx's position cannot be pushed too far. Marx is not a technological determinist, at least in the strong sense that he thinks technology is autonomous, that it can prevail against man's very essence. Marx does not think, as does Heidegger, that it is vain to think we can bring social ends to technology. So in outlining Marx's position on the thesis that the use of technology is ambivalent, it will be important to note at the outset Marx's position on the relationship of technology and the self. The ontology of technology itself, specifically the ontology of the "means" of production, will also need to be addressed further on.

As discussed in the previous chapter, what is unique to man, what defines man *as* man, is determined by Marx through comparison with animals, such that man is a being of praxis and it is this that distinguishes him from animals. "In the mode of life activity lies the entire character of a species, its species-character" and, Marx says, "free, conscious activity is the species-character of man."[22] Both man and animal satisfy needs through their own activity, but animal activity is limited. Animals are constrained both by those things in the environment possessing properties that correspond to its genetically fixed needs and by its own biologically fixed capacities: the "place of an animal, its character, mode of life is

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20 This is a terminological point. I include, here, both artifacts or "objects" and "instruments of labour" as technology and will throughout the immediately following. There is no absolute difference for Marx between the two. Marx says that "instruments and subjects/objects are themselves products [such that] labour consumes products in order to create products, or in other words, consumes one set of products by turning them into means of production for another set." Capital, p. 179. Thus, that matter can be "raw material" or an "object" or an "instrument of labour" is, as noted in the previous chapter, entirely relative to the intentional structure of the labour process. The important point is that all of the aforementioned are *for* the community.

21 Marx, "Economic and Philosophic Manuscripts," p. 310.

22 Ibid., p. 257.

directly inborn to it."[23] Animal activity expresses a *direct* connection between its needs and those objects required for the satisfaction of those needs. The animal produces one-sidedly and immediately with its life activity: they "build themselves nests, dwelling places, like the bees, beavers, ants, etc. But the animal only produces what is immediately necessary for itself or its young. It produces in a one-sided way...under the domination of immediate physical need...."[24]

Man's productive activity, on the other hand, is not aimed directly at the fulfillment of needs but is rather a *mediated* form of activity. Man must make his object suitable for the satisfaction of his needs through work "upon" nature. Nature (as a rule) must first be changed or formed by man and this he must do with tools: "...the first thing of which the labourer possesses himself is not the object of labour but its instrument."[25] The object of need, that is, must be formed with the help of some other object, which man himself creates: "Only with the first product that is applied to new production—be it only a stone which is hurled after an animal to kill it—begins the process of work proper."[26] The animal's "instruments of labour" or its organs are a result of biological evolution and they limit the objects available for "consumption." With tools, though, man can make "Nature one of the organs of his activity [that] he annexes to his own bodily organs" and produce objects in his environment that would otherwise not be consumable. Tools themselves are objects that are consumed through their use. So over and above the "consumptive production of the individual" there also exists in human society a "productive consumption" or "consumption of the means of production, which become worn out through *use*..."[27]

5. "Consumption" and "use," then, are undifferentiated in animal life but because man can *create* his "organs" or tools and can use or "consume" them, man can increase the range of objects available to him and overcome the limitations of his environment. In this man exhibits a historical tendency for growth: "Not only do the objective conditions change in the act of reproduction, e.g. the village becomes a town, the wilderness a cleared field etc., but the producers change, too, in that they bring out new qualities in themselves, develop new powers and ideas, new modes of intercourse, new needs and new language."[28] Thus the development of new instruments of labour means the development of new productive

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23 As quoted in Márkus, *Marxism and Anthropology*, pp. 4-5.
24 Marx, "Economic and Philosophic Manuscripts," p. 294.
25 Marx, *Capital*, p. 175.
26 As quoted in Márkus, *Marxism and Anthropology*, pp. 62-3.
27 Marx, *Grundrisse*, p. 90.
28 Ibid., p. 494.

abilities or powers. Marx says that the "appropriation of these forces is itself nothing more than the development of individual capacities corresponding to the material instruments of production. For this very reason, the appropriation of a totality of instruments of production is the development of a totality of capabilities in the individuals themselves."[29] The history of the productive forces is also the history of the development of the individual *because* his powers have become developed.[30] The extent to which man develops, then, "corresponds" or "coincides" to the extent his technology has developed. And, as noted in the previous chapter, it is the development and use of technology that is unique to man: "Men...begin to distinguish themselves from animals as soon as they begin to *produce* their means of subsistence." "In the treatment of [work upon] the objective world," Marx says, "man proves himself to be genuinely a species-being."[31]

Thus, rather than being external to human nature, the development of technology plays the primary role in the development of the self by *enabling* man to develop his powers and, therefore, realize himself or his species being: "By thus acting upon the external world and changing it, he at the same time changes his own nature. He develops his slumbering powers and compels them to act in obedience to his sway."[32] In general, then, man develops himself through the objectification of his capacities and abilities. The transformation of nature *is* the transformation of the self. Thus with respect to the tool-use model, the explanation of technology's role *vis-à-vis* the self will be, as the relationship is internal, a functional one rather than instrumental. But with respect to the position of the technological autonomist, who maintains that technology *itself* is a threat to the self, the issue is not whether the relationship between technology and the self is to be explained functionally rather than instrumentally. The issue is rather How can Marx maintain that technology is neither neutral nor autonomous?

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29 Marx , *The German Ideology*, p. 92.

30 Marx says that in the accumulation of a society's wealth is the accumulation of the totality of human labour power: " What is really 'accumulated,' only not as dead mass, but as something living, is the skill of the workers, the rate of development of labour [and that this] is the true *prious*, the starting point, and this prius is the result of a course of development." Quoted in Márkus, *Marxism and Anthropology*, p. 63.

31 Marx, "Economic and Philosophic Manuscripts," p. 294.

32 Marx, *Capital*, p. 175. Thus Marx criticizes Ricardo's "adversaries," who would have "production for the sake of consumption": "[Ricardo] wants production for the sake of production and this is right . If one maintains, as Ricardo's sentimental adversaries did, that the production as such is not the end, then he forgets that production for the sake of production means nothing else, but the development of human productive forces, consequently the development of the riches of human nature as an end in itself." As quoted in Márkus, *Marxism and Anthropology*, p. 68.

III

6. In answer to this question, Marx has two avenues open to him. He can speak first of technology in general or, second, speak of technology as found in historical context. In the latter sense, Marx speaks of technology in capitalist society and describes it and its use in terms of alienation. This will be addressed below. Marx's position in general is that technology is "conductive" to main's aims. As noted in the previous chapter, Marx states that an "instrument of labour is a thing, or a complex of things, which the labourer interposes between himself and the object of his labour, and which serves as the *conductor* of his activity." He goes on to say that man "makes use of the mechanical, physical, and chemical properties of some substances in order to make other substances subservient to his aims."[33] Among the instruments of labour Marx includes many "things" and "complexes of things," such as canals, roads, and Nature.[34]

In general, instruments of labour are those things that are for the community or are materially necessary to the labour process itself, that is to say, man's productive activity.[35] Of interest, here, though, are instruments of labour in the restricted sense, those things "used for directly transferring labour to its subject/object, and which therefore, in one way or another, serve as conductors of activity...."[36] These are instruments "of a mechanical nature, which, taken as a whole, we may call the bones and muscles of production."[37] Thus in addition to "tools" or things that we associate with craftsmanship, machines, too, are instruments of labour and thus conductors of productive activity. Machines are "the characteristic instruments of labour of Modern Industry," which "necessitate the substitution of natural forces for human force, and the conscious application of science, instead of rule of thumb."[38] There is a considerable amount of philosophical mileage to be gained from the distinction between a tool and a machine, both for Marx and for the critic of technology. I will explore this more fully in terms of what Ellul calls the "technical phenomenon" in Chapter Five. For the present purpose of outlining Marx's position on the

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33 Marx, *Capital*, pp. 174-5. (Emphasis added.)

34 Marx, *Capital*, pp. 176 f. For a systematic discussion of Marx's notion of instrument of labour see Shaw, *Marx's Theory* , p. 11 f.

35 Marx says, in general, that instruments of labour are "all such objects as are necessary for carrying on the labour process." See *Capital*, p.176.

36 Ibid.

37 Ibid.

38 Ibid., pp. 365 & 364.

role of technology and the development of the self, though, I take both machine and tool as similar with respect to conductivity, as Marx himself does.[39]

7. To say that technology is not neutral but conductive is, at root, a statement of ontological presupposition. The thesis that technology is neutral rests, as has been noted, on an ontological division between man and tool or man and artifact, such that man's nature is independent of and unaffected by "things." But Marx maintains that technology is conductive of the process of objectification, or of the duplication man's nature in the object of his labour. As against the divided ontology of the tool-use model of productive activity, Marx holds that, *in general*, there exists a direct ontological connection between man and what man produces "with the help of" or *through* the use of his tools:

> In the labour process, therefore, man's activity, with the help of the instruments of labour, effects an alteration, designed from the commencement, in the material worked upon. The process disappears in the product; the latter is a use-value, Nature's material adapted by a change of form to the wants of man. Labour has incorporated itself with its subject/object: the former is materialized, the latter transformed. That which in the labour appeared as movement, now appears in the product as a fixed quality without motion. The blacksmith forges and the product is a forging.[40]

In principle, then, that technology is conductive enables the development of man's powers and hence his nature. Now it is important to note that the inherent conductivity of technology is something that can be formed according to *human* design: "No sooner does labour undergo the least development than it requires specially prepared instruments."[41] Thus conductivity can be said to be a qualitative aspect of technology that follows from the "development of labour." Conceptually, it is germane to Marx's philosophical anthropology, in that it designates that aspect of technology necessary for technology to play its role as a conduit of man's self-realization as a being of praxis. So to the extent that Marx's philosophical anthropology can be distinguished from his theory of history, the conductivity of technology must be distinguished from the purely quantitative or scientific measure of "how much" technology there is or the "amount" of productive power that

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39 As Marx states in the *Grundrisse*, pp. 692-3, in simple production the worker transmits his own skills through the tool to the raw material. In industrial production, the worker transmits the "skills" of the machine through his regulation of the machine to the raw material. For Marx, machines are, in the main, quantitative advances on the simple handicraft tool: "The tool...is not exterminated by the machine. From being a dwarf implement of the human organism, it expands and multiplies into the implement of a mechanism created by man [such that] Modern Industry raises the productiveness of labour to an extraordinary degree...." See *Capital*, p. 365.

40 Ibid., p. 176.

41 Ibid., p. 175.

exists in any given historical epoch.[42] How conductivity (or the possible lack of it) might explain the character of social relations in any given epoch, for example, and what might be gained from that explanation over and above the purely quantitative aspects of technology is an issue that cannot be addressed in this essay. As will become apparent in what follows, I am more interested in the "existential" significance of Marx's characterization of technology as inherently conductive.

8. Although Marx sees technology in terms of conductivity rather than neutrality, it is not on the basis of the conductivity of technology that Marx can argue the use of technology is nonambivalent. To say conductivity is the aspect of technology that allows for the development of man's nature is to say nothing more than conductivity is that which enables the objectification of man's essential powers and hence the realization of his species being. Although technology, for Marx, is *necessarily* conductive, the conductivity of technology does not in and of itself *guarantee* that the transformation of nature will result in a self-transformation. Marx says, for example, that under conditions of alienation, we "have before us the objectified essential powers of man in the form of sensuous, alien, useful objects, in the form of estrangement, displayed in ordinary material industry..."[43] Thus objectification is merely the general condition for human existence and the conductivity of technology is the general aspect of technology that enables the former; and neither are more, or less, than that.

Rather it is in concrete, historical situations that Marx describes the uses of technology as nonambivalent and argues that it is not the case, as the tool-use adherent would have it, that man can *carte blanche* never lose control of his technology, that what he makes he necessarily has power over.[44] Objectification, that is, can be recognized in its historical form as alienation when, in the first instance, the

> object which labour produces, its product, stands opposed to it as an *alien thing*, as a *power independent* of the producer. The product of labour is labour embodied and made objective in a thing. It is the *objectification* of

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42 Cohen, for example, maintains both that i) Marx's philosophical anthropology and his theory of history are separable and ii) that according to Marx's theory of history, the "right" standard of the productive forces is quantitative. On the former see Cohen, *History, Labour, and Freedom: Themes From Marx* (Oxford: Oxford University Press, 1988), pp. 136-7 and on the latter, see *Defence*, p. 55 f. and *History, Labour, and Freedom*, p. 5.

43 Marx, "Economic and Philosophic Manuscripts," p. 320.

44 Of course Marx's point is even stronger than this. It is not so much that he is outlining a fact, i.e., that the product of labour can escape man's control but, rather, that it is both necessary and it has not yet been otherwise that man has truly achieved control over modern technology and its products. The lack of control over modern technology, or alienation, is, as will be discussed below, a necessary stage of man's self-realization. See, for example, *Grundrisse*, p. 410.

> labour. The realization of labour is its objectification. In the viewpoint of political economy this realization of labour appears as the *diminution* of the worker, the objectification as the *loss of and subservience to the object*, and the appropriation as *alienation*, as externalization.[45]

Thus the objectification of man in his product, from "the viewpoint of political economy," is a relationship between man and object in which man has no control over his product. It is a relationship in which in the product stands "as a power independent of him." Moreover, in the lack of power or control over the means of production, man experiences alienation "not only in the result but also in the *process of production*, in the *producing activity itself*."[46] Inherent in the lack of control over what he makes by working upon nature is the impoverishment of man's subjectivity. "Labour," as Marx says, "is *external* to the labourer—that is, it is not part of his nature—and that the worker does not affirm himself in his work but denies himself, feels miserable and unhappy, develops no free physical and mental energy but mortifies his flesh and ruins his mind."[47] But there are further consequences inherent to the separation of man from nature and man from himself: man becomes separated from his species being and, therefore, man becomes separated from man. With regard to the former, that the separation of man from himself is internally tied to the separation of man from the object of his labour means that in "taking from man the object of his production, alienated labour takes from his *species-life*, his actual and objective existence as a species. It changes his superiority to the animal to inferiority, since he is deprived of nature, his inorganic body."[48] With regard to the latter, Marx says that a

> direct consequence of man's alienation from the product of his work, from his life activity, and from his species-existence, is the *alienation of man* from *man*. When man confronts himself, he confronts *other* men. What holds true of man's relationship to his work, to the product of his work, and to himself, also holds of a man's relationship to other men, to their labour, and the object of labour. In general, the statement that man is alienated from his species-existence means that one man is alienated from another just as each man is alienated from human nature.[49]

9. To say that either the product of labour or labouring activity are "alien" to man is to say, as Marx emphasizes, that they belong "to a man *other than the worker*."[50] There is, in short, no other explanation. Neither the gods nor nature (nor technology) can exert such

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45 "Economic and Philosophic Manuscripts," p. 289.
46 Ibid., p. 291.
47 Ibid., p. 292.
48 Ibid., p. 295.
49 Ibid., p. 295-6.
50 Ibid., p. 296.

power over man: "The *alien* being who owns labour and the product of labour, whom labour serves and whom the product of labour satisfies can only be *man* himself."[51] Thus the *source* of alienation, as a condition revolving around "service done" for another man, cannot be other than a social relation of some kind, such that the alienation of man, "from himself and from nature, appears in the *relation* which he postulates between other men and himself and nature."[52] It is in the historical, practical relationships among men where the locus of and the problem expressed in alienation is found. The locus of alienation is a relationship of economic domination, in which man "creates the relation in which other men stand to his production and product."[53] In effect, man's "life-activity" is sold "to another person in order to secure the necessary means of subsistence. Thus his life-activity is for him only a means to enable him to exist. He works in order to live. He does not even reckon labour as part of his life, it is rather a sacrifice of his life. It is a commodity which he has made over to another. Hence, also the product of his activity is not the object of his activity."[54]

The problem of alienation is that under conditions of alienation man does not produce freely when it is objectively the case that it is *in his best* (or species) *interests to do so*. Marx asks us to picture two men producing unfreely. He notes, from the perspective of political economy, that the purpose of production in capitalist society is to own the product. The character of production under these social relations is therefore selfish. We can imagine man in his "wild, barbaric condition," who produces, as does the animal, no more than that necessary to satisfy his own immediate need. In this state, the relation of the productive agent and his product is linear or immediate. Production is for the sake of consumption and consumption is limited by production. But once the objectification of immediate need is replaced by the objectification of one man's need by another, once specialization and surplus production begin to take root, the totality of needs in a society based on the ownership of products can only be satisfied on the basis of exchange. It now becomes the case that the immediate satisfaction of needs is replaced by the satisfaction of needs based on profit, such that it is the *ownership* of the product that determines how far needs can be satisfied. Production, then, becomes first and foremost a source of income and the satisfaction of needs is accomplished (when it is accomplished) indirectly.

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51 Ibid., p. 296.
52 Ibid., p. 297.
53 Ibid.
54 "Wage Labour and Capital," in *Selected Writings*, p. 250.

Under production for the sake of exchange, social bonds are premised not on the desire for the satisfaction of need or a totality of needs but, rather, on the desire for the *other's* product. The resulting society, in which "I have produced for myself and not for you, just as you have produced for yourself and not for me," is an atomistic one, described by Marx as follows: "Each of us sees in his product only his *own* objectified self-interest and in the product of another person, *another* self-interest which is independent, alien, and objectified."[55] This enables the product of labour to become the primary and perhaps the only available bond between men: "Our objects in their relation to one another constitute the only intelligible language we use with one another."[56] The satisfaction of needs is mediated by the marketplace and man is ruled by the economic value of what he produces. Thus the problem of alienation is rooted in *economic dependence*. Alienation can be located or recognized wherever a situation of economic domination exists but its resolution will come about only when the underlying economic dependence is erased. It is the latter that makes it possible for me to have power over you and you over me.

That economic dependence is not in my or your best interest follows, for Marx, from analysis of the type of social relationship that results from economic dependence. Marx's analysis can be briefly summarized as follows. At first glance, it may seem as if products are mere instruments or means for acquiring other products to satisfy needs, that products are a means to an end: "...from your point of view your product is an *instrument*, a *means* for the appropriation of my product and for the satisfaction of your need."[57] But in essence what is really taking place is the product takes on the status of end, that it and not the satisfaction of a need is "the *goal* of our exchange."[58] Man in effect becomes subservient to the product, not it to the satisfaction of human needs: "You actually make yourself the means, the instrument, and the producer of your own object in order to appropriate mine."[59] That any product is the property of another is to say that it is the objectification of the economic power each owner can have over the other and, therefore, given that the product is the goal of exchange, it is really each other that is the goal of the exchange.

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55 "Free Human Production," in *Writings of the Young Marx on Philosophy and Society*, p.278.
56 Ibid., p. 280.
57 Ibid.
58 Ibid.
59 Ibid.

The net social effect, as Marx says, is that "I regard you as a means and instrument for the production of this object..."[60] That through the objectifications of our productive activity we regard each other as means and not as ends in ourselves is to say that we are both slaves, not to each other, but to the objects of our production, which therefore stand over and against us as independent powers. What results is a "mutual servitude to the object" through which "we mutually regard our product as the *power* each one has over the other and over himself."[61] The enslavement of man to his product, which consists in men becoming means to the end of exchange, is thus the devaluing of man himself, which consists in the inability of men to treat each other as self-contained ends: "Our *mutual* value is the *value* of our mutual objects for us. Man himself, therefore, is mutually *valueless* for us."[62]

IV

10. Thus it is not in man's best interests to produce "unfreely" because in the process he devalues himself. What this devaluation amounts to in ontological terms is inherently tied up, perhaps strangely, with Marx's contention that capital is a "great civilizing force," that it produces "a stage of society in comparison to which all earlier ones appear as mere *local developments* of humanity and as *nature-idolatry*." [63] This might be called the paradox of alienation that, once resolved, can be taken as a comment on and possible solution to the modern dilemma. Since alienation is a historical phenomenon, its paradoxical nature can only be exposed and understood through reference to its historical preconditions. Marx does this by broadly classifying history into three periods: pre-capitalism, capitalism, and communism. It is the social ontology of these periods that is of interest here; that is, it is with (brief) descriptions of these social ontologies I wish to determine the ontological consequence of alienated production.

As historically and ontologically prior to capitalist society, which Marx has described as constituted by the language of exchange, pre-capitalist society is constituted by tradition, or the language of custom.[64] Thus in this sense that we may say that the general

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60 Ibid.

61 Ibid.

62 Ibid.

63 *Grundrisse*, pp. 409-10.

64 Precapitalist society is comprised by the "family, and the family extended as a clan, or through intermarriage between families, or combination of clans." Marx identifies three distinct forms of pre-capitalistic society—Asiatic, ancient classical, and Germanic—, in *Grundrisse*, pp. 471-9 but notes, p. 485 f., that they share common characteristics. I deal with the common characteristics

social form of pre-capitalist society appears as natural, pre-given, or divine. Marx says it is the natural community that is the possibility condition for man's relationship to nature: "the natural community, appears not as a *result* of, but as a *presupposition for the...appropriation and utilization of the land.*"[65] Whereas man is the subjective basis of the community, the earth is the basis of the community objectively. The earth is the objective condition of man's reproduction.[66] But because the appropriation and utilization of the land is *communal*, there exists an "immediate unity" of man to man and man to nature, such that "this *relation* to land and soil, to the earth...is instantly mediated by the naturally arisen, spontaneous, more or less historically developed and modified presence of the individual as *member of a commune*—his naturally arisen presence as a member of a tribe, etc."[67] To say that natural communities can be characterized as expressing an immediate unity does not imply undifferentiated sociality: there are differentiations between men—between lord and serf or master and slave, for example—but these differentiations are submerged within the communal whole.[68] Finally, traditional society exists in immediate unity in the further sense that it is self-sufficient.

Marx realizes, though, that a return to communities of a traditional nature is not in itself a solution to the alienation inherent to capitalist society.[69] The immediate unity of traditional society is based on a structure of internal relations, which structure is lacking in atomistic society, but to trade the former for the latter would be merely to substitute relations of personal dependence for those of economic dependence. The latter form of dependence, Marx argues, is rather an advance over the former. That the traditional individual belonged to or was part of the greater communal whole meant that he was dependent on other individuals for his identity, or for his place within the community. The slave is only slave *qua* master, the master *qua* slave. Thus relations of inequality pervaded

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65 *Grundrisse*, p. 472.

66 The earth, as will be noted immediately below, is the "great workshop" or "the arsenal which furnishes both means and material of labour," which serves, as well, "as the seat, the base of the community." See *Grundrisse*, p. 472.

67 *Grundrisse*, p. 485.

68 For the account of Marx's social ontology here and below I depend heavily on Gould, *Social Ontology*, pp. 1-15, and less heavily on Cohen, *History, Labour, and Freedom*, pp. 183-208. A complete ontological schema of Marx's three historical stages is given by Gould, p. 4.

69 Marx cautions, in *Grundrisse*, p. 111, that a "man cannot become a child again, or he becomes childish. But does he not find joy in the child's naïveté, and must he himself not strive to reproduce its truth at a higher stage?" The "truth" of the epoch of traditional communities, as will become apparent below, is the structure of internal relations that informs traditional communities but which must be regained in a new form.

the traditional community. Marx notes that individuals in traditional communities "enter into connection with one another only as individuals *imprisoned* within a certain definition, as feudal lord and vassal, landlord and serf, etc., or as members of a caste, etc., or as members of an estate, etc."[70] But once the immediate unity of the traditional community and the land is broken, a form of independence, both among community members *and* from nature is enabled.

At the (ontological) point where communal man is in immediate unity with nature, nature is for him a *natural* instrument of production.[71] Marx says that the "*earth* is the original instrument of labour as well as its workshop and repository of raw materials."[72] At this stage the earth, as the only available objective condition of man's existence, appears as "direct natural domination," in which case "individuals are subservient to nature."[73] At this point "the chief objective condition of labour does not appear as a *product* of labour."[74] Not until production of a distinctly human kind appears, that is, as noted above, with "specially prepared instruments," does man's relationship with nature become mediated by instruments of labour created by "civilization"[75] and does man break bondage with Nature. He releases himself "from the soil as his natural workshop"[76] and at this point, too, he can begin to realize himself as no longer constrained by traditional relations of personal dependency. His immediate exchange with nature—i.e., his labour for the products of nature—can be replaced by a mediated exchange with other men. In a capitalist society, that is, his exchange with other men can be mediated through the market place, rather than through the community. Thus not only is the *development* of nature a precondition of freedom from nature, the ownership of the fruits of this development—that is, *man's* products—must also take root.

The advance Marx sees in the dissolution of the all pervasive immediate unity of pre-capitalist society is in terms of freedom and equality. The relations of personal dependence in the traditional community are unfree and unequal. They are informed by the domination of master over slave, feudal lord over vassal, or by the domination of a tribal leader or monarch. The slave, for example, depends upon the master, for whom it is in the

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70 *Grundrisse*, p. 163. (Emphasis added.)
71 *German Ideology*, p. 68.
72 *Grundrisse*, p. 485.
73 *German Ideology*, p. 68.
74 *Grundrisse*, p. 485.
75 *German Ideology*, p. 68.
76 *Grundrisse*, p. 471.

slave's very nature to render a service. And the master depends on the slave performing the service for his identity; neither stand on common ground. Moreover, to say that the traditional community expresses an immediate unity is to say that the individual is necessarily a participant in communal production. He has neither an identity that appears his own nor instruments of production that appear as his own. The community "owns" his identity and it is only through the community that he can have a sense of "ownership" of the objective means of his existence. Thus he cannot separate out of this immediate unity an identity or a means of production that he can properly call his own.

In capitalist society, though, the individual enjoys a freedom from the domination of communal relations and an equality with his fellow man. Freed from the necessity to produce for the community, the individual can freely divest himself of his product as a proprietor (as a legal person): "Although individual A feels a need for the commodity of individual B, he does not appropriate it by force, nor vice versa, but rather they recognize one another reciprocally as proprietors, as persons whose will penetrates their commodities."[77] His equality thus consists in his social status as one among many who exchange (or contract): "As far as the formal character is concerned, there is absolutely no distinction between them.... Each of the subjects is an exchanger: i.e., each has the same social relation toward the other that the other has toward him."[78] This freedom and equality is only possible in a social structure based on external relations, which we have seen further presupposes or is itself based on the production of goods the value of which is for exchange. Marx says that the "dissolution of all products and activities into exchange values presupposes the dissolution of all fixed personal (historic) relations of dependence in production, as well as the all-sided dependence of the producers on one another."[79]

11. But the nature of (the newly gained) freedom and equality in capitalist society is suspect. The personal independence that is a consequence of the breakup of traditional communities is, Marx cautions, "merely an illusion, and it is more correctly called indifference."[80] The social bond that was once between persons and appeared natural now becomes one between things, wherein, as noted above, people now become slaves to their products rather than to each other. This means, as Marx says, that the social bond in capitalist society is "expressed in exchange value, by means of which alone each

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77 Ibid., p. 243.
78 Ibid., p. 241.
79 Ibid., p. 156.
80 Ibid., p. 163.

individual's own activity or his product becomes an activity and a product for him; he must produce a general product—*exchange value*, or, the latter isolated for itself and individualized, *money*."[81] In contrast to the concrete particularity of the traditional community, wherein the individual is trapped in a certain function or status within the community, there is a universality gained through the use of money as the social bond. Individuals, because they relate to each other in terms of the equivalent value of the goods they exchange, are now capable of redefining themselves in nontraditional terms: "worker" as opposed to "slave" or "serf."[82] But this is a universality based on external relations, or on the laws and conventions of the "marketplace," where individuals are forced into an atomistic existence because they can only (directly) relate to each other through the ownership of their products.

What is gained in capitalist society is thus a detached or abstract universality, which (merely) replaces a concrete personal or subjective dependency with one that is objective. Since products stand to individuals as objectifications of their own self interest, the totality of self-interests must then be mediated by an objective standard, or an exchange value, or money, which reflects the nature of the newfound equality among individuals, that of indifference. Marx says that the "individual carries his social power, as well as his bond with society, in his pocket."[83] The upshot is that dependence *per se* is not eliminated. Thus what replaces the oppression of the traditional community is really the oppression of the money or exchange *system*. Marx says that the

> social character of activity, as well as the social form of the product, and the share of individuals in production here appear as something alien and objective, confronting the individuals, not as their relation to one another, but as their subordination to relations which subsist independently of them and which arise out of collisions between mutually indifferent individuals. The general exchange of activities and products, which has become a vital condition for each individual—their mutual interconnection—here appears as something alien to them, autonomous, as a thing.[84]

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81 Ibid., pp. 156-7.

82 I take "community member" and "worker" or "free worker" to be the two generic terms that designate the types of individuals found in traditional and capitalist society. With regard to the latter, Marx says that the "positing of the individual as a worker...is itself a product of history." See Grundrisse, p. 472.

83 Ibid., p.157. At p. 246, Marx states that individuals in capitalistic society appear "towards the other as an owner of money, and, as regards the process of exchange, as money itself. Thus indifference and equal worthiness are expressly contained in the form of the thing."

84 Ibid., p. 157.

Finding himself within a social web that is structured by the general exchange of labour and products, the individual produces under the constraint of alienation. Thus the freedom gained in capitalist society cannot be more than a negative freedom. The individual is no longer caught within the "natural" oppression of the traditional community, but his newfound freedom is one that has no inherent content. It can only be defined in terms of what it is not, as freedom *from* constraint.[85] It is under the condition of negative freedom that Marx maintains man in fact produces "unfreely" and that in such production he necessarily devalues himself. No longer able to see the objective conditions of his existence as his (communal) property, he has only his "subjective property" or his labour-power as his own, and this he must sell to subsist.[86] Moreover, the worker's labour-power is used by capital to create surplus value, such that the "worker becomes poorer the more wealth he produces, the more his production increases in power and extent."[87] This, as will be covered immediately below, is made possible with the introduction of systems of machinery. It is important to note first, though, that it is at this moment where capitalism appears as a great civilizing force and that the individual can recognize himself *as* alienated. This is to say that the introduction of systems of machinery is the decisive background condition for the individual's realization of his freedom from the traditional community as an abstract, formal or empty freedom and for him to begin to see how he can truly produce freely, or for himself.

12. Marx observes that capital realizes profit through the creation of surplus value. Surplus value can be increased in two ways. The length of the working day can be increased to create *absolute* surplus value. But the quantity of absolute surplus value that can be realized is finite. Whether the "length" of the working day is increased extensively, by keeping the worker on the job for longer hours, or intensively, by convincing the worker to work with greater effort during the hours he is on the job, there is a limit that must be reached (which is expressed either through [organized] resistance or through a real decline in the health of the worker). Thus *relative* surplus value must be sought through a

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85 For example, Marx criticizes Smith's view of freedom as "tranquillity" or the absence of the constraint placed on the individual, which constraint is a result of the necessity to work in order to satisfy natural needs, at *Grundrisse*, pp. 611-12. One could speak of the freedom from constraint from a Hobbesian point of view and describe this freedom as positive, as the freedom to do what one desires. But here freedom would be privatized; it would be that of an individual. Marx would (presumably) counter that since the Hobbesian ontology sees the individual as a nonsocial being , its conception of freedom is still empty. Rather the freedom of the individual must always be seen as the freedom of individuals-in-relation, as a social possession.

86 Marx says that members of natural communities "relate naïvely to [the earth] as the property of the community..." See Grundrisse, p. 473.

87 Marx, "Economic and Philosophic Manuscripts," p. 289.

decrease in the value of labour-power, or by decreasing the amount of labour time that requires wages.[88] As Marx says, the creation of surplus value is the driving force of capital: "The increase of the productive force of labour and the greatest possible negation of necessary labour is the necessary tendency of capital...."[89] This is most effectively achieved through an increase in the development of the productive forces, either in a change of production methods or through the introduction of machines, but primarily through the latter.[90] The net result of this is that more commodities can be produced and hence consumption can also increase through the creation of new needs. Thus on the basis of this *technological* change, Marx finds the great civilizing force of capitalism. It enables the

> exploration of the earth in all directions, to discover new things of use as well as new useful qualities of the old...the development, hence, of the natural sciences to their highest point...the cultivation of all the qualities of the social human being...hence cultured to a high degree.... For the first time, nature becomes purely an object for mankind, purely a matter of utility; ceases to be recognized as a power for itself.... In accord with this tendency, capital drives beyond national barriers and prejudices as much as beyond nature worship, as well as all traditional, confined complacent, encrusted satisfactions of present needs, and reproductions of old ways of life.[91]

Thus, although the development and use of systems of machinery can be regarded as resulting in the most extreme form of alienation—the machine, for example, "confronts [the worker's] individual, insignificant doings as a mighty organism,"[92]—there are two respects in which production with machines appears as an advance over either agricultural or handicraft production. Machinery serves to increase abundance (or at least create an abundance that can never be known under agricultural and handicraft production) and, at the same time, it has the potential to increase the amount of free time the worker can enjoy. With regard to the latter, Marx says that "capital here—quite unintentionally—reduces human labour, expenditure of energy, to a minimum [and warns that this will] rebound to

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88 As Marx states: "For example, suppose a shoemaker, with given tools, makes in one working day of twelve hours, one pair of boots. If he must make two pairs in the same time, the productiveness of his labour must be doubled; and this cannot be done, except by an alteration in his tools or in his mode of working, or in both. Hence, the conditions of production, i.e., his mode of production, and the labour process itself, must be revolutionized." See *Capital*, p. 298.

89 *Grundrisse*, p. 693.

90 The advantage of the machine is that it can overcome the organic limits of living labour. With regard to the necessary tendency of capitalism to increase relative surplus value, Marx says that the "transformation of the means of labour into machinery is the realization of this tendency." See Ibid.

91 Ibid., pp. 409-10.

92 Ibid., p. 693.

the benefit of emancipated labour, and is the condition of its emancipation."[93] But the main advance in capitalism's utilization of machinery is expressed in terms of man's relationship to man. No longer do isolated workers using handicraft tools produce commodities for simple exchange. Under capitalism, which recognizes the potential of the "technological application of science,"[94] a unification of once isolated activity is required. To make the machine possible, a new social cooperation of labour—among scientists, engineers, machinists, operators, etc.—must take root. Machinery, as Marx says, "operates only by means of associated labour, or labour in common. Hence the cooperative character of the labour-process itself is...a technical necessity dictated by the instrument of labour itself."[95] This new sociality begins to replace the atomized society that first appeared with the introduction of exchange relations.

With the evolution of the machine, then, individuals become increasingly interdependent in ways that are internal rather than external. This is also a sign that man's relationship to nature has changed. With the machine, the worker no longer inserts "a modified natural thing as middle link between the object and himself; rather, he inserts the process of nature, transformed into an industrial process, as a means between himself and inorganic nature, mastering it."[96] It is thus this "mastery over nature" that is (finally) made possible in the machine and that lays the foundation for a society in which the internal unity of traditional communities can be recaptured: "In this transformation, it is neither the direct human labour [the individual] performs, nor the time during which he works, but rather the appropriation of his own general productive power, his understanding of nature and his mastery over it by virtue of his presence as a social body—it is, in a word, the development of the social individual...."[97] But the machine remains an objectification of man's sociality in alien form—as something over and against him—until such time that the re-created social individual recognizes himself in it, recognizes it as his own work and not that of capital. This Marx describes as labour's "recognition of the [objective conditions of his life] as his

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93 Ibid., p. 701. Marx says at p. 708, that capital, through the development of the machine, has created the means of "social disposable time...and thus to free everyone's time for their own development."

94 Ibid., p. 699. With the introduction of systems of machinery, the entire productive process is no longer a function of the skillfulness of the worker but, rather, one of the "technological application of science."

95 *Capital*, pp. 364-5.

96 *Grundrisse*, p. 705. In *Capital*, p. 366, Marx explains the identification of the "process of nature" and the "machine" thusly: "In Modern Industry man succeeded for the first time in making the product of his past labour work on a large scale gratuitously, like the forces of Nature."

97 *Grundrisse*, p. 705.

own, and the judgment that its separation from the conditions of its realization is improper."[98] As Marx says, when

> the limited bourgeois form is stripped away, what is wealth other than the universality of individual needs, capacities, pleasures, productive forces etc., created through universal exchange? The full development of human mastery over the forces of nature, those of so-called nature as well as of humanity's own nature? The absolute working out of his creative potentialities, with no presupposition other than the previous historic development which makes this totality of development, i.e., the development of all human powers as such the end in itself...?[99]

13. It is significant, though, that the freedom that allows the individual to develop his capacities for himself and not for the capitalist mode of production is more than a freedom from objective dependence on the machine. Granted, the individual is constrained by this mode of production and, in this sense, Marx can be said to recognize negative freedom as that which characterizes alienation. Marx also recognizes, though, that the individual must *overcome* constraint and that it is the act of overcoming itself that properly informs the concept of freedom. Thus Marx's conception of freedom is more a conception of activity than a state of being, like Smith's "tranquillity."[100] Marx agrees that freedom may obtain "its measure from the outside...through the aim to be obtained" but adds that overcoming the obstacles standing in the way of this aim "is in itself a liberating activity."[101] This is Marx's conception of positive freedom in its universal sense. It is Marx's recognition that man is a being of praxis. What is implied in this being, as noted in the previous chapter, is man's capacity for a projective consciousness. Thus freedom in its positive sense is at least the freedom to project possibilities for oneself. But this conception of freedom remains as abstract or one-sided as is freedom from constraint until it is recognized, as has been covered above, that the realization of the capacity of projective consciousness is the process

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98 Ibid., p. 463. Marx goes on to say that this "is an enormous advance in awareness, itself the product of the mode of production resting on capital, and as much the knell to its doom as, with the slave's awareness that he cannot be the property of another , with his consciousness of himself as a person, the existence of slavery becomes a merely artificial, vegetative existence, and ceases to be able to prevail as the basis of production."

99 Ibid., p. 488.

100 Marx's criticism of Smith's view of freedom also contains an implicit argument for the universality of objectification and the appearance of alienation as a concrete form of objectification. Smith's view of labour is that it is naturally coercive. Man, that is, is only free in a state of Leisure. But labour or productive activity is not naturally coercive, for Marx. Rather it is central to man's realization. The process of objectification, as the model of productive activity, is alienating only under specific social conditions. Thus Marx criticizes Smith for misunderstanding the nature of human activity and characterizes his thought as a theoretical expression of alienation. See Shlomo Avineri, *The Social and Political Thought of Karl Marx* (Cambridge: CUP, 1968), pp. 103-4.

101 *Grundrisse*, p. 611.

of objectification, which process is man's self-realization in a concrete way. Thus positive freedom in its concrete sense is a unity of both capacity and product. As Marx says, the originating moment of positive freedom is when

> external aims become stripped of the semblance of merely external natural urgencies, and become posited as aims which the individual himself posits—hence as self-realization, objectification of the subject, hence real freedom, whose action is, precisely, labour.[102]

To realize positive freedom in its concrete sense, then, the individual of capitalist society must first recognize conditions inherent in capitalist society itself *as* conditions of concrete freedom.[103] He can recognize, as has been noted, the overcoming of natural necessity in the machine, and the abundance and free time created as a byproduct of this overcoming. He can also recognize the breaking up of his atomistic existence through the social cooperation the machine requires. And he can see within these conditions the possibility of a nonalienated existence, in which he would be free to develop his own powers and capacities for himself.[104] As has been covered above, the communal individual existed as the "accessory of a definite and limited human conglomerate,"[105] in which the "inorganic" or objective conditions of his existence where one with his "active" or personal existence through the domination of the clan, tribe, or village. But with the breakup of this immediate unity, the detachment of external relations is the result of a "*separation* between [the] inorganic conditions of human existence and...active existence, a separation which is completely posited only in the relation of wage labour and capital."[106] Thus the capitalist individual, who enjoys the freedom of what Marx calls a "detached" independence from the

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102 Ibid.

103 Capitalist or bourgeois society is, for Marx, the key to not only understanding what the future can be like but, also, what the past was like: "Bourgeois society is the most developed and the most complex historic organization of production. The categories which express its relations, the comprehension of its structure, thereby also allow insights into the structure and relations of production of all the vanished social formations out of whose ruins and elements it built itself up...." *Grundrisse*, p. 105. Thus, as Gould, *Social Ontology*, pp. 27-30, points out, Marx neither imposes an *a priori* form on historical development nor does he see historical development as containing an internal necessity. It is rather the concrete actions of individuals who, out of their present (capitalist) existence, reconstruct the form of traditional society and imagine what social form is possible in the future through the overcoming of alienation.

104 As Marx says in *Capital*, p. 312, because of the socialization of labour required by the machine, the worker must cooperate "systematically with others [and he] strips off the fetters of his individuality and develops the capabilities of his species."

105 *Grundrisse*, p. 84.

106 Ibid., p. 489.

community and the objective conditions of his life, has in his possession an (ontological) separation out of which he can begin to recognize himself as a free individual.[107]

For this recognition to be realized, though, the *source* of alienation, that is, economic or social domination, must be overcome. Thus positive freedom in its concrete sense can only be the result of a historical or social process, or *revolutionary* praxis. The purpose of revolutionary praxis is the creation of a society in which the objective dependence on the machine is overcome through the destruction of social relations that enable the machine *to be* alienating. The overcoming of natural constraint in the machine is the necessary condition of concrete freedom; the overcoming of social constraint in revolutionary praxis the sufficient condition.

14. Thus Marx's solution to the problem of alienation emphasizes the social conditions under which the labour process is practiced. Under capitalist society, as Marx recognizes, man becomes a means to an end other than himself, or, because he is a *social* individual, he becomes a means to an end other than his species being. Under this condition, man produces unfreely, when freedom is taken in its positive sense. The only freedom that he enjoys is the one-sided freedom to sell his labour-power, which he must develop for the purposes of the capitalist mode of production; he does not enjoy the freedom to develop his powers and capacities for himself. Thus praxis in capitalist society appears as a means to the satisfaction of an end that is inherently self-frustrating. But once the domination of capitalist relations of production is overcome, the individual's activity can appear "no longer as labour, but as the full development of activity itself."[108] We would recognize positive freedom in its concrete sense when praxis is realized as for itself, or when each individual's conduct expresses a recognition of a shared or species capacity *for* free activity.

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107 Marx describes how this might begin to occur in pragmatic terms. He says that with the development of a world market, "...since the general bond and all round interdependence in production and consumption increase together with the independence and indifference of the consumers and producers to one another; since this contradiction leads to crises, etc., hence, together with the development of this alienation, and on the same basis, efforts are made to over come it: institutions emerge whereby each individual can acquire information about the activity of all others and attempt to adjust his own accordingly [and even though] on the given standpoint, alienation is not overcome by these means, nevertheless relations and connections are introduced thereby which include the possibility of suspending the old standpoint." Marx goes on to say that "this spontaneous interconnection, this material and mental metabolism which is independent of the knowing and willing of individuals, and which presupposes their reciprocal independence and indifference...is preferable to the lack of any connection, or to a merely local connection resting on blood ties, or on primeval, natural or master-servant relations." See ibid., pp. 160-2.

108 Ibid. p. 325.

Moreover, freedom realized through social interaction would coincide with the full realization of social relations that are internal in a concrete sense. These relations would be comprised by individuals who are both subjectively independent of the dominating influence of the community and objectively independent of the capitalist mode of production. Individuals once again would have personal relations but now no longer mediated by the exchange system or the machine. Their equality would no longer be formal but, rather, upon the realization that each has a common purpose, which is themselves, concrete. The type of social interaction that informs the freedom of self-development is described by Marx in terms of individuals treating each other as ends in themselves and, therefore, their species being as an end in itself. He says that in

> my *production* I would have objectified my *individuality* and its *particularity*, and in the course of the activity I would have enjoyed an individual *life*...In your satisfaction and your use of my product I would have had the *direct* and conscious satisfaction that my work satisfied a *human* need, that it objectified *human* nature, and that it created an object appropriate to the need of another *human* being. I would have been the mediator between you and the species and you would have experienced me as a reintegration of your own nature and a necessary part of yourself. In my individual life I would have directly created your life; in my individual activity I would have immediately *confirmed* and *realized* my true *human* and *social* nature.[109]

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15. Marx's identification of alienation as a devaluation of man, then, is an identification of a *social* form of self-frustration. Man in general is a being of praxis but man in capitalist society works against himself or the realization of his species being. He has yet either to recognize or act upon his being *as* praxial. Alienation is therefore the result of a contingent form of activity, which can be altered or overcome through revolutionary praxis. According to Marx's account of the source and problem of alienation, then, alienation is a social and not an ontological category. What it points to, though, is of ontological status: the nature of man as a self-referencing being whose self-reference, for Marx, must play itself out in productive activity. What underlies Marx's identification of alienation as a social form of self-frustration, then, is the ontology of production, which activity is itself informed by the process of objectification. But what is presupposed in *this* process is an ontology of technology as conductive. The conductivity of technology is the general qualitative aspect of technology that enables man's objectification of his social being. Thus, from an

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109 "Free Human Production," p. 281.

ontological perspective, what is lacking in social conditions that enable and promote alienation is the possibility of individuals to take advantage of the inherent conductivity of technology to realize their species being in concrete terms.

To put this in terms enumerated in the previous chapter, technology is *of* the community in capitalist society, in virtue of man's objective dependence on the machine, and it would be *for* the community in socialist or communist society, in virtue of man's objective independence of the machine. Thus, it is not, as suggested above, on the basis of the conductivity of technology that Marx can argue the use of technology is nonambivalent. Technology is neither the intrinsic source nor the cause of alienation.[110] To say that man is alienated in ontological terms is to say that the conductivity of technology is, as it were, stolen from man *by man* unnecessarily. Alienation is rooted in a *relation*, not a thing or technique. The conductivity of technology does not, as also noted above, guarantee a self-transformation and nor can it be blamed for the lack of one. Technology can, to be sure, enable man to be a mediating factor in the realization of his species being but only under social and historical conditions that are *themselves* conductive to this use. As Marx cautions, machinery "in itself is a victory of man over the forces of Nature, but in the hands of capital, makes man the slave of those forces...."[111]

Thus, that Marx sees technology in terms of conductivity means he cannot be an adherent of the tool-use model of productive activity. This is to say that he does not see technology as neutral, or as a thing that is necessarily ambivalent. But that he also sees the frustration of the self in terms of alienation and that alienation has solely do with social relations means that neither is he a technological autonomist. In the final analysis, technology is not and cannot be a threat to the self for Marx. Rather man is his own threat. What Marx sees in the development of technology is the development of man himself, in his quest to overcome natural necessity and in that overcoming develop himself. This is why he criticizes the Luddite movement for its naiveté during the introduction of machinery in the first part of the nineteenth century. He states that it "took both time and experience before the workpeople learnt to distinguish between machinery and its employment by capital, and to direct their attacks, not against the material instruments of production but against the mode in which they are used."[112]

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110 This is a point made by Bernstein, *Praxis and Action*, p. 49.

111 *Capital*, p. 416.

112 Ibid., p. 404.

16. There are two objections the tool-use adherent can mount against the Marx's ontology of technology. The first objection is a minor one but its rebuttal gives opportunity to fill out completely Marx's position on the nonambivalence of technology. The second is more serious and drives to the heart of the difference between characterizations of technology as either neutral or conductive. It's rebuttal gives opportunity to describe more fully Marx's solution to the problem of alienation and the role technology plays in that solution. The first objection is that in the account of technological nonambivalence given above, it is not necessarily the case that the use of technology enslaves *everyone* in society. It is only the worker that is enslaved. His boss is not. He enjoys, as we have seen Marx himself point out, works of wonder, palaces, beauty, and culture. However, the relationship between the worker and the non-worker is not so clear cut. Marx says that everything "which appears in the worker *as an activity of alienation*...appears in the non-worker as a *state of alienation*...."[113]

The second and more serious objection the tool-use adherent would mount against a Marxian ontology of technology is that Marx's suggestion that technology can be used "properly" under certain social conditions is merely a long way round to the conclusion that the use of technology can in fact be ambivalent in the best of social circumstances. This seems to say nothing more than what has been obvious to tool-use adherents all along. If Marx is saying that technology *should* be ambivalent, the difference between this position and the tool-use position is really only one of degree. Whether we characterize technology as neutral or conductive, the fact remains that Marx believes we can use technology such that neither it nor the objects produced with it will enslave us. The basic point is still the same: there is nothing inherent in technology that can cause evil or injustice. Thus there is a common thread between the two positions that seems to make the distinction between conductivity and neutrality superfluous. At the very least, there is nothing in Marx's ontology that *negates* the fact that evil or good uses of technology are a function of our evil or good intentions.

As Marx understands it, though, the productive practice of an individual and the intentions of that individual cannot be as disconnected as is implied in the tool-use paradigm. For Marx, "man" is not a self-sufficient entity who simply uses tools to achieve

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113 "Economic and Philosophic Manuscripts," p. 300. At this point the text breaks off and we are not left with an explanation of the difference between "activity "and state of "alienation." I have been unable to locate any discussions of this passage in secondary materials. I can only suggest that as long as capitalist relations of production exist *any* man will necessarily be self-divided and hope that this is reasonably sufficient to carry the point I am trying to make here.

ends external to that use. Rather productive practice bespeaks an internal relation between the development of man's nature and the development and use of tools. This is to say that if man's nature is to be seen in terms of his use of tools, then we must attempt to locate and explain his intentions in terms of the social existence that his productive activity constitutes and presupposes. Marx's insight is that our intentions are tied up with our social structures and, therefore, the range within which intentions are formed and executed is both created and limited to the type of social being we are. Thus it is possible for the tool-use adherent to have a "good" intention to use technology to make money in a capitalist society, because that is what he is supposed to do in that type of society. In addition to his contribution to the GNP, he may even support the local food bank with some of his profits and raise himself to the level of a philanthropist. These are examples of the types of "good" intentions that are available to him in a society based on private property. However, he would still be promoting the nonambivalence of technology by promoting a social structure within which the use of technology frustrates self-realization.

The difference between Marx's ontology of technology and that of the tool-use adherent resides in the *type* of change that is required before the use of technology can be used for good or evil. Without realization that what is at the root of the nonambivalence of technology is the capitalist structure *itself* and that it is this social form that must be changed, the tool-use adherent merely perpetuates the conditions under which the use of technology is nonambivalent. This is a possibility that is explicitly recognized by Heidegger (and Ellul) and not missed by Marx. The net result of looking beyond the intentions with which we use technology to the social structures within which those intentions are formed is that the ambivalence of technology cannot be ensured on the basis of intentions alone. But the tool-use adherent is unable to see *this* because he has a view of technology as neutral. To see technology in terms of conductivity is the key to understanding how man can objectify himself in private property and become alienated from himself, all the while with the best of moral intention, as "moral" is defined in capitalistic society.

17. Thus the tool-use adherent recognizes that there *can* be a problem with the use of technology, that it can equally increase the scale of good and evil, but is unable to generate out of an account of that problem a solution that can meet the perpetuation objection. The tool-use adherent would "tack on" more of the same, in the form, for example, of stricter or more sophisticated adherence to moral principles. (He might, for example, recommend a course in "Engineering Ethics" to help properly align intentions with "good" uses of technology.) But the burden of explaining how this would *not* lead to a perpetuation of the

nonambivalence problem the tool-use adherent does not thus escape. Marx, on the other hand, sees beyond the subjective states of man to the objective (social) conditions that define and (help) *explain* those subjective states. In so doing, he is able to identify the objective ground upon which there can exist a contradiction between "good" intention and "good" practice. Rather than appealing to moral principles the origination of which may have no necessary connection to productive activity *per se*, he can appeal to a set of social circumstances that are both i) revealed by the very problem of the use of technology itself and ii) will allow for what the tool-use adherent has been after all along, that is to say, a proper relationship between intention and tool. For Marx, then, the problem inherent in the use of technology is one that revolves around social conditions in which the conductivity of technology is not fully taken advantage of. Where the tool-use adherent sees an ethical or moral problem, Marx sees a social or political problem.

Finally, as noted in the first chapter, the initial difficulty with the tool-use model of productive activity is the notion that modern technology is neutral *because* premodern technology is (or appears to be) instrumental. But Marx does not fall into the trap of interpreting modern productive practice in terms of an ahistorical and misleading picture of "tool" as handicraft instrument.[114] Because Marx has a sense of the history of the development of the means of production and that he identifies this development as internally related to man's self-realization, he can further identify how the uses of technology can be nonambivalent, or how certain productive practices put the tool before the man. Under the capitalist use of machinery, for example, in "no way does the machine appear as the individual worker's means of labour [such that the] worker's activity...is determined and regulated on all sides by the movement of the machinery..."[115] But under the socialist use of machinery, the means of production will be appropriated, developed, and used in such a way as to put man in control of what, according to Marx, will become an (almost fully) automated process.[116] At this point, which can be characterized as the

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114 Thus Marx says in *Capital*, p. 351: "Our first inquiry...is how the instruments of labour are converted from tools into machines..."

115 *Grundrisse*, pp. 692-3.

116 So it is important to note that more is involved in the socialist revolutionary programme than merely a change of ownership. But revolutionary praxis involves, as Ollman, *Alienation*, p.98, points out "controlling, using and regarding [the productive forces] in a manner and on a scale that expresses powers in the process of becoming fully human." Indeed, Marx's contention that capitalist property relations act as a fetter on the productive forces implies the concept of a socialist engineer as well as a socialist "boss." For a rigorous defense of this position, see Gendron and Holmstron, "Marx, Machinery, and Alienation," pp. 119-35. M. Markovic, *Democratic Socialism: Theory and Practice* (New York: St. Martin's Press, 1982), in Chapter 5, "Work in Socialism," makes some interesting comments along these lines.

realization of Aristotle's dream, that there will be no need for masters or slaves once machines become automatic,[117] man will have achieved the material foundation upon which he can truly realize himself.[118] In effect, the conductivity of technology will be appropriated by man *for man* through a change in the relations of production, and not through a change in man's intentions.

VI

18. Together, Marx's identification of alienation as a social form of self-frustration and his characterization of man as a being of praxis brings to the fore an identification of what we may call praxial frustration. It is praxial "frustration" in that the problem of alienation, the devaluation of man, is a condition of man that is *contingent* upon social and historical circumstance. With an eye toward the analysis proposed for the conclusion of this essay, praxial frustration is, then, a situation in which we can say it is contingently the case that man cannot offer a self-description and thus can be characterized as an insecure self. Under conditions of alienation, that is, he does not recognize himself in his products or his labour, which recognition is *necessary* to the realization of his nature as praxial, or as a self-referencing being. Alienation, then, is a contingent negation of self development. This is to say that man has not yet reached the social stage at which he can offer a self-description that is anything more than an abstract possibility. His freedom is still abstract, but he can at least imagine, out of the conditions of his alienation, what form that description would take and thus he can imagine himself as a secure being.

In terms of what I have called the modern dilemma,[119] then, Marx is of the position that there is, in principle, no set of social and historical circumstances in which it is

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117 Aristotle states: "There is only one condition in which we can imagine managers not needing subordinates, and masters not needing slaves. This condition would be that each [inanimate] instrument could do its own work, at the word of a command or by intelligent anticipation, like the statues of Daedalus or the tripod made by Hephaestus, of which Homer relates that 'of their own motion they entered the conclave of gods on Olympus,' as if a shuttle should weave of itself, and a plectrum should do its own harp playing." See *Politics*, I, p.10.

118 For a resolution of the tension that exists (for many) between Marx's position that communism must be built on the achievements of modern technology and his (and/or Engel's) "utopian" description of communist society in the *German Ideology*, p. 53, see T. Carver, "Communism for Critical Critics? The German Ideology and the Problem of Technology," *History of Political Thought*, Vol. IX, No. 1, Spring 1988, pp. 129-136. Carver argues that the utopian vision is really an example of Marx's humour and not of his views on the relationship between technology and communism.

119 In Chapter One: "But herein lies what one might call the modern dilemma: with the successful taming of atomic energy and its worldwide distribution, an era of technical development will begin within which it will be impossible to predict and thus control the radical changes ushered in."

impossible to predict and thus control the development and use of modern (or machine) technology. The "modern dilemma," to the extent that Marx can be said to recognize it, is really one, then, of the social *uses* of advanced technology. To the extent that technology does pose a threat to man, that it is nonambivalent, the structure of that threat is social through and through. Marx is of the position (roughly) that the material conditions of alienation will be overcome through the realization of the Aristotelian dream. Technology will be developed to its fully automated stage for the purpose of decreasing necessary labour time.[120] Second, the (proper) *management* of this technology will be such that labour will no longer be a commodity and the source of alienation, economic domination through general exchange, will, as it were, dry up.[121] Social conditions will be such that the "general reduction of the necessary labour of a society [is kept] to a minimum, which [will then] correspond to the artistic, scientific, etc. development of the individuals in the time set free, and with the means created, for all of them."[122] Marx, then, discounts in principle the possibility that technology *itself* can play a role in self-negation.[123]

19. In the next chapter, I want to prepare for a closer look at Marx's thesis that technology is necessarily conductive or self-referencing. To do this, I will analyze Heidegger's account of the self, as it is nested in terms of tool use. Thus it is an account of the possibility conditions for praxis—that man must first possess an identity in order for self-realization to be possible—that will inform the bulk of the chapter to follow. This for

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120 Marx states that "the development of the forces of production is only important to the extent to which it increases the workers' surplus labour time, and not because it reduces the labour time required for material production in general." I have used the translation found in Elster, *Making Sense*, at p. 149.

121 In *Grundrisse*, pp. 705-6, for example, Marx states that as "soon as labour in the direct form has ceased to be the great wellspring of wealth, labour time ceases and must cease to be its measure, and hence exchange value [must cease to be the measure] of use value...With that, production based on exchange value breaks down, and the direct, material production process is stripped of the form of penury and antithesis." This will be achieved through democratic planning in communist society, as in the *German Ideology*: "Communism differs from all previous movements in that it...for the first time consciously treats all naturally evolved premises as the creations of hitherto existing humans, strips of their natural character, and subjects them to the power of the united individuals...." See James W. Rinehart, The Tyranny of Work : Alienation and the Labour Process (Toronto: Harcourt, 1975) for an empirical investigation into the thesis, that, as Rinehart states: "Properly organized, work brings out and reflects distinctively human attributes, that is, those which differentiate humans from all other species." (p. 15)

122 *Grundrisse*, p. 706.

123 Perhaps it is of interest here to note that Engels came to think that there was an internal relationship between alienation and technology. He described machinery as a despotism in capitalist or any post-capitalist society (as noted by Winner, *Autonomous*, p. 270) but Marx remained firm in his belief that technology could not be an objective, external force in itself . Marx states in *Capital*, III, p. 83, that the discipline Engels thought necessary to the machine would, in fact, "become superfluous under a social system in which the labourers work for their own account...."

the purpose of exploring the possibility of formulating a sense of self-negation that is rooted in technology rather than social relations. In the Conclusion, I will speak of this latter form of self-negation in terms of praxial *breakdown*. It will be argued there that praxial breakdown must be considered as differing from praxial frustration in an asymmetric way. This is to say that although the source of praxial breakdown will be technological rather than social, the logical possibility that there is *no* solution to praxial breakdown must be given systematic consideration. In order to argue this, though, Heidegger's conception of the self must first be investigated.

Praxis and the Community

I

1. In the previous chapter, I attempted to outline what Marx's critique of technology amounts to in terms of the interrelation between praxis and technology. I argued that we can recognize in Marx's identification of praxial frustration a critique of industrialization that is rooted in a conception of technology as conductive. This is to say that to the extent man's relationship to technology plays a role in or is an aspect of man's alienation, it is because technology is not allowed to be conductive of man's self-realization. That technology is not "allowed" to be conductive is, for Marx, a function of social structure. Capitalism, specifically, is just that type of social structure, as noted in the final section of the previous chapter, that inhibits both the proper development of the forces of production and the proper management of those forces. But there is also implied in Marx's solution to the inhibiting nature of capitalism a conception of technology that seems uncomfortably close to the positivistic or tool-use conception of technology as neutral. One could make a case that although Marx is not a neutralist on the individual level or that he is not a neutralist in his account of productive activity in general, he nevertheless appears to be an adherent of the tool-use model on the social or historical level and that his revolutionary praxis suffers from this.

It was suggested in the first chapter, for example, that the test of the neutrality of technology is that the "artifact itself, the concrete instance of it, closely resembles the preconceived idea," which idea is in the mind of the producer. The implication of this test is that technology "does not get in the way" or that it "holds no surprises," that, in short, what we really need to concentrate on in our productive activity is either the idea we have or how we use the artifact that represents that idea. And one can argue that Marx holds a conception of technology as "class neutral" that follows from this definition or test of neutrality. Marx, it can be maintained, has a vision of a society that will be produced through revolutionary praxis and in which the forces of production are truly used for the development of man, once these forces are appropriated from the capitalist, fully automated, and managed in accordance with man's social nature. This is to say, in effect, that a properly organized society will be achieved once the *same* technology that the

capitalist controls is "used" in accordance with man's species essence. In short, there is nothing in Marx's account of modern productive practice that can be usurped by anything inherent in technology. If the forces of production are managed properly, there can be no hidden surprises, as it were: one simply substitutes "communist society" for artifact and "man's realization of his species essence" for idea and assumes the appropriation of the technology that stands at its base will "behave" in accordance with the idea. Thus Marx *can* be seen this way, as a neutralist with regard to technology on the social or historical level.

But it is important to note some important differences between Marx's conception and the positivistic notion of neutrality and why this does not necessarily commit Marx to the stark instrumentalism of the tool-use model of productive activity. The tool-use conception of neutrality is derived from the further, background notion that the use of technology is essentially ambivalent with respect to man's aims and purposes. There is, here, a conception of technology as neutral *and* nothing more than neutral. We have seen how Marx, through his identification of the situated use of tools as a source of alienation, takes exception to the notion that this use is ambivalent. And we have seen, through an analysis of Marx's characterization of the labour process in general, his contention that technology is conductive of man's objectification. Thus an analysis of man's productive activity in terms of Aristotle's concept of *praxis* shows the use of technology as far from ambivalent. On the one hand, the use of technology can frustrate the development of man's species essence but on the other, its "proper" use can promote the development of this same essence. Against *this* background, Marx's characterization of technology as class neutral is not necessarily inconsistent with the notion that technology is conductive. There is still an internal relation between a social structure and its capacity to either promote or inhibit man's self-development. So to the extent that Marx has a conception of technology as neutral it is one that is relative to social structure and not neutral to the self, as is the case with the tool-use model. To say that technology is neutral with respect to social structure and conductive with respect to the social development of the individual is not to say that man is externally related to technology but, rather, that revolutionary praxis is the logical solution to the frustration of the full development of that relation.

Thus Marx's conception of class neutrality differs from the tool-use conception in at least the following respects. The positivistic notion of neutrality is claimed with respect to individual intentions and without claim to historical circumstance. But Marx wants to say that for the individual working in capitalist society, technology is not neutral. The purpose inherent in his use of tools, his free development as a social individual, will be frustrated

because of the use of tools in that society. But most crucially, the different interpretations of neutrality bring to the fore different sets of problems. The tool-use notion of neutrality raises questions of individual ethics on the side of the subject and leaves to technology the purely technical question of efficiency. Marx is not unaware of these questions. In a socially managed economy, it follows for Marx, technology *will* be more efficient. And if man lives his social essence through properly social institutions, then his individual intentions, because they will be socially framed, will not (normally) be problematic. Thus the answers to the questions or the solutions to the problems that come to the fore in the positivistic conception of technology are, in a sense, ready-made in a socialist or communist society. Or rather they are dissolved into the background by revolutionary praxis. The critic of technology, that is, does not get to the essence of Marx's position on technology by asking Marx about technical or ethical problems having to do with the use of tools.

2. Nevertheless, there is a crucial issue that comes to the fore in Marx's conception of technology as class neutral that is not so easily dissolved by revolutionary praxis. Even if we can imagine, given the proper set of social circumstances, the efficacy of technology as a nonproblem and even if we can imagine questions of individual intentions with regard to the use of technology as relatively nonproblematic, we are still left with the question Whether technology itself does not have something inherent about it that can frustrate the development of man's species essence? The issue that comes to fore in the notion that technology is capable of being socially organized in a way that is truly conductive of man's species development, then, is this: Can Marx's claim that given the proper set of social and economic conditions, technology is necessarily conductive to the development of man's species essence withstand *philosophical* criticism. This question, as has been noted, is brought to the fore in the autonomist descriptions of technology, which maintain, in one sense or another, that technology is out of control and *this* is meant or can be taken to imply that technology is in one sense or another a threat to the self. But it is imperative to be precise on what the autonomist claim amounts to in philosophical terms and how we would want to investigate Marx's claim systematically.

As I have argued above, Marx sees technology as class neutral against the background of his conception of i) technology as conductive and ii) revolutionary praxis as just that form of conduct that enables or will enable technology to be conductive. Technology, for Marx, is the result *of* human agency, it is *for* that agency, and it can be molded *to* that agency. Thus to question Marx's claim that technology is class neutral is to

ask whether technology is *necessarily* conductive of man's self-development in the proper social setting. It is a question about the very being of technology itself and how this being is related to the being of man. So the question is no longer one of the use of technology *per se* but, rather about technology itself and how it is possible for technology to be used as a partner in man's self-development in the first place, or how it is possible for technology to be conductive. A philosophical investigation focused in this way will not address Marx's theory of history as much as it will question his account of production in general, within which his conception of conductivity is nested. If Marx's faith in revolutionary praxis is to be found wanting, it will not be because he thinks technology is class neutral but, rather, because his notion of conductivity is either suspect or in need of modification.

Thus what I propose in the following is an account of the labour process in ontological terms, following closely Heidegger's famous analysis of the "workshop" in *Being and Time.*[1] Before we can begin to investigate whether there is or can be something inherent in technology such that human agency cannot mold technology to itself, we must first ask what is it about tools that makes them or allows them to *be* useful. What this analysis is meant to discover, then, is how it is possible for man to "use" tools in the first place. So the purpose of the following investigation is to lay bare the possibility conditions for the (material) praxis Marx finds definitive of human being, starting from the perspective of *the tools themselves*, or from what Marx calls the "objective" side of the labour process. It is out of this analysis that I think it is possible to define a sense of praxial rupture, which I will attempt in the conclusion of this essay, that can be captured in terms of "praxial breakdown" and which is rooted in technology and not social relations. Thus it would be from the perspective of praxial breakdown and not a tool-use conception of neutrality that would allow the systematic critic of technology a window through which Marx's conception of revolutionary praxis can be found wanting.

Throughout this chapter, I want to suggest that Heidegger's account of tool-use can be analyzed in terms of two theses, a "transparency thesis" and an "existential thesis." The former thesis, which is explicated in the section immediately following, is a thesis about the being of tools themselves and how we experience this being when we use tools. But I think that it is Heidegger's existential thesis that has yet to appreciated in philosophical thought about technology. Thus in sections three and four Heidegger's existential thesis is explicated in an attempt to illustrate the importance of this thesis for a philosophy of

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1 Martin Heidegger, *Being and Time*, trans. Macquarrie & Robinson (New York: Harper & Row, 1962).

technology. I suggest, for example, that it is through the eye of this thesis that Marx's account of productive activity can be found wanting, that, in particular his view of the role the community plays in praxis is one that is too narrow and that it would be upon this basis that we would want to criticize Marx.

II

3. I have argued that the central problem with the tool-use model of productive activity is that it suffers from the disconnection of man and tool, which disconnection is inherent in that model's reliance on its conception of technology as neutral. To the neutralist, then, tools stand alone, disconnected in a fundamental or ontological sense from the subject who uses the tool. Thus for the neutralist to give an ontological explanation of how it is that we can use a tool requires that the agent be seen as "picking up" a self-subsistent "thing" and manipulating it in accordance with some "intention," which intention can only, in some crucial sense, be in the subject's "mind." As will become evident in this and the following section, Heidegger does not necessarily disagree with this picture of tool use. But he does think it is highly contrived and derivative of a more natural or "primordial" form of practical behaviour, in which there is no evident ontological disconnection between the subject who uses the tool and the tool itself. He claims, in brief, that to the extent a distinction can be made between the being of the tool-user and the being of the tool, this distinction will not dig deep enough to establish the kind of ontological disconnection between tool and tool-user that the tool-use model presupposes. Heidegger claims, for example, that tools, *as* tools or as things that we can use to produce things, are not self-subsistent entities. Rather they are always constituent of or internally related to the whole of what he calls the "workshop" or, roughly, man's practical environment. It is on the basis of this global claim that Heidegger maintains there is really no such thing as "a" tool and that the being of a tool cannot be one that is disconnected to the being of a tool-user. In this section, I will concentrate on Heidegger's claim about the being of a tool, leaving Heidegger's further yet related claim, that the being of a tool is related to the being of a tool-user, for sections following.

For Heidegger, to understand the being of tools or the being of anything that we use to get something done requires that we determine what the pragmatic character of that thing amounts to. An entity cannot be said to have a pragmatic character on the basis, for example, of a "secondary" characteristic. It is not, then, that there is first this "thing" and then there is also this property of the thing that we recognize in it, which allows us or

prompts us to pick it up and use it to effect some purpose. There is nothing "in" or "attached to" an entity that we can be said to "recognize," either consciously or implicitly, that explains or begins to explain the simple act of using that entity as a tool. It is rather, Heidegger wants to suggest, that we *already* know how to use the entity as a tool, that we are versed in its practical grammar, as it were, and that this knowledge is expressed in our "workshop behaviour." Thus an analysis of the being of tools must begin with our understanding of them in instrumental terms. Heidegger recalls the Greek word *pragmata*, which denotes things embedded in a context of use, to emphasize that it is in instrumental terms that we first understand things like tools.[2] What this knowledge amounts to, if it is not, say, of a set of rules "in" the mind or of a property "in" the tool but is rather *what* tool use is, rather a form of behaviour, is at least this: there is inherent in the use of a tool a form of understanding that expresses an ontological transparency between the user and the tool, such that the *user* does not recognize the tool as other or as a self-subsistent entity.

Part of what this understanding amounts to, then, is a familiarity with a context of use that involves a range of tools. Heidegger says that if the being of an entity other than man is to be determined in terms of its pragmatic character, it must be accepted from the outset that there is no such thing as *a* tool, or a single, self-subsistent piece of "equipment":

> Taken strictly, there "is" no such thing as an equipment. To the being of any equipment there always belongs a totality of equipment, in which it can be this equipment that it is. Equipment is essentially "something in-order-to ...." A totality of equipment is constituted by various ways of the "in-order-to," such as serviceability, conduciveness, usability, manipulability.[3]

Thus Heidegger suggests that rather than defining a tool in terms of a self-subsistent entity possessing any number of (useful) properties, we need to (and, indeed, already do in our workshop behaviour) define it in terms of the purpose to which we put it.[4] But he also stresses that the serviceability, for example, of any "single" tool is tied to the serviceability of a *totality* of tools. This is not to say that the totality itself is comprised by or defined in terms of disconnected entities defined by unrelated "in-order-to's." Rather, the totality of tools is structured by a number of tools that are inter-referring. As Heidegger

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2 Heidegger, *Being and Time*, pp. 96-97.

3 *Ibid.*, p. 97. I follow the now standard practice of inserting "being" for "Being" when quoting from the Macquarrie & Robinson translation. I will also follow North American usage of quotation marks.

4 Heidegger states in *The Basic Problems of Phenomenology*, trans. Albert Hofstadter (Bloomington: Indiana University Press, 1988), p. 293, that "what and how it is as this entity, its whatness and howness, is constituted by this in-order-to as such, by its functionality."

says: "Equipment—in accordance with its equipmentality—always is *in terms of* its belonging to other equipment: ink-stand, pen, ink, paper, blotting pad, table, lamp, furniture, windows, doors, room."[5] So to say that a "tool" is just that kind of thing that has a pragmatic character is to say that i) we understand it or use it by virtue of something like its serviceability, or its in-order-to, and ii) we can use a tool in terms of this serviceability only because we use it in conjunction with tools of similar character. Part of what it is to know or to be able to use a tool, then, is to know or be able to use a whole totality of equipment. As Heidegger says, "strictly" we do not use individual tools. But this is not to say that we "use" a totality of tools in our productive activity. Heidegger's point is rather that when we use a tool we understand that tool in terms of its reference to other tools, or in terms of what can be called its "use-context."

That any number of tools can be used together in a coherent manner, that they can share a use-context, is because each tool in the equipmental whole has an "assignment" or "reference" to each other: "In the in-order-to as a structure there lies an *assignment* or *reference* of something to something."[6] So when we use a tool, we are in some crucial sense using a *structure* of functionality or serviceability, or as Heidegger calls it, an "equipmental nexus" or an "equipmental contexture." It is to this structure or equipmental nexus that we can be said to intend or relate ourselves, rather than to single, independent tool. The equipmental nexus that the items of equipment described above constitute, then, are not available to us for use as mere things, standing to each other as independent entities. As Heidegger says, the ink stand, paper, furniture, etc., never show themselves so "as to add up to a sum of *realia* and fill up a room. What we encounter as closest to us...is the room; and we encounter it not as something 'between four walls' in a geometrical spatial sense, but as equipment for residing. Out of this the arrangement emerges, and it is in this that any 'individual' item of equipment shows itself."[7] The hammer, for example, is not related to nails in the sense that the hammer is one thing and the nails another but, rather, the hammer is understood as what it is in terms of the context or arrangement of nails, boards, etc. If we understood the hammer in terms of metal and wood formed in a certain

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5 Heidegger, *Being and Time*, p. 97.

6 Ibid.

7 Ibid., p.98. Heidegger also states in *Basic Problems*, p. 292: "Equipment is encountered always within an equipmental contexture. Each single piece of equipment carries this contexture along with it, and it is this equipment only with regard to that contexture. The specific thisness of a piece of equipment, its individuation, if we take the word in a completely formal sense, is not determined primarily by space and time in the sense that it appears in a determinate space- and time-position. Instead, what determines a piece of equipment as an individual is in each instance its equipmental character and equipmental contexture."

manner, the hammer would not be able to function *as* a hammer in our use of tit.[8] When we are using the hammer, we understand it as the centre of a referential context.

4. The nature of the understanding that is manifested in tool use cannot, then, be thematic. We grasp the tool in terms of its references and assignments and not as a self-subsistent entity, which could be the object of scientific investigation. Thus the form of understanding expressed in tool-use is "not a bare perceptual cognition" but rather one that is expressed in "that kind of concern which manipulates things and puts them to use; and this has its own kind of knowledge."[9] Heidegger states that when we deal with tools "by using them and manipulating them, this activity is not a blind one; it has its own kind of sight, by which our manipulation is guided...."[10] The kind of knowledge or sight that Heidegger has in mind is what he calls "circumspection." Circumspection, in short, can be said to be an atheoretical, (essentially) non-linguistic form of interpretation, which enables us to use a tool: "Interpretation is carried out primordially not in a theoretical statement but in an action of circumspective concern—laying aside the unsuitable tool, or exchanging it, 'without wasting words'."[11] Circumspection, then, is knowing *how* as opposed to knowing *that.*[12] It is not the kind of knowledge normally expressed in assertions but, rather, that expressed in practical behaviour, as noted above, "without wasting words." On the practical (vs. scientific or theoretical) level, then, to "interpret" an entity as a hammer is simply to use it as a hammer.[13] We do not look at the objective properties of the hammer in order to use it; we look around the hammer, as it were, and note the appropriate uses it has in the workshop or for the project at hand.

To "see" a hammer in terms of its referential character or use-context, then, is to know how to use it in a way already outlined or prescribed by the hammer's in-order-to. We use tools along with other tools to accomplish goals *for which* the hammer is designed.

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8 Frederick A. Olafson, in his *Heidegger and the Philosophy of Mind* (New Haven: Yale University Press, 1987), p. 41, notes that Heidegger's point is similar to that made by Wittgenstein in his discussion of the pointing arrow; that is, once the arrow is equated with a pattern of lines, its loses its pointing function.

9 Heidegger, *Being and Time*, p. 95.

10 Ibid., p. 98.

11 Ibid., p. 200.

12 John Dewey makes this distinction in his discussion of the relation between habit and intellect, such that we know how by means of our habits and know that by means of our intellect or by "reflection and conscious appreciation. See *Human Nature and Conduct: An Introduction to Social Psychology* (New York: The Modern Library, 1957) pp. 163-170.

13 This point is forcefully made by Mark Okrent, *Heidegger's Pragmatism: Understanding, Being, and the Critique of Metaphysics* (Ithaca: Cornell University Press, 1988), pp. 53-55.

We appropriate "this equipment in a way which could not possibly be more suitable."[14] We do not, for example, use the hammer to depress the keys on a typewriter, nor do we use a typewriter to drive nails into a board. That we use hammers to drive nails into a board shows i) our understanding of how to use a hammer *appropriately* and, therefore, ii) our understanding of the hammer itself. When we grasp an entity like a tool in this way, we simply follow standard practice or, as Heidegger says, we "subordinate" ourselves "to the 'in-order-to' which is constitutive for the equipment we are employing at the time."[15] To understand an entity as a hammer by following the practices inherent in its use-context, Heidegger says, is to grasp the being of that entity as "ready-to-hand."[16] Part of what it means to say that an entity like a hammer is ready-to-hand, then, is that a "hammer" does not exist as a self-subsistent entity, which is capable of or requires being observed in terms of substantial characteristics. Heidegger says that "the less we stare at the hammer-Thing, and the more we seize hold of it and use it, the more primordial does our relationship to it become, and the more unveiledly is it encountered as that which it is—as equipment."[17]

Heidegger's point is stronger than this, though. He maintains that entities *cannot* be used in the primordial sense, or in the sense of using them for some purpose, if we treat them self-subsistently: "No matter how sharply we just *look* at the 'outward appearance' of Things in whatever form this takes, we cannot discover anything ready-to-hand."[18] To use an entity in a purposive manner, for an entity to *be* ready-to-hand requires, positively, that

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14 Heidegger, *Being and Time*, p. 98.

15 Ibid.

16 Ibid., p. 101. Heidegger states: "The kind of being which equipment possesses—in which it manifests itself in its own right—we call 'readiness-to-hand'." "Ready-to-hand" is the English term used by Macquarrie and Robinson for the German word *zuhanden* and I will stick to this translation, as well as Macquarrie and Robinson's translation of Heidegger's related term *vorhanden* as "present-to-hand" (which term will be explicated in the Conclusion). There has yet to be an English translation of these terms accepted as standard. Olafson, cited immediately above, for example, translates the German terms as "at hand" and "on hand," respectively, but prefers to stick to the original German (see p.39.). Hubert Dreyfus, in *Being-in-the-World: A Commentary on Heidegger's Being and Time, Division I* (Cambridge: The MIT Press, 1991), translates the German terms as "available" and "occurrent," respectively (see p. xi .). Dreyfus uses Macquarrie and Robinson's translations, though, in an earlier article entitled "Between Techne and Technology: The Ambiguous Place of Equipment in Being and Time," first published in *Tulane Studies in Philosophy* , Vol. XXXII, 1984, pp.24-35, and subsequently published in H. Dreyfus and H. Hall, eds., *Heidegger: A Critical Reader* (Oxford: Basil Blackwell, 1991), pp.173-185 under the title "Heidegger's History of the Being of Equipment." Michael Zimmerman, in his *Heidegger's Confrontation with Modernity: Technology, Politics, Art* (Bloomington: Indiana University Press, 1990) uses Macquarrie and Robinson's translations. I stick to the Macquarrie and Robinson translations because I will be quoting extensively from Dreyfus' article and Zimmemrman's criticism of that article in the Conclusion.

17 Heidegger, *Being and Time*, p. 98.

18 Ibid.

entity "must, as it were, withdraw in order to be ready-to-hand quite authentically."[19] Heidegger says that the entities

> we encounter in everyday commerce have in a pre-eminent way the character of *unobtrusiveness*. We do always and continually have explicit perception of the things surrounding us in a familiar environment, certainly not in such a way that we would be aware expressly as handy [ready-to-hand]. It is precisely because an explicit awareness and assurance of their being at hand [as ready-to-hand] does not occur that we have them around us in a peculiar way, just as they are in themselves. In the indifferent imperturbability of our customary commerce with them, they become accessible precisely with regard to their unobtrusive presence. The presupposition for the possible equanimity of our dealing with things is, among other things, the *uninterrupted quality* of that commerce. It must not be held up in its progress.[20]

If our tool-use cannot be explained on the basis of knowledge we have of a tool as self-subsistent, that in one sense or another, we are not paying attention to a tool when we use it appropriately, then it must be that we are concentrating on or concerned with something other than the tool, such that the tool remains unobtrusive. Heidegger says that "with which we concern ourselves primarily is not the tools themselves. On the contrary, that with which we concern ourselves primarily is the work—that which is to be produced at the time...."[21] But if, in our productive activity, we do not have the tool "in mind" but rather the work, then is there not, here, an awareness of self-subsistency in the work to be produced? Again, Heidegger maintains that even the work itself is grasped non-thematically. The work itself "bears with it the referential totality within which the equipment is encountered," such that the product is "ready-to-hand too."[22] We use hammers, nails, and wood to produce a chair and when we use the chair, we experience it as ready-to-hand, too. If we can imagine, say, during the course of a day, using tools to produce a ladder, using the ladder to place an antenna on the roof, and then using the antenna to pull in a baseball game on the radio, we can imagine that during the course of that day how our concerns have shifted but, at the same time, that all of the equipment we have encountered remains ready-to-hand. There is, here, a snapshot of everyday activity as a teleologically ordered sequence of non-deliberate, non-thematic, instrumental behaviour, within which there is an "uninterrupted quality to our commerce."

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19 Ibid., p 99.

20 *Basic Problems*, p. 309.

21 *Being and Time*, p. 99.

22 Ibid.

5. Throughout this uninterrupted commerce, the various pieces of equipment we encounter remain *transparent* to our various concerns. This is one side of what I want to call Heidegger's transparency thesis. The other side of the transparency thesis is that we, the users of tools, remain transparent with respect to the tools we encounter in the concern we have with our work. As noted above, the non-thematic understanding of a tool's functionality amounts to a form of knowledge expressed in the locution knowing how. Knowing *how* is a capacity that Heidegger describes in terms of "seeing" entities in terms of their references and assignments within the whole of the equipmental nexus, or recognizing a use-context for a tool without thinking about it. Heidegger emphasizes that "in our natural comportment toward things we never think a *single* thing...."[23] Heidegger continues:

> "Unthought" means that it is not thematically apprehended for deliberate thinking about things; instead, in circumspection, we find our bearings in regard to them. Circumspection uncovers and understands beings primarily as equipment. When we enter here through the door, we do not apprehend the seats as such, and the same holds for the doorknob. Nevertheless...we go by them circumspectively, avoid them circumspectively, stumble against them, and the like. Stairs, corridors, windows, chair and bench, blackboard, and much more are not given thematically. We say that an equipmental contexture environs us.[24]

The circumspection that Heidegger says is characteristic of our normal conduct, then, is an understanding of what to do in a particular situation without any element of thinking or self-awareness. It is in this sense, that our normal use of tools is rather more a skillful coping than self-directed activity, that we can be said to be transparent with respect to the tools we use. We submit ourselves to or rely on, as noted above, standard ways of manipulating those tools, and we do this not so much automatically or mindlessly but with a kind of self-less awareness closer to an unthinking acquaintance than explicit interpretation. Moreover, our reliance on standard ways of using tools is "nondeliberately adaptable to," or capable, say, of grasping normal fluctuations in the way the hammer will need to be used in various and unique situations: "Circumspection oriented to the presence of what is of concern provides each setting-to-work, procuring, and performing with the way to work it out, the means to carry it out, the right occasion, and the appropriate time. This sight of circumspection is the skilled possibility of concerned discovering, of concerned seeing."[25] Our capacity to use a hammer is based on the way in which we have

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23 *Basic Problems*, p. 162.

24 Ibid., p. 163.

25 Heidegger, *History of the Concept of Time* , trans. Theodore Kisiel (Bloomington: Indiana

been trained to understand that hammer, and *how* it shares a use-context with nails, boards, and the like. This is required for us to pick out or "discover" a hammer from the whole array of tools in the workshop and do something useful with it.

Thus we are transparent with respect to our tools in that our understanding of the tool and the purpose for which we are using it are already contained or "there" in the environment, the workshop, in which tool use actually takes place. We do not and cannot think about the project at hand.[26] The skill involved in using a tool reposes not on our ability to think about what we are doing but, rather, on the ability to follow, as we have been trained to do, the various assignments and references that both constitute the workshop and channel or give direction to our skills. If we were not absorbed in these references or assignments, our tools could not be ready-to-hand for us. Neither the subject not the object stand out in this kind of environment, in which the hammer "withdraws" and our behaviour with respect to this way of being the hammer has is one of reliance on the (standardized) in-order-to's constitutive of that hammer's appropriate use. Heidegger suggests, therefore, that we should not be too quick to draw an absolute distinction between subject and object or self and world, because, as he states, when

> I am completely engrossed in dealing with something and make use of some equipment in this activity, I am just not directed toward the equipment as such, say, toward the tool. And I am just as little directed toward the work itself. Instead, in my occupation I move *in* the functionality relations as such. In understanding them I dwell with the equipmental contexture that is handy. I stand neither with the one nor with the other but move in the in-order-to.[27]

When we use tools, we are, because of our concerned absorption in the workshop environment, or "world," indistinguishable from that world. Heidegger's technical term for this unified kind of existence, one structured by our reliance on the references inherent in a tool's readiness-to-hand, is being-in-the-world. Being-in-the-world, he says, is first and foremost "a non-thematic circumspective absorption in references or assignments

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University Press, 1985), p. 274.

26 Aron Gurwitsch explains self-less awareness this way: "What is imposed on us to do is not determined by us as someone standing outside the situation simply looking on at it; what occurs and what is imposed are rather prescribed by the situation and its own structure; and we do more and greater justice to it the more we let ourselves be guided by it. i.e., the less reserved we are in immersing ourselves in it and subordinating ourselves to it. We find ourselves in a situation and are interwoven with it, encompassed by it, indeed just 'absorbed' into it." As quoted in Dreyfus, *A Commentary*, p. 67.

27 Heidegger, *Basic Problems*, p. 293. Heidegger adds, p. 309, that "at the basis of this undisturbed imperturbability of our commerce with things, there lies a peculiar temporality which makes it possible to take a handy equipmental contexture in such a way that we *lose ourselves in it*." (Emphasis added.)

constitutive for the readiness-to-hand of a totality of equipment."[28] Everyday human existence, or what Heidegger calls Dasein,[29] shows this non-distinctive character to the point where "Dasein is nothing but...concerned absorption in the world."[30] Thus "[s]elf and world belong together in the single entity, Dasein. Self and world are not two entities, like subject and object...but self and world are the basic determination of Dasein itself in the unity of the structure of being-in-the-world."[31] Heidegger does not want to deny that deliberate action takes place in our everyday behaviour, or at least that it can arise out of it, and nor does he want to deny that entities can stand self-subsistently.[32] But he does want to stress, for example, that the picture we have of a self-sufficient subject with a deliberate intention to use a tool for some purpose, where that tool is taken to be a single, isolable entity, is a characterization of productive activity that passes over the original unity of self and world.

6. Thus Heidegger's transparency thesis cuts against the tool-use model in this obvious way, that we do not take tools as isolable, self-subsistent entities in our normal productive activity. For the tool-use adherent, the use of a tool can only follow from the subject's activity, which activity is exhausted in the subject's intentions. But Heidegger, in his description of entities we use in our normal behaviour in terms of equipment, supplies a rather different picture of tool use, which cuts beneath the simple or linear cause and effect account of the tool-use adherent and justifies or explains the essence of Marx's account of

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28 *Being and Time*, p. 107.

29 I introduce this term in this way, as does Dreyfus, *A Commentary*, p. 13, to caution against the temptation to read Dasein as referring to "man," at least in the traditional sense of a self-subsistent or conscious subject ontologically disconnected from the (external) world. As D.F. Krell points out in an editorial note accompanying J. Stambaugh's translation of the Introduction to *Sein und Zeit* , in *Martin Heidegger: Basic Writings* , (New York: Harper & Row, 1977), p. 48: "Since the 'rationalist school' of Christian Wolff (1679-1754) Dasein has been widely used in German philosophy to mean the 'existence' (or *Das-sein* , 'that it is'), as opposed to the 'essence' (or *Was-sein* , 'what it is') of a thing, state of affairs, person, or God. The word connotes especially the existence of living creatures—around 1860 Darwin's 'struggle for life' was translated as *Kampf ums Dasein* —and most notably of human beings." Note also D. E. Starr's comments in his *Entity and Existence* (New York: Burt Franklin & Co., 1975), p.x : "Dasein ...is a word of modern (late 17th century) coinage and was originally constructed to translate the Latin existentia ; among its early uses...Dasein [was] employed to signify anything present or actual." Thus, as will be seen below, M. King, *Heidegger's Philosophy* , (New York: Macmillan, 1964), points out that Dasein means "primarily the factual existence...of a man in the world," but that in the literal translation of the term as "there-being" "there" does not mean a definite place in which something occurs, but the whole phrase means the 'thereness' of something." See pp's. 65-69 for a careful discussion of Heidegger's motivation for the use of Dasein.

30 Heidegger, *History of the Concept of Time*, p. 197.

31 *Basic Problems*, p. 297.

32 I deal with Heidegger's explanation of this phenomenon in the Conclusion.

productive activity. As has been emphasized, the positivistic account of productive activity, relying as it does on a discrete ontology, focuses in on ethical "problems" having to do with the moral intention of the subject who uses a tool. This cause and effect focus can also be extended, though, to somewhat broader concerns, such as the study of the "social impacts" of new technologies[33] and in this sense might seem to be closer to Marx's concerns with the development of the productive forces. But there is a critical difference. What is implied in what Marx saw on the empirical level and what Heidegger explains on the ontological level is that tools must be first taken in terms of nexus, which nexus is a use-context, which carries with it a kind of "practical grammar," such that the use of a tool does not follow from the subject's activity so much as it *shapes* that activity. For Heidegger, tools are more equipment than "things," where we can take this distinction to mean that there is inherent in our technology a pre-established pattern of appropriate behaviour. As Marx says, the subject's use of a tool constitutes a "definite mode of life."

But in saying this, Marx does not mean to imply that the above difference is a polar one. It is not, simply, that there is a reverse cause and effect relation, such that the use of the tool comes first and that the intention "follows from" that use (as though one could use a butter knife to stab someone and then decide to be evil). Rather, as I have argued in the two previous chapters, Marx sees the use of tools as expressing an internal relation between subject and object, such that the *ontological* basis for making a simple or linear cause and effect analysis of productive activity is undermined. Heidegger's transparency thesis further undermines this ontological basis by implying, both in the withdrawal of the tool and our reliance on the references and assignments that constitute that tool's readiness-to-hand, that subject and object or self and world are normally a unitary phenomenon. The whole structure of instrumentality, or the whole system of in-order-to's, then, supply the practical grammar of a form of behaviour. The tool-use concept of "use" cannot capture this. We do pick up knives, hammers, telephones, and the like and we do use them in a simple, linear sense, but both Marx and Heidegger see this use as (merely) epiphenomenal, that behind this use is, as Heidegger says, a relation to "equipment" inherent in which is a reliance on standardized ways of being-in-the-world.

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33 I refer, here, to various forms of "technology assessment," which are rooted in the development of "risk benefit analysis" or "risk assessment" techniques after the Second World War. For an excellent historical account of this development and a philosophical criticism of these techniques, see Lawrence Tribe, "Policy Science: Analysis or Ideology?" *Philosophy and Public Affairs*, 2, 1972. See also the following footnote.

What is of interest to the philosophy of technology, then, is not so much what the cause and effect relation between man and tool is, that, for example, genetic engineering will have such and such an impact on society and whether these impacts should be either promoted or lessened, depending on whether we deem them good or bad.[34] Rather, Marx's insight that the use of tools constitutes a form of life coupled with Heidegger's description of how equipment is central to this constitution offers the systematic critic of technology the possibility of investigating forms of life or productive practices in terms of being-in-the-world. It is from this perspective, I wish to argue, that one can consider how technology could possibly be a threat to the self, as the autonomist claims. The challenge would be to demonstrate how technology might shape human conduct to the point where there would be some necessary relationship between either the development or design of technology and the self-negation of man, such that that self-negation is logically independent of social form. In terms adumbrated in the previous chapter, the challenge is to demonstrate the logical possibility of (some form of) praxial breakdown as opposed to praxial frustration.

Is there a sense, then, in which it is possible to explicate a concept of self-negation that is technological in origin rather than social? I will attempt to show below that if one takes Marx's conception of technology as conductive, one would have to show, first, how the practical grammar inherent in equipment points to or refers back to the self, and then how this grammar could somehow be rendered "meaningless," ineffective, or inefficacious because of something about technology. Thus, in the following sections, I propose to follow Heidegger's analysis of equipment a bit further to account for the grammar of self-reference. I will then, in the conclusion of this essay, use this account as the basis upon which to explicate a concept of praxial breakdown and investigate whether this concept can open up some conceptual ground for the technological autonomist.

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34 Winner notes that the "strength of [cause and effect] methods is that they shed light on phenomena that were previously overlooked" but adds (sardonically) that "an unfortunate shortcoming of technology assessment is that it tends to see technological change as a 'cause' and everything that follows as an 'effect' or 'impact.' The role of the researcher is to identify, observe, and explain these effects. This approach assumes that the causes have already occurred or are bound to do so in the normal course of events. Social research boldly enters the scene to study the 'consequences' of the change. After the bulldozer has rolled over us, we can pick ourselves up and carefully measure the treadmarks. Such is the impotent mission of technological 'impact' assessment." See "Technologies as Forms of Life," in *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago: University of Chicago Press, 1986), p. 10.

III

7. Thus far I have followed Heidegger's account of equipment to the point where it can be seen how the tool-use account of productive activity overlooks the nature of our relation to a tool's use-context. Up to this point, also, I have argued that Heidegger's account of equipment lends support to or explains Marx's insight that technology shapes activity in a way the tool-use adherent cannot recognize. But central to Marx's position that technology shapes human activity is his contention that technology is conductive in a self-reflexive sense. For Marx, praxis is that kind of activity in which man objectifies himself and it is the conductive quality of technology that enables this. The ontology that underlies this claim allows for no absolute separation between self and world and, because of this, is one upon which a more sophisticated account of tool use can be offered, indeed, an account closer to or in anticipation of a Heideggarian account. But although Marx stresses that "man" must be described first and foremost in terms of his affairs in the world of practical, everyday activity, he does this through an appeal to a conscious, active self, which, as Heidegger might say, has not "submitted itself" to a use-context. As noted in Chapter 2, man differs from animals, according to Marx, because he can "raise a structure in his imagination" and "erect it in reality," which exhibits, as has been noted, the distinctively human capacity for a *projective* consciousness. Thus Marx explicates the self in terms of a particular *mode* of existence, the conscious production of a material world.

Heidegger resists the temptation to follow the Marxian path. He states, for example, that at "the outset of the analysis it is especially important that Dasein not be interpreted in any particular mode of existing but revealed in the indifferent way in which it exists in the first instance and for the most part."[35] Heidegger "agrees" with Marx that productive activity can only be explained if one starts with an adequate conception of man's real situation, that is to say, in terms of an internal connection to a setting or context, but "disagrees" with Marx that that connection is by virtue of or at the same time solely a particular *kind* of activity. Heidegger, therefore, is not so much interested in an account of man's conscious acts but, rather, in focusing on the routines of daily existence, the "everyday undifferentiated character of Dasein: '*averageness*',"[36] to arrive at what he

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35 Heidegger, *Being and Time*, p. 69. I have used the translation by W.B. Macomber, *The Anatomy of Disillusion: Martin Heidegger's Notion of Truth* (Evanston: Northwestern U.P., 1967), pp. 34-35.

36 *Being and Time*, p. 69.

thinks is presupposed in or what makes possible man's *praxis*. This can be put in the form of a question: What is it about the use of a tool such that that tool becomes conductive of man's intending himself?

In Heidegger's analysis of equipment thus far, it has been suggested that we are trained to understand the world as a pattern for appropriate behaviour. But to say that the workshop, for example, is constituted by a practical grammar to which we "submit" ourselves is not sufficient for an explanation of self-intention. There is no sense in which that pattern, taken *as* a pattern, can "lead back" to the self if our reliance on it leads merely to an understanding of appropriate behaviour. Highly socialized animals, like dogs or apes, can be said to understand the world in this way. But if, as Heidegger suggests, when "Dasein understands...itself...it does so in terms of the 'world'," [37] then there must be more to our understanding of the world than merely as a pattern which shapes activity. What this understanding is, I wish to argue, is implied in Marx's account of productive behaviour as that through which man realizes himself (or at least his "powers") through the re-working of the material world. But this understanding cannot be brought to the fore until it is determined how our non-thematic understanding of the practical grammar of a tool's use-context comes full circle, back, that is, to "man."

In addition to his transparency thesis, then, Heidegger must have an existential thesis, outlining the possibility conditions for objectification and, therefore, explaining Marx's claim that technology is conductive of man's self-realization. The existential thesis must explain how an understanding of the practical grammar constitutive of a tool's readiness-to-hand is interwoven with or points to, as Heidegger will say, an understanding of a way of being, over and above or transcending a way of behaving. As I have outlined it, Heidegger's transparency thesis claims that our manipulation or use of a tool is really a non-cognitive form of understanding, which cannot imply an external relation between man and tool. So when Marx says that we are connected to the world through technology, Heidegger maintains that before this can happen, we must know how to manipulate tools or that we must understand that tool's use-context. But to show how tools can be conductive in man's objectifying activity, it is necessary to turn to Heidegger's existential thesis.

8. I wish to argue in the remainder of this section that there are basically two elements to Heidegger's thesis. One element of the thesis maintains that for a tool to be actually used, there must be more than just an understanding of a tool's use-context. This claim

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37 Ibid., p. 43.

states, essentially, that it is one thing to define a tool in terms of its instrumental function but yet another to explain how the tool actually functions. The other element of Heidegger's existential thesis states that for the first element to be intelligible, we must re-think or at least extend our definition of world, and in this way: the world that Marx sees, Heidegger maintains, is "reduced to something self-evident—merely material for re-working,"[38] but the world that makes it possible for a tool to be conductive is one of meaning or "significance," and we are "in" this world in such a way that our use of tools is both radically different from that of the use of a tool by an ape and in which it is possible to discover Marx's world as purely instrumental.

According to the transparency thesis, then, either the use of a tool or the process of production exhibits a whole spectrum of instrumentality in our day to day behaviour, in which both tools and products are ready-to-hand. We have a non-thematic understanding of how to use tools and for what we are using those tools. So this form of behaviour is purposive but not in the sense, as Heidegger has pointed out, that we have a purpose or an end that we are actually thinking about, that we some *thing* in mind (as, for example, a mental representation). We already understand in a circumspective sense, Heidegger says, that the work or the product we are making "has a usability that belongs to it essentially [and] in this usability it lets us encounter already the 'toward-which' for which *it* is usable."[39] Although we use tools in the workshop, what our understanding of the "toward-which" points to is a "public" world and that our understanding points this way is to say further that it is out of this "publicness" of tool-use that nature can be revealed in the instrumental sense in which, for example, Marx sees it. The product, that is, "has an assignment to the person who is to use it," such that

> along with the work, we encounter not only entities ready-to-hand but also entities with Dasein's kind of being—entities for which, in their concern, the product becomes ready-to-hand; and together with these we encounter the world in which...users live, which is at the same time ours. Any work with which one concerns oneself is ready-to-hand not only in the domestic world of the workshop but also in the public world. Along with the public world, the environing Nature is discovered and is accessible to everyone. In roads, streets, bridges, buildings, our concern discovers Nature as having some definite direction....In a clock, account is taken of some definite constellation in the world-system. When we look at the clock, we tacitly make use of the "sun's position," in accordance with which the measurement of time gets regulated in the official astronomical manner. When we make use of the clock-equipment, which is proximally and

38 Ibid.

39 Ibid., p. 99.

> inconspicuously ready-to-hand, the environing Nature is ready-to-hand along with it.[40]

Thus the practical world of the workshop points also to a social world, in that the work itself, the product, is (roughly) for someone else or as Heidegger says, "others."[41] But Heidegger cautions that just as we do not want to see tools as externally related to the tool-user, we must not picture those for whom the work is produced as incidental to productive activity, as if we would produce an artifact and then look for or try and think of a use someone might have for it. We *can* do this but normally "others" are involved in the references and assignments of the workshop just as intimately or transparently as we are. One's being-in-the-world or absorption in the world of the workshop exhibits a reliance on the being-in-the-world of others, or the way that they exist in their everyday lives, just as much as one relies on the references and assignments constitutive of the workshop in order to be able to experience tools and products as ready-to-hand. Thus one's reliance on the readiness-to-hand of tools—the necessity of experiencing them as such in order to be able to do something with them—is tied to one's reliance on experiencing others, who are just as absorbed in everyday life and for whom the artifact is of use. Heidegger states that "Dasein's world frees entities which not only are quite distinct from equipment...but which also—in accordance with their kind of being *as Dasein* themselves—are 'in' the world in which they are at the same time encountered within-the-world, and are 'in' it by way of being-in-the-world."[42] That others are just as transparently involved in anyone's productive activity as is equipment shows itself in the fact, as one commentator puts it, that "ready-to-hand equipment 'speaks to us' of communal objectives."[43]

19. We tacitly recognize the existence of others, then, through our normal understanding of equipment as of service to them.[44] That there can be this mutual

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40 Ibid., p. 100.

41 Heidegger states: "In our 'description' of that environment which is closest to us—the work-world of the craftsman, for example,—the outcome was that along with the equipment to be found when one is at work, those Others for whom the 'work' is destined are 'encountered too'." Ibid., p. 153.

42 Ibid., p. 154.

43 Guignon, *Heidegger and the Problem,* p. 105.

44 Heidegger states that for the product, say a suit, to be ready-to-hand there is "an essential assignment or reference to possible wearers...for whom it should be 'cut to the figure'. Similarly, when material is put to use, we encounter its producer or 'supplier' as one who 'serves' well or badly. When, for example, we walk along the edge of a field but 'outside it', the field shows itself as belonging to such-and-such a person, and decently kept up by him; the book we have used was bought at So-and-so's shop and given by such-and-such a person, and so forth [such that] the others who are thus 'encountered' in a ready-to-hand, environmental context of equipment, are not somehow added on in thought...." See *Being and Time*, p. 154.

adjustment of means to ends within the community is rooted in the fact that equipment has a public character, in that equipment i) displays generality and ii) obeys norms.[45] With regard to the former, there is no such thing as a tool that only I or only someone else has. Hammers, nails, and boards are equipment for anyone. They are for the *general* user. With regard to the latter aspect of equipment's public character, equipment is for anyone because, as has been pointed out above, there are normal or appropriate ways to use equipment. All of us use forks for eating and we all use hammers for driving nails, and we all do so because we follow established norms for the proper use of a tool. Here it is essential to note, as Marx emphasizes, that it is through the cooperative behaviour of all of us in a particular society that there can be productive activity in the first place, that, as noted in Chapter 2, "all production is appropriation of nature on the part of an individual within and through a specific form of society." The norms that govern the use of a tool, then, apply to anyone and everyone and, therefore, allow all of us to work together and produce as a cohesive unit. Thus these norms, norms of usage, are inherently *social*, expressing such communal "agreements" as to sit on a chair or use a fork to eat, and the like. Moreover, without general assent to norms of usage, and the consistency in the use of tools that follows from this general assent, the references and assignments constituting the workshop—wood and iron are just what one uses in order to produce a hammer and the hammer is just that one uses in order to build a chair, and so on—could not exist.

As Marx realizes, social cooperation is necessary for man to use technology to appropriate nature and thus objectify himself. The world, as Marx understands it, refers back to man in that it is a concrete expression of his social nature. The philosophical significance of this realization of Marx's, that through technology we objectifiy our ourselves in products, institutions and the like, is that we are expressing ourselves as essentially creative beings, with capacities and powers that we could, in the proper social setting, be free to develop. Marx can push this to the point, as noted in Chapter 3, that what our revolutionary praxis should lead us to, in the overcoming of alienation, is the "development of human powers as such the end in itself."[46] But Marx, as I have argued, fails to consider whether there could be a form of self-negation that cuts deeper than alienation and which is tied to technology itself. He fails to consider, that is, whether

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45 This discussion is based on Dreyfus, *A Commentary*, p. 151f.

46 For an interesting interpretation of this theme in Marx's vision of non-alienated man, see Kuruvilla C. Abraham's "Marx's Promethean Humanism," *Journal of Dharma*, especially p. 156, where Abraham quotes Marx's statement in his dissertation that "Prometheus is the noblest of saints and martyrs in the calendar of philosophy."

technology itself could fail to be conductive of man's self-realization, that it could be "involved" in our practical activity in such a way that it distorts or undermines the praxial nature of that activity, to the point where social organization cannot bring it back into focus. Marx concentrates on man's relationship to nature and not to himself. Because he adopts such a narrow focus, he is led to what can be considered a one-sided philosophical anthropology,[47] one that emphasizes man's relationship to Nature and not to himself. In what follows, I wish to argue that Marx is led this way because he fails to see that society is more than merely a means to man's self-development but that it is rather constitutive of man's self-identity. It is crucial to argue for the latter assertion because I want to maintain that without at least some form of self-understanding, technology could not be conductive and, therefore, man could not realize his powers through the re-working of nature.

IV

10. Regardless of Marx's appreciation of the necessity of community in productive activity, and the affinity his account of the use of tools has with Heidegger's, there is this one crucial difference between Marx and Heidegger. The community is, for Marx, a means to the (independent) end of the development of individual powers through the re-working of nature. Marx sees that "only within the community has each individual the means of cultivating his gifts in all directions"[48] but not, as Heidegger says, that "[p]ublicness primarily controls every way in which the world and Dasein get interpreted, and it is always right..."[49] For Heidegger, then, conformity in norms of usage is, in a sense yet to be explicated, constitutive of the individual's identity, and this stands "before" and it is only on the basis of this that the individual can apprehend the world *as* that, for example, which is necessary to develop his powers.[50] What is "given" for Marx is man's

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47 I am following, to a certain extend, Cohen's comments and suggestions on Marx's philosophical anthropology, in the chapter entitled "Reconsidering Historical Materialism," in *History, Labour, and Freedom*, pp. 132-154. Cohen describes Marx's philosophical anthropology as one-sided in that it neglects self identity. Cohen, in *Defence*, for example, contrasts Marx with Hegel and says, for Marx, "the ruling interest and difficulty of men was relating to the world , not to the self," such that Marx "focused on the relationship of the subject to an object which is in no way a subject, and...came to neglect the subject's relationship to itself." See p. 138. Cohen, while admitting some form of requirement for the self to have an identity, chooses not to pursue the process of self-definition. How the self forms an identity through the use of tools and the importance of this to a philosophy of technology is precisely what I pursue here and below.

48 Marx, *German Ideology*, p. 83.

49 Heidegger, *Being and Time*, p. 165. Note also Heidegger's similar claim in *History of the Concept of Time*, p. 246, that this "common world, which is there primarily and into which every maturing Dasein first grows, as the public world governs every interpretation of the world and of Dasein."

50 It should be noted that Marx saw an interconnection between community and language, with

relationship to nature, such that "the earth [is] the original field of activity of labour."[51] But what is given for Heidegger is rather the community: "We say instead that the first thing that is given is the common world—the Anyone."[52] Thus Marx tells us that the community is necessary for production but not how production is socially regulated in such a way that through the use of tools man takes on an identity "before" he realizes his powers and that the latter depends on the former. In this section, I will concentrate on Heidegger's account of the use of tools and self-identity, and leave his account of how the community is constitutive of the self for the section following.

Production is inherently social, then, because in one sense or another, we cannot avoid encountering "others" when we use tools. Marx says that we *need* to encounter others, that production is of necessity a cooperative enterprise. But Heidegger says that we encounter others in any case because tools themselves have a public character. Tools, as outlined above, are for the general user and tools "obey" or are used in accordance with norms of usage. Thus we would not be able to recognize any entity *as* a tool unless that entity is used in accordance with the practical grammar of its use-context and this practical grammar is always correct. Thus Heidegger puts a restriction on what is to count as social production. That production is inherently social rests on a distinction between

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the theme of cooperation running throughout. He states, for example, that "language, like consciousness, only arises from the need, the necessity, of intercourse with other men [and] consciousness is, therefore, from the very beginning a social product...." See *German Ideology*, p. 51. Whether Marx's instrumental view of the community leads him to an instrumental view of language and whether, if it does, that Heidegger seems to hold an instrumental view of language *vis-a-vis* his conception of man in terms of being-in-the-world means that the contrast I am making falls flat is an issue to complex to explore here. It is complicated, for example, by the fact that Marx does not have a "theory" of language, but rather a few, unsystematic remarks, mostly in *The German Ideology* and the *Theses on Feuerbach*, to compare to his sophisticated social theory. For a discussion of Marx's "failure" to develop a theory of language, see Gavin Kitching, *Karl Marx and the Philosophy of Praxis* (London: Routledge,1988), pp. 175-6. Moreover, one can argue that Heidegger holds a functional or constitutive view of the community and an instrumental view of language in *Being and Time* but that this is not necessarily damaging to Heidegger's analysis of the self in terms of being-in-the-world, where the "world" relevant to man's self-identity radically differs from and presupposes Marx's. For a discussion along this line, see Guignon's discussion of Heidegger's views on language in the subsections to Chapter 3, entitled "Dasein as the 'Anyone'" and "Two Views of Language," pp. 103-132, in *Heidegger and the Problem*. My interest in comparing and contrasting Marx and Heidegger on the "social" is restricted, then, to the different conceptions of "world" that are at work in their accounts of man's relationship to nature and to himself, and not to their views on language.

51 Marx, *Capital*, III, p. 825.

52 Heidegger, *History of the Concept of Time*, p. 246. Dreyfus argues that the meaning of Heidegger's term *das Man* , which has been translated as "anyone" or "the they," is best captured in English by "the one." I will follow the standard translations but agree with Dreyfus that the meaning of *das Man* for Heidegger is tied to what "one does" in an average way, and in this sense admitting of no distinction between the community and the individual. See Dreyfus, *A Commentary*, p. 151-2.

understanding any object in terms of how it *can* be used as opposed to understanding any object in terms of how it *is* used.[53] Understanding an object in the former sense does not count as an understanding of equipment and cannot be appealed to explain the social nature of production. In the production of an artifact, others are encountered only if that artifact is recognized as something to be used in socially sanctioned ways, for the purpose of obtaining socially recognized ends. The tailor can only be said to "make a suit" if that which he produces is used by others (or himself) in a determinate way. If someone, perhaps someone from another culture or even someone from our own who is not quite right, was to throw the tailor's suit in a wood stove to produce heat, we would say that person understands how the suit can be used but not how that product *is* used. It is only when the artifacts we produce and use are understood in terms of their normal use-contexts that production is or can be social, or that the community can produce in a cohesive manner.

That a tool is (or can be) used correctly, Heidegger says, is a function of its being embedded in a series of teleological "involvements," which series defines a context out of which the tool's use has some point. Whenever we use a tool, Heidegger says, it is related to or has an involvement "in something" and what this involvement is "in" is ultimately the being of Dasein. We can recognize an entity as a hammer because that entity shares a use-context with nails, boards, and the like—our recognition of an entity as a hammer is rooted in our familiarity with that entity's practical grammar—but our use of that entity as a hammer makes sense only when our hammering has a point over and above the immediate task at hand. We use hammers for certain goals, which are inherently practical, but in this use of the hammer in a practical context, there is also a reference to Dasein itself. Heidegger states that with

> this thing, for instance, which is ready-to-hand, and which we accordingly call a "hammer," there is an involvement in hammering; with hammering, there is an involvement in making something fast; with making something fast, there is involvement in protection against bad weather; and this protection "is" for the sake of providing shelter for Dasein—that is to say, for the sake of a possibility of Dasein's being.[54]

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53 This distinction is made by Okrent. See *Heidegger's Pragmatism*, p. 49.

54 Heidegger, *Being and Time*, p. 116. Also note p. 344: "Any discovering of a totality of involvements goes back to a 'for-the-sake-of-which'; and on the understanding of such a 'for-the-sake-of-which' is based in turn the understanding of significance as the disclosedness of the current world. In seeking shelter, sustenance, livelihood, we do so 'for-the-sake-of' constant possibilities of Dasein which are very close to it; upon these the entity for which its own being is an issue, has already projected itself."

Thus in addition to "toward-which," or the purpose or goal for which the hammer is used, Heidegger says there must be an ultimate point to our activity. He says that in "a workshop, for example, the totality of involvements which is constitutive of the ready-to-hand, is "earlier" than any single item of equipment...[b]ut the totality of involvements itself goes back ultimately to a "toward-which" in which there is *no* further involvement [to an entity] whose being is defined as being-in-the-world..."[55] When we assign ourselves to the practical grammar of the workshop, then, we have already assigned ourselves to a final purpose or a toward-which that Heidegger calls the "for-the-sake-of-which," which "always pertains to the being of Dasein."[56] The being of Dasein, then, is, in an Aristotelian sense, the *inclusive* end of all instrumental activity. The being of Dasein is not something that comes at the end of a causal chain but, rather, what is there or presupposed every step of the way.

11. When Heidegger says that the ultimate point of our everyday activity is for the sake of some possibility of Dasein's being he means that the way we are, or our existence, is interwoven with how we understand ourselves. In one sense, this is to say that the *telos* of our activity is just ourselves. We can be said to exist insofar as we intend ourselves, or insofar as we make ourselves the subject of our activity. I find myself in my office, for example, and use a computer in order to compose an essay on technology, in which I will attempt to convince others that technology can have certain subtle characteristics and that this itself is important for various reasons. But this essay implies my ultimate goal to be a critic of technology. This ultimate end further shows how I understand myself, as, for example, a student of technology, aside from whether it convinces anyone of anything or aside from whether my (penultimate) purpose or goal is attained. Heidegger states that

> To be for its own sake is an essential determination of the being of that being we call Dasein. This constitution, which we will now, for brevity, call the for-the-sake-of, provides the intrinsic possibility for this being to be itself; i.e., for *selfhood* to belong to its being. To be in the mode of a self means to be fundamentally toward oneself. Being toward oneself constitutes the being of Dasein and is not something like an additional capacity to observe oneself over and above just existing. Existing is precisely this being toward oneself, only the latter must be understood in its full metaphysical scope and must not be restricted to some activity or capability or to any mode of apprehension such as knowledge or apperception.[57]

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55 Ibid., p. 116.

56 Ibid., p. 116-7.

57 Heidegger, *The Metaphysical Foundations of Logic* , trans. Michael Heim (Bloomington: Indiana university press, 1984), p. 189.

Heidegger cautions, then, that my self-intending cannot be characterized as a conscious goal I have set out to obtain. In my day to day activity, as noted above, I do not normally "think a *single* thing." My being a student of technology, therefore, is not so much a conscious goal as it is a self-understanding in the non-cognitive sense of understanding we have seen Heidegger associate with the use of a tool, in which we "use the expression 'understanding something' with the signification of 'being able to manage something', 'being a match for it', 'being competent to do something'."[58] Thus if my understanding or interpretation of a tool is just the ability to use that tool in a manner that makes sense to other members of my community, it must also be the case for Heidegger that my self-understanding is a matter of competence. My being-in-the-world or my daily coping activity, that is, *is* competence over existence itself, such that "each of us *is* what he pursues and cares for. In everyday terms, we understand ourselves and our existence by way of the activities we pursue and the things we take care of."[59] What I actually do with tools or how I exist in the "domestic world" of the workshop, then, is who I am, in the sense that my self-understanding is manifested or available to others (as well as myself) in my practical understanding of the tools that are available to me. Heidegger says that "that which we have such competence over is not a 'what,' but being as existing."[60] My self-understanding, then, consists in my ability *to be* a student, a critic of technology, or a farmer or carpenter or house painter, which understanding or competence is embodied in everyday activity. Thus instrumental possibility-the various ways tools within an equipmental arrangement can be used—and existential possibility-what one does with that tool to define one's self as a student, etc.—are tied together in my daily coping activities or my being-in-the-world.

12. Consider the modern experience of pursuing the particular aim of energy production, say, through the construction of a nuclear reactor. The particular individuals involved in this enterprise, in order to fulfill their roles in the overall project, must be capable of conceiving the finished product as a possibility that they may or may not accomplish in the future. The general contractor, for instance, will need to contend with

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58 *Being and Time*, p. 183.

59 *Basic Problems*, p. 159.

60 *Being and Time*, p. 183. Heidegger also states at p. 385: "With the term 'understanding' we have in mind neither a definitive species of cognition distinguished, let us say, from explaining and conceiving, nor any cognition at all in the sense of grasping something thematically." And Heidegger states that in "ordinary language, we...say 'He understands how to handle men,' 'He knows how to talk.' Understanding here means 'knowing how', 'being capable of'." See *History of the Concept of Time*, p. 298.

issues ranging from the timely delivery of materials and the proper coordination of the activities of the subcontractors to the concerns of various environmental and citizen's groups, and perhaps even the occasional Luddite attack. Consequently, he will take various measures to ensure the successful completion of the project: suppliers will be given advance notice, an efficient communication system will be set up among the various subcontractors, and public relations preparations will be made to diffuse the effect of citizen protest and Luddite mischief. In this way he will ensure, as best he can, the achievement of the aim that is as yet mere possibility. The actual completion of the project is at this stage always "before him" or "ahead of him."

Moreover, the future possibility of an actual operating nuclear reactor determines *in advance* the number, character, and arrangement of the particular steps the general contractor takes to achieve his aim. But to be able to so arrange his daily activities on the construction site, the contractor must be able, as Heidegger says, to "throw" himself into the future, in which his aim may or may not be realized. He must always already be "ahead of himself" as he exists in any particular moment in the execution of his project. To understand what he ought to do in the concrete present, or to understand himself as he is "here and now," he must also understand himself in terms of what he "can be," that is to say, a real nuclear reactor builder. In this sense he can be said to be capable of "discovering" nonexistent states of affairs, from which he takes direction in his presently existing situation. The coherence of his understanding himself that can be expressed in phrases of the form "I was *x*" and "I am *y*," then, is dependent upon a self-understanding that can be expressed in phrases of the form "I can be *z*." And to say this is to say that the contractor's experience underlying the knowledge expressed in "I am *y*" utterances is one in which he is constantly coming toward himself, as it were; that is, his ontological situation with respect to the project at hand is essentially one of transcendence. Thus the contractor "is," or exists, primarily from the future.

To say that a basic feature of human existence is to be existing from the future reposes on the nature of "possibility" inherent in any man's experience of having any aim. We often speak of possibility in terms of contingency—"It is possible that this could happen if that happens"—and we also speak of possibility in terms of potentiality—"The acorn has the potential to grow into a tree." These are factual kinds of possibility and apply noncontroversially to entities or beings that do not possess understanding in the existential sense. Logically, though, we speak of possibility in terms of something that can be thought without contradiction or absurdity. Also, in contrast to actuality and necessity, possibility is

a modal concept, meaning what is *only* possible, but need not be actual and never necessary.[61] Thus traditionally possibility is thought to be "lower" than actuality and necessity. And it is in this sense that the traditional concept of possibility does not do justice to the way in which Dasein exists. Heidegger points out that possibility is rather "the most primordial and ultimate positive way Dasein is characterized ontologically."[62]

One can contrast an empirical fact with an empirical possibility to flesh out Heidegger's "higher" notion of possibility. We come upon the scene of an area that has suffered the effects of a serious accident at a nuclear reactor. The devastation has occurred, it *is* and cannot be undone or changed. But let us suppose that we come upon an area that could very well suffer the same kind of disaster. Warnings of impending danger have been given out and evacuation procedures have begun. In this case, the same type of event comes to our understanding in a much different way than does the *fact* of disaster. The potential disaster is not a fact but yet as a possibility it *is*. People do not normally flee chimeras; neither do they flee warnings. The disaster that is not yet but is about to happen is what people flee. This disaster, for all intents and purposes, has being, albeit in a different sense than the factual being of the disaster that has happened. Whether any of us was at the first disaster, because it is a fact, has no bearing on this being. But our being there with the possibility of the predicted disaster is what is necessary for its being. It only *is* insofar as we are there to discover its possible being. And in this disclosure it makes no difference whether it may not happen after all, whether it becomes a fact proper.

That the predicted event is only as possibility indicates that it comes to us from the future. As possibility through and through, it is not yet an accomplished fact. Thus we can say that its being, as is the being of the would-be nuclear reactor builder, is determined in advance by a *not*. This kind of being is that which *can* be and also *not* be. Thus our understanding of possibility in this ontological sense is necessarily bounded by an a priori or pre-ontological sense of the *not*; that is, the general contractor's understanding of himself as possibly failing to be *bona fide* nuclear reactor builder goes hand in hand with his experience of having an aim as such. The understanding of nothing is apprehended together with the understanding of why there could be something like a realized aim in the first place; the *not* is internally tied to the ontological possibility of the "is" or the being of accomplished fact. Dasein's understanding of possibility differs, as pointed out above, from that of contingency, wherein something like a rock may or may not fall down the

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61 *Being and Time*, p. 183.

62 Ibid.

mountain, which is to say the former understanding is not derivative of experience. Rather it is an understanding that goes *before* the actual experience of achieving an aim. In this way the contractor determines himself from the future. His existence has this fore-going structure, which allows him to understand himself in terms of something he is not, or in terms of his own ability *to be*. And in this positive sense man exists or Dasein is as "possible-being": "The 'essence' of [Dasein] lies in its 'to be'."[63] Possibility here is essential to human being in that it means "constitutive power" or that which enables, and is to be sharply distinguished "both from empty logical possibility and from the contingency of something present-at-hand, so far as with the present-at-hand this or that 'can come to pass'."[64]

13. "The being-possible which Dasein is in every case," Heidegger cautions, "does not signify a free-floating potentiality-for-being in the sense of the 'liberty of indifference'."[65] We have seen that in order for the contractor to realize his aim his being must be such that he exists beyond himself, in the sense that he can disclose to himself the being of the (ontological) possibility that the nuclear reactor can become a fact. Since "Dasein is in every case what it can be,"[66] until the reactor really exists the contractor must understand himself from the constant possibility that he can also *not* be the way he understands himself, as a nuclear reactor builder. He is always already "thrown" into an existence clad in his *own* possibility to be, where "to be" is a covering term for one internal connection between what he is "now" and what he is "not yet" or can become. He cannot be said, for example, to manifest an understanding of himself as "outside" this temporal structure, as possibly a god; this would be logical possibility, which we must "sharply distinguish" from possibility as a constitutive power. The contractor's purposive behaviour shows us that he has always "got [himself] into *definite* possibilities."[67] Thus he cannot be indifferent to or "outside" the fore-structure of his own existence. Heidegger states that "Dasein is...*thrown possibility* through and through."[68] It is just this positive characteristic of Dasein that enables or is a possibility condition for the achievement of aims in everyday, practical activity.

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63 Ibid., p. 67.
64 Ibid., p. 183
65 Ibid.
66 Ibid.
67 Ibid. (Emphasis added.)
68 Ibid.

Thus because the contractor has an understanding of himself as the nuclear reactor builder he can be, he is able to understand or manage the domestic environment of his workshop and thus engage himself in specific projects. Not only is he competent in getting materials to the job-site on time, or how to organize men to perform in light of a singular project, he is also competent to be(come) his own person. For Heidegger, it is this existential understanding that is *ipso facto* manifested in any and all practical activity. That the contractor knows how to organize materials and men to build a nuclear reactor, that he understands instrumental possibility, *goes together* with his knowing how to be a particular kind of person, or understanding himself as an end or as a for-the-sake-of-which, and this existential understanding Heidegger calls "projection."[69] He states that any

> Dasein has, as Dasein, already projected itself; and as long as it is, it is projecting. As long as it is, Dasein always has understood itself and always will understand itself in terms of possibilities. Furthermore, the character of understanding as projection is such that the understanding does not grasp thematically that upon which it projects—that is to say, possibilities. Grasping it in such a manner would take away from what is projected its very character as a possibility, and would reduce it to the given contents which we have in mind; whereas projection, in throwing, throws before itself the possibility as possibility, and lets it *be* as such. As projecting, understanding is the kind of being of Dasein in which it *is* its possibilities as possibilities.[70]

Thus far I have argued Heidegger's transparency thesis claims we rely on the practical grammar of the workshop in order to recognize entities as tools but that his existential thesis claims that for a tool to actually function, this use must always be the socially "correct" use *and* that we cannot use tools correctly *unless* we have a projective understanding of ourselves or possess competence over our being. These two theses are interrelated, for Heidegger, because existential understanding is embodied in practical understanding, in that, as noted above, "each of us *is* what he pursues and cares for." There is, then, an internal connection between how we use tools and who we are: "Dasein finds 'itself' proximally in *what* it does, uses, expects, avoids—in those things environmentally ready-to-hand with which it is proximally *concerned*."[71] At first glance,

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69 Okrent, for example, argues that for Dasein to have a practical understanding of a tool is also to i) have an understanding of the purpose in the service of which the tool is to be used and ii) an implicit understanding of the purpose that is the end of the series of activities in which the tool has its function, namely, Dasein's existential understanding of itself. He says that to "project oneself as a possibility is to understand oneself as a for-the-sake-of-which, and to do this is for one to have a practical understanding of equipment." See *Heidegger's Pragmatism*, p. 49. Also see John Haugeland, "Heidegger on Being a Person," *Nous*, XVI, 1982, p.22.

70 *Being and Time*, p. 185.

71 Ibid., p. 155.

this seems to be saying no more than what McMurtry finds in what he calls Marx's definition of man's singular capacity for a projective consciousness, that, as noted in Chapter 2, man defines himself through his productive tasks *because* of this capacity. But man's capacity to project or his ability to live from the future Heidegger describes in noncognitive terms. McMurtry may be right in claiming that Marx recognized the *need* to live from the future, and in this "prefigures" the "aiming-at-what-is-not-yet-theme" of recent "existentialist" thought, but what Marx did not anticipate was the more basic requirement for self-understanding, which precedes and makes possible the conductivity of technology and therefore man's objectifying activity. Only in this way, only if there is a series of teleological involvements in which technology is intimately connected to a possibility of Dasein's being, can a tool be conductive of man's intending himself.

V

14. Heidegger must still explain how it is possible for persons to understand themselves in some "definite way" or how it is possible that "the way the world is understood is reflected back ontologically upon the way in which Dasein itself gets interpreted."[72] To say, for example, that the nuclear contractor exists by virtue of an understanding of his own possibility to be a nuclear contractor is not to say, as noted above, that this self-understanding can be accounted for as "*one* possible kind of cognizing among others,"[73] whereby we might be tempted to say that the contractor possesses an ability to consciously produce a material existence and realize his species-being *because* he is first an animal possessing the capacity of a projective consciousness. Rather Heidegger urges that the competence which such understanding is is grounded in or begins with the communal nature of the contractor's existence. We can begin to unpack this communal nature by noting that it is most characteristically non-mental. It is not, for example, a set or system of beliefs that contain, for the contractor, an implicit "idea" of what is involved in his own possibility to be. What it is to be a person in this (teleological) sense reposes on the shared practices that constitute communal existence. As some commentators have suggested, these shared practices can be accounted for as "forms of life," which do not owe their origin to ratiocination but are just there, as Wittgenstein says, "like our life."[74]

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72 Ibid., pp. 36-7.

73 Ibid., p. 182.

74 See, for example, Ross Mandel's "Heidegger and Wittgenstein: A Second Kantian Revolution," in *Heidegger and Modern Philosophy*, Michael Murry, ed. (New Haven: Yale University Press, 1978), pp. 259-270.

Thus the contractor's understanding of what it is to be a person, as pre-theoretical, is tied to his being socialized into or habituated to certain non-mental practices that he, as it were, is born into. Heidegger states that "Dasein has grown up both into and in a traditional way of interpreting itself: in terms of this it understands itself proximally and, within a certain range, constantly."[75]

This basic mode of being human, as "there" in a world of shared practices, is, then, one in which there is embedded a social understanding of what it is to be a person. Heidegger says that this "common world, which is there primarily and into which every maturing Dasein first grows, as the public world governs every interpretation...of Dasein."[76] Dasein's existence is internally connected to pre-existing social practices, which contain non-subjective or tacit understandings of what it is to exist as a particular kind of person.[77] Heidegger's assertion that "Dasein's essence *lies* in its existence" (emphasis added) implies that Dasein exists or *already* finds itself in a world of meaning, and need not create one.[78] Moreover, because "Dasein also possesses, as constitutive for its understanding of existence, an understanding of the being of all entities of a character other

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75 *Being and Time*, p. 41.

76 See *History of the Concept of Time*, p. 264.

77 Thus Dreyfus asks us to imagine how a Japanese person understands what it is to be a human being—i.e., as passive, gentle, contented—and then to compare this way of existing with that typically found in North America. See *A Commentary*, p. 18f.

78 By contrast, existentialism's use of the term existence is such that the essence or meaning of existence must be supplied either by faith (Kierkegaard) or will (Nietzsche). For an illuminating discussion of Heidegger's relationship to existentialism, see J.P. Fell, *Heidegger and Sartre: An Essay on Being and Place*, (New York: Columbia University Press, 1979), Chapters 1, 3, 6, and 7. In either case, subjectivity is the starting point. On this variant of the traditional interpretation of the priority relationship between *existentia* and *essentia*, Cartesian subjectivity or consciousness becomes foundational and essence, therefore, derivative of the certainty inherent in the fact that self-contained subjective existence is and that man exists only as whatever he chooses to be. But Heidegger asks, questioning the authority of subjectivity, "why is it that Being is divided into what-being and that-being?...And is not the distinction between what-being and that-being, a distinction whose basis of possibility and mode of necessity remain obscure, entwined with the notion of Being as being-true?" See *Kant and the Problem of Metaphysics,* trans. by J.S. Churchill (Bloomington: Indiana U.P., 1962), p. 23. If, according to the "is and only then as" logic of existentialism, "is" refers to existence and "as" to essence, the question remains, Heidegger argues, whether existence is first bare or meaningless existence and whether, if it is not and is in fact internally related to a context for its meaning, Dasein exists in its essence. Thus Heidegger's re-interpretation of the traditional ontic concept of existentia in ontological terms would seem to be a formal definition of what Marx began in the *German Ideology*, that is to say, a rigorous working out of the consequences of equating "essence" with empirically observable "practice." Heidegger states that "In determining itself as an entity, Dasein always does so in the light of a possibility which it is itself and which, in its very Being, it somehow understands. This is the formal meaning of Dasein's existential constitution." See *Being and Time*, p. 69.

than its own,"[79] also contained within this social understanding of his own possibility to be is an understanding of the practical grammar of the workshop. Heidegger states that the

> everyday way in which things have been interpreted is one into which Dasein has grown in the first instance, with never a possibility of extrication. In it, out of it, and against it, all genuine understanding, interpreting, and communicating, all re-discovering and appropriating anew, are performed. In no case is a Dasein, untouched and unseduced by this way in which things have been interpreted, set before the open country of a 'world-in-itself' so that it just beholds what it encounters.[80]

Thus we can say that the primary characteristic of the contractor's existence in the context of his everyday, practical affairs is the simple fact that he finds himself in a world, which, in an existential sense, must be specified in terms of meaning. As the contractor plays out his understanding of himself as a nuclear reactor builder, the world that presents itself to him is the "world" of nuclear power. The contractor, Heidegger argues, is "in" this world in the same sense that the student is colloquially into or "in" philosophy, or the Luddite is "in" or into the destruction of machines. "World" in the existential sense is, then, that most general characteristic of existence which supplies sense or significance to the actions of those who inhabit it. As a character or "existentiale" of existence, it is presupposed in all dealings we have with those entities that are also in the world—other people, institutions, and, most especially, tools. The understanding or competence that goes hand in hand with the contractor's ability to realize his aims through the organization of men and materials rests on his "being-in" the world of nuclear power in the sense that only as being there in that world he can act in a coherent manner. Only because he is placed as such or involved in that world can it *occur* to him that if he does this, that, or the other thing it means that he will accomplish the aim he wishes to achieve, namely, to build a nuclear reactor. In what follows, I wish to explore further Heidegger's related notions of what it is to be "in" a world as, say, the nuclear contractor is in the world of nuclear power.

15. Heidegger's analysis of everyday existence or being-in the world, for example, must recognize the *differentia* between Dasein and beings that cannot be said to "exist" in the self-interpretive sense outlined above. Animals and physical objects, for example, may be described as located in the world in a spatial sense. They "are," as Heidegger says, in some *thing*, ultimately, the universe.[81] Similarly, we can describe the contractor as in his

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79 *Being and Time*, p. 34.

80 Ibid., p. 213.

81 Heidegger states: "This relationship of Being can be expanded: for instance, the bench is in the lecture-room, the lecture-room is in the university, the university is in the city, and so on, until we can say that the bench is in 'world-space'." See *Being and Time*, p. 79.

office, just as we may say that "water is 'in' the glass, or the garment is 'in' the cupboard."[82] But here we would not be describing the *structure* of the contractor's existence. We would be merely locating the contractor as someone self-subsistent or "present-at-hand 'in' something which is likewise present-at-hand."[83] In this description, the contractor has a location-relationship to the world that is inclusive or *categorical.* It places him on par with rocks, trees, and animals and does not bring to the fore the involved or situated nature of his existence, as located in a world of social practices that are presupposed or define for him the possibility that he can be or that he can actually behave in such a way as to become a nuclear reactor builder. Categorical descriptions, then, are those that "are of such a sort as to belong to entities whose kind of being is not of the character of Dasein."[84] They are (in a Kantian sense) necessary ways in which we impose order on things *other* than ourselves. Heidegger states that

> Being-in is a state of Dasein's being...one cannot think of it as the being-present-at-hand of some corporeal thing (such as a human body) "in" an entity which is present-at-hand. Nor does the term "being-in" mean a spatial "in-one-another-ness" of things present-at-hand, any more than the word "in"...signifies a spatial relationship of this kind.[85]

The existential sense of being-in expresses, then, neither descriptions of physical location nor, for example, categorical locations in terms of socio-economic standing, where we might say that the contractor is "in-one-another-ness" or has a standing as a member of, as Marx says, the ruling class. What is missing in categorical descriptions is *involvement.* From an existential perspective, that is, the contractor's existence must be described in terms of his involvement in the world of nuclear power, which is expressed in his learned competence to actually do something with men and materials in order to accomplish a goal, *for-the-sake-of* his own being. Thus an existential description of the contractor's involvement in the world he finds himself provides an explanation of how it is that through his inculcation into the social practices he is "born into" it can *naturally* occur to him that if he does this, that, or the other thing it means that he can build a nuclear reactor and realize a possibility of his own existence. The issue, here, as Heidegger says, "is one of *seeing* a primordial structure of Dasein's being."[86]

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82 Ibid.
83 Ibid.
84 Ibid.
85 Ibid., pp. 79-80.
86 Ibid., p. 81.

Heidegger says that to be involved or to be in the world of nuclear power in the existential sense is to "reside" or "dwell" in this world. Another way of putting it is to say that the contractor is accustomed to the practice of generating power through nuclear means. He is accustomed to the way results are achieved with that technology and, therefore, knows how to act in a coherent or rational manner within the various practices that comprise or make possible the practice of generating power through nuclear means. This is expressed in both his participation in and mastery of the various language-games that order coherent behaviour in the world of nuclear power: the language-games of nuclear engineering (such as the proper use of risk/benefit analysis), of the economics of nuclear power (how costs are tied to risks and benefits), of public relations (how to communicate the results of this to the public), and so on. That he can be a nuclear reactor builder depends upon his participation in and mastery of the various practices defined by these language-games. They are not theories but rather constitutive of a form of life; they are ways *through* which the contractor is existentially in the world of nuclear power. Heidegger states that

> being-in is not a 'property' which Dasein sometimes has and sometimes does not have, and *without* which it could *be* just as well as it could with it. It is not the case that man 'is' and then has, by way of an extra, a relationship-of-being toward the 'world'—a world which he provides himself occasionally. Dasein is never 'proximally' an entity which is, so to speak, free from being-in, but which sometimes has the inclination to take up a 'relationship' toward the world. Taking up relationships toward the world is possible only *because* Dasein, as being-in-the-world, is as it is.[87]

Thus the nuclear contractor (or any Dasein) already "moves," as Heidegger says, in a "common environmental whole"[88] or a world that is neither coextensive with Nature nor even with the practical grammar of the workshop but rather a world constituted by language-games or *social* practices. And it is in terms of these practices that the practical grammar of the workshop makes sense or has a point and through which Nature, as noted above, becomes "accessible to everyone." Thus we can say that the existential world contains within it, at the very least, the instrumental context of the workshop—equipment and the practical grammar that constitutes that equipment's readiness-to-hand—*and* the purpose for which that equipment is used. But the "purpose for which that equipment is used" is not exhausted by a complete set of "tasks at hand" but, rather, ultimately, as Heidegger has argued, by the *final* toward-which, the for-the-sake-of-which. It is the latter end, as an inclusive end, that Heidegger says "always pertains to the being of *Dasein.*" So

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87 Ibid., p. 84.

88 See *History of the Concept of Time*, p. 188.

the existential world must also contain within it the possible ways for Dasein *to be*. Possible ways for me to be, a student, a critic of technology, or the like, are available to me because I "reside" or "dwell" in an existential world. It is only within a world of social practices that the use of tools or my reliance on the practical grammar of the workshop has a point. Thus Heidegger says that the very structure of the existential world is one of meaning or significance:

> The "for-the-sake-of-which" signifies an "in-order-to": this in turn, a "toward-this"; the latter, an "in-which" of an involvement. These relationships are bound up with one another as a primordial whole; they are what they are as this signifying in which Dasein gives itself beforehand its being-in-the-world as something to be understood. The relational whole of this signifying we call "*significance*." This is what makes up the structure of the world—the structure of that wherein Dasein as such already is.[89]

16. We may say, then, that the readiness-to-hand or the availability of equipment or tools "which Dasein needs in order to be able to be as it is,"[90] is contained within the practical grammar of the workshop but that the various ways in which Dasein can "be as it is" are contained within the existential grammar of a world that itself contains this practical grammar and, as a whole, is constituted or structured by meaning. It is only upon the *background* of Dasein's participation in the social practices that constitute various ways to interpret oneself as a student, critic of technology, Luddite, or even a nuclear reactor builder, that Dasein can even begin to "take a stand on itself" as a student and so on. Although it is necessary for Dasein to use tools to define itself—social practices do not come bereft of equipment and the skills to use it—Dasein's understanding of the practical grammar of the workshop all hangs on understanding itself in terms of its possibility to be something, which possibility itself is only available to it because it is in an existential world. Heidegger understands social practices, then, as ways through which it is possible for Dasein to "receive" or take on an identity. My identity as a student or any other identity that may be available to me is formed by a *public* understanding, which is to say that the various ways for me to be, or the for-the-sake-of-which's that are available to me, are defined by the community. As Heidegger says,

> Dasein has grown up both into and in a traditional way of interpreting itself; in terms of this it understands itself proximally and, within a certain range, constantly. By this understanding, the possibilities of its being are disclosed and regulated. Its own past—and this always means the past of its

89 *Being and Time*, p. 120.

90 Ibid., p. 416.

> "generation"—is not something which *follows along after* Dasein, but something which already goes ahead of it.[91]

Thus it is one's "generation" that defines possible ways for anyone to be, which is to say it is, in a sense that requires explication, the community that supplies the background upon which being a student and so on can make sense. It is the "they," as Heidegger says, that "articulates the referential context of significance"[92]*through* which the possibilities of Dasein's being are "disclosed and regulated." If we take Heidegger's use of the technical term "disclose" as meaning that anything disclosed has "the character of being laid open,"[93] then we can begin to unpack the way in which the community is constitutive of the self. Heidegger uses this term to emphasize, for example, that when something like a tool is available to us it is not because we follow a set of rules prescribing its proper use. As has been argued, what his transparency thesis claims is that we already know how to use a tool, where "know" means "knowing how" as opposed to "knowing that." Thus, that something like a tool or a possible way to be is disclosed to us is connected to our general competence over the practical grammar of the workshop or over the existential grammar inherent in that workshop. To say, for example, that a tool is disclosed means that it is already available to us, or "has the character of being laid open," because we are trained to recognize it as what it is. But this training depends, as Heidegger's transparency thesis claims, on recognizing not just any single tool but rather the whole workshop in which a single tool has a use-context to a number of other tools. This is what is required to have competence over the practical grammar of a tool. Heidegger explains what is at stake here by using a room as an example:

> My encounter with the room is not such that I first take in one thing after another and put together a manifold of things in order then to see a room. Rather I primarily see a referential whole...from which the individual piece of furniture and what is in the room stand out. Such an environment of the nature of a closed referential whole is at the same time distinguished by a specific *familiarity*. The closed character of the referential whole is grounded precisely in familiarity, and this familiarity implies that the referential relations are *well-known*.[94]

Heidegger's point is that we cannot simply say that the workshop has a practical grammar and that we have competence over that grammar and it is because of this that we can "recognize" a tool for what it is and then use it for some purpose. Rather we must have

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91 Ibid., p. 41.

92 Ibid., p. 167.

93 Ibid., p. 105.

94 *History of the Concept of Time*, p. 187.

some familiarity with that practical grammar. Only then is the tool disclosed to us or only then can it be available for use. Similarly, it is not simply the case that we understand ourselves "against" the background of social practices. It is not so much that the background of social practices pre-exist the individual that constitutes the individual's identity but, rather, that the individual has a familiarity with that background. In the same sense that my "submission" to or reliance on the references and assignments that constitute the workshop consists in my familiarity with the workshop and not any inferences I might make from a set of rules for the use of a tool, my taking over possible ways to be through the social practices of my "generation" consists in my *general* familiarity with the world that is constituted by those practices. In this way studentry, Luddism and so on are *always* disclosed to me as possible ways to be. These ways to be, then, are not goals as such but rather possible self-interpretations that are available to me as a result of familiarity with the social practices within which they are contained. Heidegger says that "Dasein, in so far as it is, has always submitted itself already to a world which shows up for it, and this submission belongs essentially to its being."[95] The world of social practices, which Dasein is existentially in, "is always something with which it is primordially familiar [and] this familiarity with the world ...goes to make up Dasein's understanding of being."[96]

17. But to say that possible ways to be are disclosed through familiarity with the practices of one's generation or one's community does not fully explain how the self is constituted by the community. Heidegger says that through the community possible ways to be are both disclosed *and* regulated. So how is it that one's self-understanding or competence over one's own being is managed or administered by the community? As has been noted, part of what it is to live in a "common environmental whole" or a world of shared social practices is to have an understanding of equipment as having a public character. Heidegger has maintained, that is, that "publicness primarily controls every way in which the world and Dasein get interpreted, and it is always right." Our competence over the practical grammar of the workshop, that is, is inherently social. One way of interpreting this, as I have argued above, is to appeal to Marx's observation that social cooperation is essential to productive activity. However, to say that social cooperation is essential to productive activity does not cut deep enough for Heidegger. It is not so much cooperation that explains our ability to use tools but rather that which underlies cooperative behaviour itself. That there can be norms of usage themselves, Heidegger wants to say, depends on

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95 *Being and Time*, pp. 120-121.

96 Ibid., p. 119.

the social practices of our world being "average." And it is just this "averageness" that provides the basis for regulating the possibilities of my being a student or any other "occupation" that may be disclosed through the community. Heidegger says, for example, that we "take pleasure and enjoy ourselves as *they* take pleasure; we read, see, and judge about literature and art as *they* see and judge; likewise we shrink back from the 'great mass' as *they* shrink back; we find shocking what *they* find shocking."[97] Moreover, the force with which the community regulates everything about my being is such that my "everyday possibilities of being are for the others to dispose of as they please."[98]

The averageness that the community forces on me, then, is an averageness that obliges me to conform my behaviour to the norm, which conformity is in no way "conscious or intentional,"[99] and to the point where "exceptions to the rule" are also suppressed without thought.[100] Thus it is necessary to distinguish between norms of usage, for which there is offered no justification, and other norms, like those of morality, for which justification is appropriate. Heidegger says with regard to norms of usage, which exhibit what is average and are followed unthinkingly rather than what is ethical or proper and require some thought or teaching, the "common sense of the 'they' knows only the satisfying of public norms and the failure to satisfy them."[101] As noted above, norms of usage apply to anyone and everyone; they determine, simply, what one does. This latter point is crucial. "One" uses a hammer to nail boards in place, one uses ladders to climb onto buildings, and so on. Otherwise, we could not recognize a use-context for various tools; the workshop, that is, could not contain a practical grammar that is *shared* by all.

Finally, to say that norms of usage prescribe what "one" does admits of no distinction between the individual and the community. Heidegger does not mean to imply, by using such terms as the "they" and "others" to refer to the community, that the community stands over and against the individual. Heidegger says, for example, that by "'Others' we do not mean everyone else but me—those over against whom the "I" stands out. They are rather those from whom, for the most part, one does *not* distinguish

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97 Ibid., p. 164.

98 Ibid.

99 See *History of the Concept of Time*, p. 282.

100 Heidegger states that the community "maintains itself...in the averageness of that which belongs to it, of that which it regards as valid and that which it does not, and of that to which it grants success and that to which it denies it. In this averageness with which it prescribes what can and may be ventured, it keeps watch over everything exceptional that thrusts itself to the fore. Every kind of priority gets noiselessly suppressed." See *Being and Time*, p. 165.

101 Ibid., p. 334.

oneself—those among whom one is too."[102] As noted above, Heidegger takes as that which is "given" the common world, the world in which the standardization of means and ends is ensured by norms of usage. Thus he can say that "Dasein's everyday possibilities of being are for the others to dispose of as they please,"[103] where by "others" he means "you" and "I" together, as "normal users" with common purposes. Heidegger states that when

> entities are encountered, Dasein's world frees them for a totality of involvements with which the "they" is familiar, and within the limits which have been established with the "they's" averageness...it is not the "I," in the sense of my own self, that "am," but rather the others, whose way is that of the "they." In terms of the "they," and as the "they," I am "given" proximally to "myself." Proximally, Dasein is "they," and for the most part it remains so.[104]

Thus Heidegger views the community as that which *forms* the way we conduct our everyday behaviour and, thus, who we are, and is constitutive of the "individual" in this base sense. Heidegger understands the community as that which embodies the correct ways of using tools and the correct forms of behaviour that all must adhere to in so far as anyone can be said to be a member of that community. His basic point is that we can't make an absolute distinction between the individual and the community, at the level of everyday conduct, which distinction Marx depends on to drive his philosophical anthropology. We have already seen Heidegger make this same point with respect to the use of tools or with man's relationship to equipment or the physical world. Thus although Heidegger's transparency thesis tells us how we use tools, his existential thesis tells us how we define ourselves through the use of those tools by emphasizing that in order to use a tool we must be "dispersed" into the community, that we must have already taken on an identity or a for-the-sake-of-which supplied by one's generation.[105] Although Heidegger can be said to appropriate his transparency thesis into his existential thesis to explain how it is that one can take on an identity, I will argue in conclusion that it is important for a philosophy of technology to recognize the distinction between these theses.

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102 Ibid., p. 154.
103 Ibid., p. 164.
104 Ibid., p. 167.
105 See Ibid.

VI

18. Heidegger's transparency thesis essentially states that we normally use tools in such a way that what is exhibited in this use is a reliance on the practical grammar of an entire workshop and not an understanding of something inherent in a tool itself. This is simply the way in which we can produce food, shelter, and clothing. The practical grammar of a workshop is, then, "technology," as I have defined it in the aggregate, in Chapter 2. So if the use of a tool is, as Heidegger would say, really a matter of submission to the references and assignments of the equipmental whole, then it might seem at first glance that the autonomist position with respect to technology, claiming that technology "somehow" takes over the self, could feed on Heidegger's transparency thesis to justify this claim. This, I think, is why Ellul's sociological description of technological society, as that out of which there is "no exit," is so attractive to many. If the use of tools depends on a *system* of production, or a technique, then it does not seem to be too much of a jump from that thesis to the claim that our reliance on the practical grammar of that system, or our reliance on technology, can be overwhelming, especially with large, complicated, global technologies. But Heidegger's transparency thesis also portrays the use of a tool as a *passive* phenomenon, which is perhaps a hint as to why this thesis cannot be invoked to justify the claim that technology is a threat to the self. The transparency thesis tells us *no more* than that there is normally no distinction between the self and the practical grammar of the workshop, that there is no distinction between the self and technology when we use tools in our day to day lives. But this is not to say that technology either *constitutes* the self or somehow stops that constituitive process, which thesis is necessary to jump from the above claim that technology is overwhelming to the conclusion that it is an *existential* threat. The autonomist has to find a way of saying, for example, that technology is both overwhelming and that it is so in a way that is contrary to the basic way of being human.

So there does not seem to be any Heideggarian ground upon which the autonomist can say that technology is a direct threat to the self. Heidegger's existential thesis tells us rather that the self is, in the "first instance and for the most part," constituted by the community. If the autonomist hopes to salvage a critique of technology that, for example, is logically independent of one based in a critique of social relations, then this critique must take into account what Heidegger's existential thesis tells us about the relationship between technology and the formation of the self. And it must do so in such a way as to show, contra Marx, that technology is not necessarily conductive of the realization of human

nature, that there is not a perfect correspondence between the requirements of human nature and the development of technology. But here the "requirements of human nature" would have to be read not in terms of "the development of human powers" but, rather, the need for a self-identity, because, as Heidegger has argued, unless one has a self-identity, one would not be able to use tools to develop one's powers. This is to say, in other words, that a for-the-sake-of-which must be present as the bounding element in the teleological structure of man's praxis. Heidegger argues, moreover, that both the practical grammar of the workshop and the possible ways for Dasein to be are defined by the community, by virtue of the fact that the community lays out what is "average." His existential thesis claims, that is, that technology can be "conductive" only because it is nested in a series of teleological involvements which itself is bounded and informed by an average way to be.

Thus it is not so much how technology is utilized to make a profit. This would be derivative of the "correct" use of tools and, in any case, the socialist must still use tools as does the capitalist, notwithstanding the improvement of "capitalist technology." Marx fails to consider, as I suggested above, whether technology itself could fail to be conductive of man's self-realization, that it could be "involved" in our practical activity in such a way that it distorts or undermines the praxial nature of that activity, to the point where social organization cannot bring it back into focus. The challenge, then, is to demonstrate that technology can "work" in such a way that it is logically impossible for man to define himself through the use of tools, that he would not be able to understand himself in "average" ways because, as it were, the practical grammar of the workshop falls down on itself. There must be an existential grammar that allows for conductivity but there must also be a practical grammar that works in tandem with an existential grammar in order for anyone to take a stand on his or her being. Whether technology can be taken as a given in this process is the question the autonomist is forced to raise and attempt to answer. In what remains I will attempt to make some preliminary moves in this direction by defining a sense of praxial frustration that, as I have noted above, cuts deeper than alienation and which is tied to technology itself.

Praxial Breakdown

I

1. Throughout this essay, I have outlined three models of productive activity. I have argued that the first model, the tool-use model, suffers from a divided ontology, which fails to appreciate the social and political significance of tool use. The second model, explaining what Marx calls the "labour process in general," can be called the "conductivity" model of productive activity, because of Marx's reliance on the notion that technology is conductive of man's self-realization. The conductivity model does not suffer from the divided ontology the tool-use model does but, yet, offers no basis for an explanation of a form of what has been called praxial frustration that is connected to technology itself. Thus Heidegger's account of praxial behaviour in his workshop analysis in *Being and Time* was reviewed in hope of finding an account of productive activity consistent with Marx's but, yet, that could supply some ground upon which it might be possible to identify a form of praxial frustration in which technology plays a necessary role.

Heidegger's model of productive activity, which we might call the "workshop" model, can be taken to serve as an ontological justification of Marx's thesis that there is an internal connection between the use of tools and the possibility of man's self-realization, that man first is defined as an alienated worker through the use of tools and only in virtue of possessing this identity and recognizing it can he see the need to overcome praxial frustration as tied to social and historical circumstance. But, here, Marx's account of productive activity is concentrated on the "subjective" side of the labour process. So the workshop model, starting from an analysis of "equipment," seems to be a good candidate for an account of productive activity from what Marx calls the "objective" side of the labour process, that is to say, from the tools themselves. The workshop model seems to stand, as Heidegger intended it, as an ahistorical account of the labour process that addresses the very being of tools. Moreover, I have argued that the workshop model of productive activity is comprised by the transparency and existential theses. Thus as partly comprised by an ontological description of the objective side of labour process, Heidegger's model of productive activity should afford the critic of technology an opportunity to make *philosophical* assertions about technology and its relationship to the self. Marx, as noted in

the Chapter 2, urges, perhaps because he takes conductivity as an ontological constant in his account of productive behaviour, that technology or the forces of production are to be accounted for in *historical* terms.

Unfortunately, the ahistorical character of the workshop model of productive activity is questionable and this limits its potential as an analytical tool, or at least as it stands. As will be noted below, Heidegger's concept of Dasein can be questioned as to its ahistoricity but, more importantly, so can his understanding of equipment. Herbert Dreyfus argues, for example, that far from being opposed to technology, contained within Heidegger's workshop model of productive activity is an understanding of "use," tools, and nature comprising an instrumental ontology that provides the *decisive* step toward modern technology.[1] But Dreyfus leaves one hanging with respect to how Heidegger's understanding of equipment could be transitional with respect to technology's threat to the self (as opposed, for example, to the self's relationship to nature), and this what we are interested in. In order to show this, that within the frame of reference of the workshop model Heidegger's account of productive activity falls doubly short as a criticism of technology, we must return to and explain Ellul's claim in the first chapter that man is gripped by modern technology to the point where "He has no exit." With Ellul's own explanation of this statement, which explanation rests on his identification of a form of behaviour he calls the "technical phenomenon," I want to argue that we can push the workshop model far enough, indeed, further than intended by Heidegger, to begin to see *how* technology could be a threat to the self.

In the section immediately following, I will summarize the essence of Dreyfus' critique and briefly recount a response to it in order to set the stage for a critical analysis of the workshop model in terms of the technical phenomenon. What I want to suggest in the following is that Heidegger missed something crucial about the being of technology with respect to the self and once this is identified we can begin to see how technology could be a threat to the self. To illustrate this I will appeal to Ellul's explanation of his claim that technology is a threat to the self. The reason for highlighting the workshop model of productive activity against the technical phenomenon is, then, this: if Heidegger's account of productive activity is to stand as ground upon which technological autonomists can justify the claim that technology is a threat to the self (and perhaps in a way that an exit can be found), then we must attempt to make this model consistent with the technical

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1 See Hubert Dreyfus, "Between Techne and Technology: The Ambiguous Place of Equipment in Being and Time," *Tulane Studies in Philosophy*, XXXII (1984), pp. 24-35.

phenomenon and this will amount to the attempt to identify something about technology that Heidegger missed in the workshop account, something that might be inherently threatening to the self. Thus the overall purpose of analyzing Heidegger's workshop model of productive activity in terms of the technical phenomenon is to demonstrate a form of praxial frustration tied to technology and not to social or political circumstance. If this can be demonstrated in the extreme form that Ellul's technical phenomenon suggests, then there should be no question that philosophy must take seriously the claim that technology can be a threat to the self.

II

2. We can identify a crucial tension in Heidegger's stance toward the nature of equipment or tools in *Being and Time*. As Dreyfus points out, it is tempting to assume that Heidegger's account of tool use in *Being and Time* constitutes a critical stance toward modern technology. Heidegger is clear in his later thought that modern technology arose out of the philosophical distinction between subject and object. In "The Word of Nietzsche," for example, Heidegger says that it is the subject, which objectifies "everything that is" in terms of (mathematical) representations, that "changes the world into object."[2] Heidegger continues by saying that in this

> revolutionary objectifying of everything that is, the earth, that which first of all must be put at the disposal of representing and setting forth, moves into the midst of human positing and analyzing. The earth itself can show itself only as the object of assault, an assault that, in human willing, establishes itself as unconditional objectification. Nature appears everywhere—because willed from out of the essence of Being—as the object of technology.[3]

We have seen in the previous chapter that Heidegger's ontology of tool use is such that we normally use tools not as a subject standing over and against an object but, rather, as "submitted to" or necessarily entwined with the practical grammar of an equipmental nexus, which practical grammar constitutes the being of a tool. Thus Heidegger's transparency thesis stands as a philosophical corrective against the subject/object ontology implicit in the tool-use model of productive activity. So in conjunction with his existential thesis, one might be tempted to embrace the resulting workshop model as an explanation of productive activity that stands against the objectifying tendencies associated with modern technology. Indeed, Heidegger speaks, at one point, of "modern, mathematically structured technology, which is something *essentially* different from any other hitherto known use of

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2 In Heidegger, "The Word of Nietzsche," p. 100.

3 Ibid.

tools."[4] So there is this interpretation of *Being and Time*, that there is, in Dreyfus' words, a "total opposition" between Heidegger's account of tool use in *Being and Time* and modern productive practice. The reader of early Heidegger can think of this opposition as "total" in the sense that Heidegger of *Being and Time* had convinced himself that his account of Dasein and the being of equipment in *Being and Time* was ahistorical. Michael Zimmerman, for example, notes Heidegger's statement that the production and use of tools is "not only a basic mode of comportment of man, but [also] a decisive determination of the existence of ancient *Dasein*."[5]

But Heidegger's "total opposition" to modern technology is not so clear-cut. Dreyfus notes that Heidegger came to realize that he lacked an appreciation of the *history* of the being of tools and how we understand or use them when he worked out his instrumental ontology in *Being and Time*.[6] Moreover, this lack of appreciation of the possibility that the Greeks may have encountered or understood tools differently than the Dasein of the workshop eventually trapped Heidegger into *justifying* modern technology rather than offering a basis for a critique. With regard to the first point, Dreyfus accepts Heidegger's interpretation of equipment in *Being and Time* in terms of *pragmata*, that "the essential characteristic of equipment in any period is that it is used,"[7] and then goes on to reconstruct a three-stage philosophical history of the being of equipment from hints Heidegger gives in his discussions about the nature of tools. It is upon this reconstructed history of the nature of tools that Dreyfus criticizes Heidegger for promoting modern technology in the workshop model.

3. The first stage Dreyfus identifies as the period of craftsmanship, which finds its expression in the Greek notion of *techne*. During this period, the Greeks understood tools as having an essential nature. Heidegger says, for example, that "'To use' means, first, to let a thing be what it is and how it is. To let it be this way requires that the used thing be

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4 Martin Heidegger, *An Introduction to Metaphysics* , trans. Ralph Manheim (Garden City, New York: Anchor Books, 1969), p. 162. The text dates from 1935. Recall, in Chapter 1, Heidegger's "willingness" to consider tools as more primitive types of modern technology.

5 As quoted in Michael Zimmerman, *Heidegger's Confrontation with Modernity: Technology, Politics, Art* The Indiana Series in the Philosophy of Technology, ed. Don Ihde. (Bloomington: Indiana University Press, 1990), p. 148.

6 Dreyfus notes Heidegger's statements in "The Origin of the Work of Art," in *Poetry, Language, Thought*, trans. Albert Hofstadter (New York: Harper & Row, 1971), p. 32, that there may be a "possibility...that differences relating to the history of being may also be present in the way equipment *is* " and that we must "avoid making thing and work prematurely into subspecies of equipment."

7 "Between Techne and Technology," p. 26.

cared for in its essential nature—we do so by responding to the demands which the used thing makes manifest in the given instance."[8] Heidegger draws a distinction between this understanding of use, which implies a "fitting response" such that when "we handle a thing...our hand must fit itself to the thing," and the kind of "using" that indicates "utilizing, using up, exploiting."[9] This latter kind of use, or exploitation, treats nature as defined in terms of machines: "The hydroelectric plant is not built into the Rhine River as was the old wooden bridge that joined bank with bank [rather] the river is dammed up into the power plant."[10] It is characteristic of our contemporary understanding of equipment, which Dreyfus says is expressed in cybernetic control articulated in systems theory. The modern understanding of use, then, is one in which objects have no essential nature that must be respected in terms of a "fitting response" but, rather, are only in so far as they are at our disposal.[11] Heidegger says, for example, that it is in this degenerate understanding of use that "nature becomes a gigantic gasoline station..."[12]

But it is the pragmatic attitude of industrialization that Dreyfus finds characteristic of the understanding of equipment in *Being and Time*. As was discussed in the previous chapter, tools are defined in terms of their function, or their "in-order-to," within what Heidegger calls an equipmental nexus or a total network: there is no such thing as "an" equipment, Heidegger stresses. Thus Dreyfus notes, in support of his thesis that the understanding of tools in *Being and Time* stands *after* the craftsmanship of the Greeks, that understanding a tool in terms of its function was, for Heidegger, to leave behind the Greek understanding of equipment as having an essential nature and characterize equipment in terms of its *disposability*. Heidegger says that equipment "is manipuable in the broadest sense and at out disposal."[13] Moreover, when Heidegger speaks of the hammer in his analysis of the workshop there is never any mention of the hand, nor of a "fitting response." Finally, in support of his thesis that *Being and Time* stands *before* the understanding of equipment inherent in the global planning of the systems theorist, Dreyfus

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8 Martin Heidegger, *What is Called Thinking?*, trans. Fred D. Wieck and J. Glen Gray (New York: Harper & Row, 1968), p.191.

9 *What is Called Thinking?*, p. 187.

10 "The Question Concerning Technology," p. 16.

11 Dreyfus notes that Heidegger illustrates what he means by the degenerate or debauched understanding of use by paraphrasing Rilke on the *Ersatz* : "[O]bjects are produced to be used up. The more quickly they are used up, the greater becomes the necessity to replace them even more quickly and readily...What is constant in things produced as objects merely for consumption is: the substitute—*Ersatz* ." See Heidegger, "Poets," p.130.

12 Heidegger, *Discourse*, p. 50.

13 *Being and Time*, p. 98.

notes that although the hammer is characterized by its disposability, it is not disposable in the sense that a styrofoam cup or a ball-point pen is. The hammer is not used up as is the cup or the pen. More generally, Heidegger still talks of taking care of equipment but, as Dreyfus notes, "not the way the craftsman takes care of his personal tools, but the way the foreman takes care of industrial equipment."[14] When a tool ceases to operate as we would expect it to, for example, Heidegger says our manipulation stops and "we take on a more precise kind of circumspection, such as 'inspecting,' checking up on what has been attained, or looking over the 'operations'."[15] Thus there seems to be a bridge between the periods of craftsmanship and cybernetic control in Heidegger's understanding of equipment in *Being and Time*, the nature of which is hidden in Heidegger's conception of nature in *Being and Time*.

4. According to Heidegger, the Greeks understood nature as self-contained: "For the Greeks, *physis* is the first and the essential name for beings themselves and as a whole. For them the being is what flourishes on its own, in no way compelled, what rises and comes forward, and what goes back into itself and passes away."[16] Against this understanding of nature as having its own teleology and, as noted above, requiring a "fitting response" to that teleology, Heidegger contrasts the modern understanding of nature, as something without its own integrity and to be *transformed* according to our mathematical representation of it. Nature is "challenged," such that a "tract of land is challenged into the putting out of coal and ore. The earth now reveals itself as a coal mining district, the soil as a mineral deposit."[17] Echoing his comment that nature is now understood as a "gasoline station," Heidegger says that the "[c]hallenging forth into revealing...concerns nature, above all, as the chief storehouse of the standing energy reserve."[18] In *Being and Time*, Heidegger does seem to recognize something like the Greek understanding of nature as self-contained and unavailable for explicit, mathematical "challenge," speaking of nature as that which "'stirs and strives,' which assails us and enthralls us as landscape [and which] remains hidden."[19] But Dreyfus stresses that the basic thrust of Heidegger's understanding of nature in *Being and Time* is toward understanding nature in terms of its utility, or its readiness-to-hand, and that this

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14 Dreyfus, "Between Techne and Technology," p. 27.

15 Heidegger, *Being and Time*, p. 409.

16 Heidegger, *Nietzsche*, Vol. I: The Will To Power as Art, trans. David F. Krell (New York: Harper & Row, 1979), p. 81.

17 "The Question Concerning Technology," p. 14.

18 Ibid., p. 21.

19 *Being and Time*, p. 409.

understanding i)*requires* the totalization of the workshop and in this way ii) set the stage for modern technology and its understanding of nature as (exploitable) raw material.[20]

The instrumentalist understanding of nature in *Being and Time* is rooted in Heidegger's conviction first, that nature, like tools and other objects, is "an entity within-the-world" and second, that "*all* the modes of being of entities within-the-world are founded ontologically upon the worldhood of the world, and accordingly upon the phenomenon of being-in-the-world."[21] Heidegger defines nature, then, in terms of its utility for Dasein. Thus when Dreyfus says that Heidegger totalized the workshop in order to arrive at an understanding of nature, what Dreyfus discerns is that Heidegger defined the "worldhood" or essence of the constellation of practices, purposes, and objects that characterize the existential world in terms of our *workshop* praxis. This leaves out of the picture a foundational role for a host of other types of praxis, such as religious or political praxis.[22] Heidegger, in other words, takes the practical grammar out of the craftsman's workshop, a relatively autonomous region,[23] and extends it to the structure of the world as a whole, founding everything within that world upon the instrumentality of nature for Dasein. Dreyfus concludes that Heidegger's identification of the world...with a single referential totality in *Being and Time*...denies localness, thus removing the last barrier to global totalization, and preparing the way for the 'total mobilization of all beings' which, according to the later Heidegger, makes up the essence of technology."[24]

5. Zimmerman, though, offers a rather different interpretation of Heidegger's workshop analysis. Relying mainly on historical considerations but also citing textural evidence, Zimmerman contends that the instrumentalist ontology found in *Being and Time* is "to some extent *merely* an appearance."[25] Dreyfus' conclusion that *Being and Time* is the

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20 For a similar argument in an article that lays out Heidegger's conceptions of nature in *Being and Time* and his later work, see Drew Leder, "Modes of Totalization: Heidegger on Modern Technology and Science," *Philosophy Today* XXIX, No. 3/4 (Fall 1985), pp. 245-56.

21 Heidegger, *Being and Time*, p. 100.

22 With regard to political praxis, see Mark Blitz, *Heidegger's Being and Time and the Possibility of Political Philosophy* (Ithaca: Cornell University Press, 1981), pp. 66f. & 147, where he criticizes Heidegger 's phenomenology of Dasein as presupposing or making paradigmatic the instrumental world and thus fails to appreciate the reality of political "things" like justice.

23 See Heidegger, *Being and Time*, p. 118, where Heidegger speaks of the involvement of a tool as being embedded or related to "*a* totality of involvements." Dreyfus also notes that when Heidegger introduced the notion of equipment in terms of involvement, he spoke of "regions" such as a room or a workshop, maintaining that "Something like a region must first be discovered if there is to be any possibility of allowing or coming across places for a totality of equipment that is circumspectively at one's disposal." See ibid., p. 136.

24 Dreyfus, "Between Techne and Technology," p. 32.

25 Zimmerman, *Heidegger's Confrontation with Modernity*, p. 154.

decisive *ontological* step toward modern technology Zimmerman holds is inconsistent with early Heidegger's *political* critique of industrial modes of production as radically utilitarian.[26] He maintains that Heidegger emphasized the instrumentalism of everyday activity in order to bring to the fore the importance of handiwork in the search for an alternative to modern technology. Concerned with the elimination of small workshops by factories and the degradation of the skills of many artisans by "modernist influences," Heidegger recognized that "handiwork had to be understood and appreciated in its ontological dimension if there was to be any hope of discovering an alternative to modern technology."[27] Indeed, Zimmerman cites Heidegger as stating that he never meant to allege that "the essence of man consists in handling spoon and fork, and in riding on the streetcar," and suggests that the analysis of the craftsman's workshop in *Being and Time* is indicative of Heidegger's "hostility toward industrial technology."[28] Zimmerman concludes that Heidegger's ontology of the workshop should be read as i) an account of the importance of the "role played by the human hand in producing things," and ii) as an account "of the extent to which industrial technology was already transforming handicraft producing and the way of life associated with it."[29]

Zimmerman reasons, then, that what Heidegger is really after in the workshop analysis in *Being and Time* is the search for an "authentic mode of production," that is to say, one that would (at the very least) recognize the role the hand played in the era of craftsmanship. Heidegger's analysis of the workshop, that is, recognizes the extent to which utilitarian concerns have taken over the life of modern man. Thus, rather than preparing the way for the onslaught of technology in the modern era, *Being and Time* could just as well be read as the basis of a *corrective* analysis. I want to explore this possibility by seriously considering Zimmerman's second conclusion above through the rejection of his

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26 See ibid., Chapter 2, "Political Aspects of Heidegger's Early Critique of Modern Technology," pp. 17-33, for a full account of this critique.

27 Ibid., p. 154.

28 Ibid., p. 155. The quote is found in *The Basic Concepts of Metaphysics* , where Heidegger states that " I attempted in *Being and Time* a first characterization of the *phenomenon of the world* through an interpretation of *how we move about first and for the most part in our world everyday.* In so doing, I started with what is ready to hand for us everyday, what we use and manage.... The point was to press on, by and through this first characterization of the phenomenal world, to an exhibition of the phenomenon of the world as a problem. But it was never my intention to assert or establish through this interpretation that the essence of man consists in his wielding a spoon and fork and riding on the streetcar." Quoted in Joseph P. Fell, "The Familiar and the Strange: On the Limits of Praxis in the Early Heidegger." *The Southern Journal of Philosophy* , XXVIII (Supplement: "The Spindel Conference, Heidegger and Praxis," Thomas J. Newton, ed.) 1989, p. 24. Fell's article is sympathetic to Zimmerman's position.

29 Zimmerman, *Heidegger's Confrontation with Modernity*, pp. 155-56.

first.[30] Historical considerations aside, the problem with Zimmerman's first conclusion, that Heidegger's workshop analysis stresses the importance of the hand, is obvious. As Dreyfus points out, although there are manual implications in the workshop analysis, in all the discussions of hammering there is no mention of the hand.[31] There is, as will be seen below, no place for a "fitting response" in Heidegger's descriptions of workshop praxis.

There *are* grounds, though, for agreeing with Zimmerman's conclusion that the workshop analysis shows the extent to which industrial technology transforms craft production and the way of life associated with it, with the consequence, as Zimmerman says, that the undifferentiated or "the anyone self" is governed "by a completely utilitarian way of dealing with things."[32] But the ontological structure of any *technological* threat to the self because of the predominance of the practical grammar of the workshop can only be demonstrated if we take seriously Dreyfus' observation that Heidegger seems to be talking not about the hand or hammers so much as he is about modern machines and their maintenance in the workshop model. Unfortunately, Dreyfus limits his analysis of Heidegger's account of the workshop to the understanding of equipment and how this understanding is tied to an understanding of use and nature. Therefore, in order to analyze Zimmerman's claim that *Being and Time* can be read as an account of the instrumental

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30 Thus I leave behind discussion of Zimmerman's thesis that Heidegger was really searching for an "authentic" mode of production and *ipso facto* any discussion of what an authentic mode of production might look like. I am only interested in this essay in determining the structure of the technological threat to the self and whether once this structure can be laid out a solution to the modern dilemma can be generated out of an analysis of this structure. Needless to say, I do not discount the possibility that an internally generated solution might be consistent in some respects to what authentic production is and the solutions it offers but this issue must be left for another place.

31 Dreyfus, "Between Techne and Technology," p. 27.

32 Zimmerman, *Heidegger's Confrontation with Modernity*, p. 156. Zimmerman quotes Karel Kosik's description of this condition, who states that the anyone self exists in "a ready-made world of devices, implements, and relations, a state for the individual's social movements, for his initiative, ubiquity, sweat... The individual ...has long ago 'lost' any awareness of the world as a product of man. Procuring permeates his *entire* life." See Kosik's *Dialectics of the Concrete* , trans. Karel Kovanda and James Schmidt, Vol. LII, Boston Studies in the Philosophy of Science, ed. Robert S. Cohen and Marx W. Wartofsky (Dordrecht/Boston: D. Reidel Publishing Co., 1976), p. 86. Zimmerman, at times, tends to follow Kosik's thesis that *because* modern man is governed by what I have called the practical grammar of the workshop, modern man lives an "inauthentic' existence. As indicated above, this is a contention that I do not wish to address here. At this point I can only say that I doubt Kosik's thesis follows *necessarily.* It is well known that Heidegger describes the practical existence of the workshop worker as a "positive phenomenon" in *Being and Time* (see below) and indicates very clearly, at least in the first section of *Being and Time*, that the self's reliance on the practical grammar of the workshop—what I have called Heidegger's transparency thesis-—is *prior* to an inauthentic existence. For a more precise account of Heidegger's analysis of the workshop that argues workshop praxis is inauthentic, see Paul Farwell, "Can Heidegger's Craftsman Be Authentic?," *International Philosophical Quartery*, XXIX, No. 1 (March 1989), pp. 77-90.

definition of the self, it is necessary to analyze Dreyfus' account of the understanding of equipment in *Being and Time* in terms of the relation this understanding has to the self.

The essential feature of craftsmanship, as Dreyfus says, is that the craftsman "responds to his materials." Dreyfus notes that Heidegger says the true craftsman "makes himself answer and respond above all to the different kinds of wood and to the shapes slumbering within wood—to wood as it enters into man's dwelling with all the hidden riches of its nature. In fact, this relatedness to wood is what maintains the whole craft."[33] By contrast, modern productive activity can be characterized in terms of the *lack* of response to the inherent nature of material. Dreyfus, noting Heidegger's contention that what "sustains handicraft is not the mere manipulation of tools, but the relatedness to wood," allows Heidegger to characterize modern production in terms of a rhetorical question: "But where in the manipulations of the industrial worker is there any relatedness to such things as the shapes slumbering within wood?"[34] Heidegger (and Zimmerman) have stressed throughout that there is some internal connection between modern man's relation to nature and the loss of the self *by virtue* of that relation. Somewhere in between these polar characterizations of production, then, is needed an explanation of how the understanding of equipment and nature in *Being and Time* is transitional with respect to the question of technology's threat to the self. Thus in order to penetrate Heidegger's rhetoric I will outline Jacques Ellul's description of industrial society in terms of the technical phenomenon and argue that i) the technical phenomenon cannot be justified as a threat to the self according to Heidegger's workshop model of productive activity but that ii) once this is demonstrated, we are in a position to see how it *could* be justified if Heidegger's understanding of equipment in *Being and Time* is questioned. Moreover, once the technical phenomenon is justified, we will be in a position to determine the ontological structure of the threat modern technology presents the self and how this threat is tied to technology itself.

III

6. Central to Ellul's description of industrial or technological society, then, is the identification of the technical phenomenon. Arising out of and standing radically opposed to craft production, the technical phenomenon refers to a form of "technical operation" or a form of activity, as Ellul says, that is "carried out in accordance with a certain method in

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33 *What is Called Thinking?*, pp. 14-15.

34 Ibid., p. 23.

order to attain a particular end."[35] Thus Ellul first establishes that there are "techniques" or methods for any number of human activities and purposes. But he adds that it is the application of reason and consciousness that transforms any technical operation or any method in accordance with the "one best means" in all kinds of technical operations.[36] Thus, as will be analyzed below, the technical phenomenon is a result of the transformation of the kind of technique one might find in craftsmanship into the kind of technique one finds involved in the use and maintenance of modern machines. "Essentially," Ellul says of the technical phenomenon, "it takes what was previously tentative, unconscious, and spontaneous and brings it into the realm of clear, voluntary, and reasoned concepts."[37] Ellul's use of the term technical operation emphasizes that common to all technique is method. Ellul's use of the term technical phenomenon, though, underscores the fact that in the technological age method or means is characterized by mathematical reason, which reason, echoing Heidegger's lament, Ellul says is "opposed to nature."[38]

But it is not so much the existence of the technical phenomenon that concerns Ellul as much as it is the extension of the method inherent in this one kind of activity to *all* kinds of activity. Ellul, therefore, emphasizes that technique, as it exists in modern civilization, as an "ensemble of means," is not limited to one end (e.g., the productive), to one level of society (e.g., the economic), nor to specific aspects of life (e.g., the quantifiable).[39] He asserts technique is "*the totality of methods rationally arrived at and having absolute efficiency* ...in *every* field of human activity."[40] Thus Ellul, unlike the tool-use adherent

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35 Ellul, *Technological Society*, p. 20.

36 Ellul states, p. 21, that the "twofold intervention of reason and consciousness in the technical world, which produces the technical phenomenon, can be described as the quest of the one best means in every field." As Carl Mitcham and Robert Mackey, point out in their "Jacques Ellul and the Technological Society," *Philosophy Today* , XV, No. 2 (1971), Ellul follows Max Weber in arguing that there are "techniques of every conceivable type of action, techniques of prayer, of asceticism, of thought and research, of memorizing, of education, of exercising political or hierocratic domination, of administration, of making love, of making war, of musical performances, of sculpture and painting, of arriving at legal decisions. All these are capable of the widest variation in degree of rationality. The presence of a "technical question" always means that there is some doubt over the choice of the most rational *means* to an end." Quoted in Mitchum and Mackey at p. 106.

37 Ibid., p. 20.

38 Ibid., pp. 78-9.

39 For an account of what Ellul's critique of the various definitions of technique that do attempt to place technique in a limited context, see "Situating the Technical Phenomenon" in ibid., pp. 4-18.

40 Ibid., p. xxv. Hereafter I will use "technique" as synonymous with "technology," taking Ellul's use of the word technique to refer to the way technology has been defined in Chapter 2, that is, as a manner of production. See Mitchum and Mackey, "Jacques Ellul," pp. 104-105, for a discussion that further warrants this identification.

and Marx but in concert with the later Heidegger, does not address technology as an isolated or isolatable fact of modern society, as one might think of a machine existing "in" a social or economic structure. Rather, it is a *total* phenomenon, referring not only to a range of simple to extremely complex industrial procedures, but also to procedures in things like economic planning, policy formation, and for the control of human behaviour. It is the "aggregate of *these* means," Ellul says, "that produces technical civilization."[41] Moreover, it is within the relations set up by the proliferation of the technical phenomenon that we understand the world. With regard to our understanding of nature Ellul, as does Heidegger, laments the technological understanding that denies inherent teleology in order to secure a source of raw material, as when "hydroelectric installations take waterfalls and lead them into conduits...."[42] Placed within this milieu, Ellul says "man himself has become a machine" and finds "there is no 'exit'."[43]

As has been noted, the technical phenomenon is a *form* of activity. It is a form of the technical operation, which is "any operation carried out in accordance with a certain method in order to attain a particular end [and it] can be as rudimentary as splintering a flint or as complicated as programming a brain."[44] All technical phenomena are technical operations but not all technical operations are technical phenomenon. The form of activity that we must designate as a technical phenomenon is a form of activity that, "more complex than any synthesis of characteristics common to individual techniques,"[45] is mediated by reason and consciousness. So the technical phenomenon itself is not a conscious act. It is rather closer to a form of understanding in the specialized sense that Heidegger uses the term, as a "mode of comportment" through which we interpret the world or, simply, an instance of knowing *how*. The technical phenomenon *is* the result of understanding in the sense of knowing *that*. Indeed, the force of Ellul's critique of the technological society might be seen through these distinctions; that is, in some crucial sense it is because knowing *how* is mediated by knowing *that* that Ellul believes technology can become autonomous and therefore a threat to the self, such that "man himself has become a machine." Ellul's position, then, is that the technical phenomenon is the result of a "technical consciousness" that "makes it possible to produce objects in terms of certain

41 Ellul, *Technological Society*, p. 211. (Emphasis added.)
42 Ibid., p. 79.
43 Ibid., p. 227 & (as noted in Chapter 1)p. 428.
44 Ibid., p. 19.
45 Ibid.

features, certain abstract requirements; and this in turn leads not to the imitation of nature, but to the ways of technique."[46]

7. If we take "primitive technical operation" to refer to craft activity then it is possible to describe the essential differences between a primitive technical operation and the transformation of that operation into a technical phenomenon. As an example of a primitive technical operation, one centered on the hand and involving a fitting response to nature's inherent teleology, we can describe the activity of splitting firewood.[47] The use of the woodsman's hands, as well as other parts of his body, is required to perform the task. But the woodsman must also respond to the grain structure of the wood being split. If, for example, he tries to direct the blade of the axe across the grain, the probability of failure (and personal injury) is greatly increased. The blade must be sharp and it must hit the log *with* the grain in order for the log to be split successfully. There are, then, at least these two ways in which nature's inherent teleology, or the grain structure of the wood, requires a fitting response. To attempt to split logs with a dull blade and against the grain would be to ignore the latter requirement. We can easily imagine other requirements for a fitting response—the proper size of axe, the proper stance, and the like—but it is important to note that in order to meet the requirements of a fitting response, the woodsman must be trained in the craft in such a way that the operation of splitting logs becomes natural or routine. He cannot stop to think about what he is doing, say half-way through a swing of the axe, and expect to split the log successfully. To the extent that he can be said to possess an awareness of what he is doing, this awareness is immediate and routine, such that the tool, the axe, is merely an extension of his bodily movement and the goal of his activity is the splitting of the log itself. Thus his understanding of nature is mediated through the way he has been trained to use his body, or through the routine of log-splitting.

When this primitive technical process becomes objectified by the intervention of reason and consciousness, resulting in the technical phenomenon, the woodsman's natural relationship with the world is permanently transformed. Ellul wants to say that consciousness, in search of the "one best way," examines the log-splitting operation, invokes reason in the form of mathematical calculation, and the awareness of the "log-splitter" becomes focused on the tool as a thing in itself. The tool is no longer an extension of the body. The woodsman's concern is now with the improvement of the tool,

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46 Ibid., p. 20.

47 In the descriptions of the technical operation and the technical phenomenon below, I follow, loosely, David Lovekin's account of the logic of technical consciousness in his "Jaques Ellul and the Logic of Technology," *Man and World*, X, 3 (1977), pp. 251-272.

and the axe, quantified, becomes the mechanical log-splitter. The task at hand, the production of firewood, no longer requires concentration on the log, as attention shifts to the log-splitter, to maintaining its operation. The grain structure of the log is no longer significant—it can be split either with or against the grain. What becomes significant is that the machine be properly adjusted, greased and oiled, etc. The woodsman's immediate relationship with the world, his concern with routinely forcing his axe on the grain of the log at the crucial speed, angle, and place, is transformed into a technical relationship with the log-splitting machine. The woodsman is transformed into a mechanic, and through this transformation it is no longer the case that nature requires a fitting response and nor is it the case that the woodsman's understanding of nature is mediated by the body. The quality of the wood—the type of grain structure it has, for example—is no longer that in terms of which the woodsman understands nature. With the introduction of the mechanical log-splitter, nature can be understood or engaged in quantitative terms. It is merely important now, for example, that the log be the proper size to fit into the log-splitting machine.

With the rise of the technical phenomenon, then, the woodsman is no longer defined through his relationship with his interaction with the grain structure of the log, or by his relationship to the members of his community, or through his ability or talent to split logs *well*. As regards the latter, with the introduction of the machine *anyone* can perform the task. As regards the former, the object for which one was a subject, the nature of the log, is now an abstraction. The log is defined not by grain structure but by geometric coordinates that facilitate the adjustment of the log-splitting machine. Thus according to Ellul, the onslaught of the technical phenomenon produces a form of pseudo-subjectivity, which does not differentiate man from the world, man from machine, nor man from man: modern technique "is no more than a neutral bridge between reality and abstract man."[48] This is to say that as mechanic, the woodsman is no longer concerned with the end of splitting logs proper but, rather, the maintenance of the machine, and the efficiency thereof. It is at this *logical* point Ellul says that technique has or can become autonomous. Autonomy, for Ellul, implies "the complete separation of the goal from the mechanism, the limitation of the problem to the means, and the refusal to interfere in any way with efficiency."[49] And given the overwhelming proliferation of the technical phenomenon in the modern age, Ellul wants to say, the transformation of many and discrete technical

48 Ellul, *Technological Society*, p. 135.
49 Ibid.

operations to one technical phenomenon is a transformation that man cannot simply "choose" to step out of. The autonomy of technique, simply put, represents a "kind of fate in which man is reduced to the level of a catalyst."[50]

Thus it is out of the description of the technical phenomenon that Ellul wants to base his claim that technology is autonomous, that, as the result of the autonomy of technology man becomes taken over by the machine. As I suggested in the first chapter, the notion that technology is threatening to the self can only make sense if the self is unable to offer a self-description *because* of something inherent in technology itself. So we would want from Ellul's account of the technical phenomenon some basis upon which to make a claim that what I have called the necessarily insecure self is (at least) logically possible. If, as I will argue immediately below, we take Heidegger's analysis of the workshop in *Being and Time* as an *ahistorical* account of productive praxis, then there is no such basis. But if, in the process of offering a Heideggarian critique of Ellul's notion of autonomy, it can be demonstrated that the workshop model misses something both historically and philosophically crucial with the respect to the being of equipment, then I wish to argue that we can give a qualified answer of yes. Although a qualified yes might take a great deal of critical (and pessimistic) force out of Ellul's description of technological society, it nevertheless allows a philosophy of technology to retain a analytically coherent sense of autonomy.

8. As argued in the previous chapter, Heidegger's analysis of the tool use is comprised by both the transparency and existential theses. Taken together, both theses explain how, in Marx's terms, technology is conductive of man's self-realization. This is to say that taken together both theses account for productive activity as a form of *praxis* as opposed to a form of *poiesis*. As Heidegger lays these theses out, it is not hard to demonstrate that they could both hold for the technical operation *and* the technical phenomenon, with the implication that the technical phenomenon is *not* a source of autonomy. With regard to the technical operation, the woodsman is transparent with respect to his tools and his tools with respect to him. His axe, as Heidegger says, "withdraws" as the woodsman concerns himself with the task at hand. *That* he can work this way is a result of his following the communal standards inherent in the training he has received in using an axe. In following these standards, he defines himself *as* a woodsman. Even existing in what Heidegger calls this *undifferentiated* state, the woodsman i) possesses a subjectivity that is defined in terms *other than* method, in terms, that is, of his skills, his community,

50 Ibid., p. 227.

and his "fitting response" to nature. It is out of this undifferentiated state that the woodsman can ii) *recognize* himself as a woodsman and therefore, offer a self-description if and when it is appropriate or required.

I will address ii) below but it is important to note, here, that the woodsman as described through the technical operation fits the requirements of the secure self outlined in the first chapter. His conduct is an example of purposive agency and his identity is nested in relations that are communal in nature. Thus one obvious way of identifying a secure self is to describe first the *character* of any self's undifferentiated existence and determine whether, out of that existence, that self could offer a self-description. As Heidegger cautions, it is important that

> Dasein should not be interpreted with the differentiated character of some definite way of existing, but that it should be uncovered in the undifferentiated character which it has primarily and usually. This undifferentiated character of Dasein's everydayness is *not nothing*, but a positive phenomenal characteristic of this entity.[51]

With regard to the technical phenomenon, the transparency thesis holds because of Heidegger's understanding of equipment. Consider, as Dreyfus does, Heidegger's descriptions of tools in *Being and Time* and how they fit the woodsman-turned-mechanic as he uses the log-splitting machine. There is nothing in Heidegger's account of the workshop that would lead us to believe that the log-splitting machine *requires* that the woodsman shift his awareness from the task at hand to the machine itself. Heidegger's description of tools as "disposable" and "at our service" could hold just as well for the axe or the log-splitting machine. Indeed, to the extent that the woodsman-turned-mechanic must shift his awareness from the task of splitting logs to the machine itself, say, if it has jammed or stopped for some other reason, the shift of awareness is only to "inspect or check up or look over the operations." For Heidegger, as will be outlined below, this inspection *may* mean that the tool can become a thing in itself but it does not mean that the tool must remain as such—that it can never be ready-to-hand—and, therefore, it does not follow that the shift of awareness need be permanent. There is no reason to believe that Heidegger would want to describe the woodsman-turned-mechanic's activity in terms other than praxial. The woodsman-turned-mechanic is still splitting wood to heat his home, or he is still engaging in activity "for the sake of the possibility of Dasein's being." This is to say that there is no reason to claim that the technical phenomenon, either in the singular or the plural, violates Heidegger's existential thesis. The woodsman-turned-mechanic is still

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51 Heidegger, *Being and Time*, p. 69.

engaged in self-defining behaviour even though his relationship with nature does not require a "fitting response."[52] This is what needs to be demonstrated in the immediately following.

IV

9. Heidegger is not very explicit about the process through which the log-splitting machine can become a thing in itself. But once his description of the way in which entities come to stand over and against the subject as objects is made clear, it is clear that Heidegger's conception of the relation between reason and judgment and their objects is not one that would lend support to the implication Ellul wants to draw from the technical phenomenon, that praxis becomes frozen, as it were, to the point where self-descriptions cannot be offered. In general, Heidegger says that the objects of "reason and judgment" and that reason and judgment themselves are rooted in the kind of activity Ellul captures with his notion of technical operation. According to Heidegger's workshop model, a form of activity anything like the technical phenomenon, which is fixed in the observation or awareness of the means as a thing in itself or as "present-at-hand," is the result of or is made possible through a break or deficiency in praxis: "If knowing is to be possible as a way of determining the nature of the present-at-hand by observing it, then their must first be a *deficiency* in our having-to-do with the world concernfully."[53] So in an ontological sense, Heidegger does allow for Ellul's description of the technical phenomenon as a transformation of the technical operation. He does not, however, allow for the possibility that anything like the technical phenomenon is an instance of an outright denial or disallowance of the self-defining activity of the technical operation.

According to Heidegger, it is only when equipment becomes unusable, missing, or "stands in the way" that it can lose its ready-to-hand nature and become a thing in itself. If, for example, in the process of splitting logs the tool breaks down, we no longer understand

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52 In the previous chapter, it was argued that in Heidegger's ontology of tool use, the article produced contained references to other Daseins, from which one might want to draw the impression that only the production of handicraft articles will fit Heidegger's ontology of production. Heidegger seems to think not. He notes that even when articles are mass produced, they remain (or can remain) ready-to-hand, that is to say, they can contain reference to others. The only difference in being is that the instrumentality of mass produced articles is "leveled" out: "The work produced refers not only to the "towards-which" of its usability and the "whereof" of which it consists: under simple craft conditions it also has an assignment to the person who is to use it or wear it.... Even when goods are produced by the dozen, this constitutive assignment is by no means lacking; it is merely indefinite, and points to the random, the average." See *Being and Time*, p. 100.

53 Ibid., p. 88.

it, as noted in the previous chapter, in terms of its references or assignments to other tools in the workshop but, rather, we "see" or understand the tool as nontransparent or recalcitrant. Heidegger says that anything "which is unready-to-hand in this way is disturbing to us, and enables us to see the *obstinacy* of that with which we must concern ourselves in the first instance before we do anything else."[54] Thus it is only when there occurs an instrumental breakdown, which results in a "praxial break," that the possibility of a clear-cut subject object relation can obtain. But this praxial break is not immutable. It is perhaps best described, given the fact that it causes a "disturbance," as a praxial *anomaly* that calls for our attention.[55] Dreyfus has identified three distinct types of disturbance or instrumental breakdown, which allow for the characterization of at least three distinct types of praxial break.[56]

10. The three forms of instrumental breakdown Dreyfus identifies are based on Heidegger's descriptions of three ways of being related to or encountering equipment during a break in praxis. A praxial break can occur if equipment becomes conspicuous, obstinate, or obstruse, which, in varying degrees, "all have the function of bringing to the fore the characteristic of presence-at-hand in what is ready-to-hand."[57] Conspicuousness, which "presents the ready-to-hand equipment as in a certain un-readiness-to-hand,"[58] as when a tool malfunctions, is a form of praxial break that requires no more than a (usually) minor modification in the way one goes about completing a task. If, for example, the woodsman's axe blade loosens itself from the axe handle, the woodsman need do no more than drive a spike into the axe handle and continue on with his work. "Pure presence-at-hand announces itself" in this form of praxial break but only, as Heidegger notes, "to withdraw to the readiness-to-hand of something with which one concerns

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54 Ibid., p. 103.

55 Don Ihde uses this term in contrast to Thomas Kuhn's notion of theoretical anomaly to characterize the nature of a praxial break. See his *Instrumental Realism: The Interface Between Philosophy of Science and Philosophy of Technology* , The Indiana Series in the Philosophy of Technology, ed. Don Ihde (Bloomington: Indiana University Press, 1991), p. 54.

56 See Dreyfus, *A Commentary*, pp. 70-83. I follow Dreyfus' analysis closely below.

57 Heidegger, *Being and Time*, p. 104. In an interesting aside, Dreyfus, *A Commentary*, footnote 9, p. 347, questions why Heidegger identifies only three forms of breakdown and suggests that Heidegger can be read as mapping the three forms of praxial break onto the three dimensions of time identified in Division II of *Being and Time*. I will attempt to identify below the logical possibility of a *fourth* form of breakdown that Heidegger does not see and argue that this is crucial to an understanding of the concept of technological autonomy. The issue of whether this fourth form has or requires a corresponding dimension of time will need to be left for another place.

58 Heidegger, *Being and Time*, p. 103.

oneself—that is to say, of the sort of thing we find when we put it back into repair."[59] The woodsman may be startled for a moment, but he carries on nonetheless. He may even ask for some help. As Heidegger says, using the hammer as an example, one can utter "'The hammer is to heavy,' or rather just 'Too heavy!', 'Hand me the other hammer!'...laying aside the unsuitable tool, or exchanging it, 'without wasting words'."[60] As a rule, this form of praxial break does not change the normal relationship one has with tools. But recognition that this form of instrumental breakdown can occur and that in occurring the being of equipment changes, if only slightly and, for all practical purposes, insignificantly, previews the two forms of praxial break that do require a change in one's understanding of equipment.

If, for example, one calls for help and does not receive it, then a temporary breakdown rather than a malfunction can be said to occur. If we can no longer modify the way we are going about completing the task at hand and if the log-splitting machine requires more than just a quick adjustment but rather the carburetor needs to be inspected and repaired, then we must act deliberately. Rather than a transparent user of tool, the situation requires recognition that one can no longer depend on the assignments and references of the tool or the workshop. Unlike circumstances of malfunction, in which "the assignments themselves are not disturbed [but] are rather there and we concernfully submit ourselves to them," temporary breakdown is such that "the constitutive assignment of the 'in-order-to'[this hammer is something that one uses to pound nails] to a 'toward-this' [pounding the nails into the wall to hold these shelves in place] has been disturbed."[61] Equipment now has the nature of being explicitly manifest and the tool user must think about what to do. Although still involved in his work, the tool user must deliberate and plan: "The scheme peculiar to [deliberation] is the 'if-then'; if this or that, for instance, is to be produced, put to use, or averted, then some ways and means, circumstances, or opportunities will be needed."[62] But although the woodsman-turned-mechanic may deliberate during this form of praxial anomaly, deliberation does not necessarily lead, as will be explicated immediately below, to a self-conscious subject standing over and against

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59 Ibid.

60 Ibid., p. 103.

61 Ibid., p. 105. I have used Dreyfus' quotation, including his useful glosses in the brackets (and likewise for the quote immediately below). See *A Commentary*, p. 72.

62 Ibid., 410. Heidegger does not limit deliberation to the local or present situation. Deliberation can also take the form of "envisioning" or planning ahead. Heidegger says that deliberation "can be performed even when that which is brought close in it circumspectively is not palpably ready-to-hand and does not have presence within the closest range.... In envisioning, one's deliberation catches sight directly of that which is needed but which is un-ready-to-hand." Ibid.

an object that must be described as a thing in itself. Rather, it is similar to the form of praxial anomaly that can be described in terms of malfunction, in that once deliberation runs its course, one can return to the undifferentiated state in which one normally carries out a task. The reflection or deliberate planning that takes place is still tied to or a part of self-defining or "involved" activity.[63] Heidegger's description of this form of praxial anomaly in terms of obstinacy, that is, does not coincide with Ellul's notion of the technical phenomenon as a form of praxis replacement in which one's attention is necessarily concentrated on the means rather than the end.

But there must be some form of consciousness involved in this second form of praxial break.[64] The woodsman-turned-mechanic does not go about repairing the carburetor "without wasting words." Similarly, even though Heidegger wants to deny that the log-splitting machine stands as a thing in itself, requiring constant attention, the machine must have some form of objectivity. Requiring repair, the log-splitting machine is "un-ready-to-hand" and, therefore, encountered or understood in terms other than the references and assignments that once constituted its readiness-to-hand. Heidegger wants to say, with regard to the first, that a subject of consciousness emerges but that the mental content of this subject is grounded in the transparency of productive activity and not self-consciousness. Thus the mental content of the deliberative subject is not purely mental in that, as Dreyfus notes, the beliefs (about carburetor repair, for example) can be analyzed without reference to the world.[65] That one deliberates in the context of completing a task does not entail, for Heidegger, that the "subject" has purely mental *representations* of "objects." Nor does it entail, as Ellul wants it, that "reason and consciousness" take over or replace the technical operation with a different form of non-praxial behaviour, the technical phenomenon. Rather, as Heidegger says, "[h]olding back from the use of equipment is so

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63 When one deliberates in the context of involved activity, the deliberation can take two forms: i) it can be limited to the situation at hand, or ii) it can take into account possible future situations. Heidegger calls the latter form of deliberation "envisioning" and describes such long-range planning in this way: "Deliberation can be performed even when that which is brought close in it circumspectively is not palpably ready-to-hand and does not have presence within the closest range. ... In envisioning one's deliberation catches sight directly of that which is needed but which is un-ready-to-hand." See *Being and Time*, p. 410.

64 Heidegger, that is, agrees that in situations like those of temporary breakdown there is nothing "more obvious than that a 'subject' is related to an 'Object' and *vice versa* ?" and that this "'subject-object' relation must be presupposed" but that the nature of the subject and the object must not be taken for granted, that although "this presupposition is unimpeachable in its facticity, this makes it indeed a baleful one, if its ontological necessity and especially its ontological meaning are to be left in the dark." See *Being and Time*, p. 86.

65 Dreyfus, *A Commentary*, p. 74.

far from sheer 'theory' that the kind of circumspection which tarries and 'considers' remains wholly in the grip of the ready-to-hand equipment with which one is concerned."[66]

With regard to the understanding of equipment when one deliberates, Heidegger does not want to maintain that during deliberation, the log-splitting machine remains transparent. It does become an "object," but not an object of theory, or of reason and consciousness. Rather, the woodsman-turned-mechanic's understanding of the log-splitting machine is better explained in terms of its merely being unusable or temporarily un-ready-to-hand. Heidegger states that during temporary breakdown "the ready-to-hand is not thereby something that is just *observed* and stared at as something present-at-hand; the presence-at-hand which makes itself known is still bound up in the readiness-to-hand of equipment."[67] Thus to the extend that the log-splitting machine shows up as an object in Heidegger's description of temporary breakdown, it does so in a decidedly practical context and not a theoretical or scientific one. If it were not for this tie to the practical situation, it could not show itself or be understood by the woodsman-turned-mechanic *as* something in need of repair. Heidegger says that when "something cannot be used—when, for instance, a tool definitely refuses to work—it can be conspicuous only in and for dealings in which something is manipulated. Even by the sharpest and most persevering 'perception' and 'representation' of Things, one can never discover anything like the damaging of a tool."[68] Thus to say that the woodsman-turned-mechanic's log-splitting machine can be an object of deliberation is not to say that that machine is inspected in terms of properties it may possess as a isolable, self-standing object. Reason and consciousness directed toward the laws of mechanics, that is, cannot reveal anything about the machine that could tell us that it will not work; rather it is only one's practical reliance on the machine to complete a task at hand that can reveal the dysfunctional character of the machine.[69]

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66 Heidegger, *Being and Time*, p. 409.

67 Ibid., p. 104.

68 Ibid., p. 406.

69 Dreyfus, *A Commentary*, p. 77, illustrates this point by asking us to imagine listening to a radio that has static coming out of it. Even though there is static, the radio is still obeying the laws of nature, that is, the electrons continue to function perfectly. The radio is only dysfunctional with respect to one's expectation in normal listening activity that the broadcast be clear. One can, as Heidegger does, make the same point by referring to the use of a hammer. Normally, one does not look at a hammer to determine that it will be too heavy to use: "When we are using a tool circumspectively, we can say, for instance, that the hammer is too heavy or to light. Even the proposition that the hammer is heavy can give expression to a concernful deliberation, and signify that the hammer is not an easy one—in other words, that it takes force to handle it, or that it will be hard to manipulate." See *Being and Time*, p. 412.

Heidegger's point is that when there is a temporary suspension of productive activity the object that emerges has *situational characteristics* rather than "properties" in the traditional sense. When we find that a hammer is too heavy to use, the hammer's "being too heavy" is not a decontexturalized property of the hammer but rather a situational characteristic or, as Dreyfus defines it, an "aspect" of the hammer. Aspects, then, are instrumental characteristics of objects that are revealed during periods of temporary breakdown and are to be ontologically distinguished from properties such as "heaviness" which can be asserted of an object during periods of theoretical investigation. Heidegger says that the "term 'property' is that of some definite character which it is possible for things to possess"[70] but that when we ascribe properties to objects we do not do so within an instrumental context, or "within the horizon of awaiting and retaining an equipmental totality and its involvement-relationships."[71] Thus in situations of temporary breakdown the workshop model of productive activity offers no ontological justification for Ellul's technical phenomenon. Productive activity, tied to the "horizon of an equipmental totality and its involvement-relationships," still stands as self-defining activity. But it is possible to identify in Heidegger's analysis of the workshop yet a third form of breakdown that is permanent and in which reason does stand over and against an object. During periods of permanent breakdown, equipment is understood as "obtrusive" and the relationship one has with tools changes so radically that a subject of reason and consciousness can emerge, one that stands over and against an isolable object possessing properties in the nonsituational sense.

11. A definite praxial break occurs, for example, when one discovers that a piece of equipment needed to complete a task is missing. If, in the process of repairing the carburetor, the woodsman-turned-mechanic discovers that he does not have the proper wrench to complete the job, then the log-splitting machine is simply unusable and it stands as a thing in itself. Heidegger notes that, during periods of deliberation, sometimes "we not only come against unusable things *within* what is ready-to-hand already; we also find things which are missing—which not only are not 'handy' but are not 'to hand' at all [such that] that which is ready-to-hand enters the mode of *obtrusiveness*."[72] The log-splitting machine and the tools the woodsman-turned-mechanic does have in his workshop suddenly have no constitutive references and assignments because the proper wrench is not available and, as Heidegger says, the "more urgently we need what is missing, and the more

70 Ibid., p. 144.
71 Ibid., p. 412.
72 Ibid., p. 103.

authentically it is encountered in its un-readiness-to-hand, all the more obtrusive does that which is ready-to-hand become—so much so, indeed, that it seems to lose its character of readiness-to-hand."[73] According to Heidegger, then, it is during situations when deliberation runs its course that a subject with mental content subject can emerge and take on a theoretical attitude toward things that are no longer tied to or rooted in a use-context. This can lead to a situation in which one *withholds* the practical attitude and observes in a detached or noninstrumental way the various components of the workshop that now no longer have any involvement in or relevance to normal praxis. The woodsman-turned-mechanic may discover, for example, that the carburetor must be redesigned in order to repair the log-splitting machine. And to do this he must treat the recalcitrant carburetor as an object that must be explained, as an engineer would, in terms of the laws of combustion.

As noted above, when one understands the hammer in terms of possessing the property of "heaviness" one does so *outside of* the horizon of normal praxis, such that this understanding "has been drawn from looking at what is suitable for an entity with 'mass'. We now have sighted something that is suitable for the hammer, not as a tool, but as a corporeal Thing subject to the law of gravity. To talk circumspectively of 'too heavy' or 'too light' no longer has any 'meaning'; that is to say, the entity in itself, as we now encounter it, gives us nothing with relation to which it could be 'found' too heavy or too light."[74] On this basis one can argue, as Dreyfus does, that the Heidegger of *Being and Time* does not understand science as *instrumental* reason for the purposes of control but, rather, as an autonomous relation to the world, one that is motivated independently of praxial concerns and requiring its own set of skills and purpose. The skills involved in observation, as Dreyfus lays them out, are at least these: the ability to i) decontexturalize characteristics of entities from a praxial context, in that one moves from (instrumental) aspects to (theoretical) properties, and ii) "thematize" or recontexturalize these properties by quantifying them and relating them through covering laws.[75] With these skills, one can understand entities in terms of their "being-just-present-at-hand-and-no-more [and that]

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73 Ibid.

74 Ibid., p. 412.

75 See Dreyfus, *A Commentary*, pp. 80-82. With regard to i) Dreyfus notes that in moving from aspect to property, even though we may use the same words—"The hammer is too heavy"—Heidegger maintains that in "the 'physical' assertion that 'the hammer is too heavy' we overlook...the tool-character of the entity we encounter...." See *Being and Time*, p. 413. With regard to ii) Dreyfus notes that Heidegger thus gives us an account of science similar to Kuhn's but that still leaves room for scientific realism. See Dreyfus' Chapter 15, pp. 248-65 for a full account of Heidegger's scientific realism.

these latter entities can have their 'properties' defined mathematically in 'functional concepts'."[76] Thus, as Dreyfus notes, Heidegger's account of the relation between man and tool changes in a situation of permanent breakdown from one of transparency and self-definition to one in which normal praxis is left behind, new skills are invoked, and the resultant facts are recontexturalized in a theory-laden understanding that is captured in the concept and for the purpose of understanding *that*.[77] But this does not mean that scientific practice, concentrating, as it does, on the "things themselves," is potentially self-threatening. Science, or "theoretical research," as Heidegger says, "is not without a praxis of its own,"[78] in which ready-to-hand equipment is decontexturalized from its (everyday) use-context.

V

12. To summarize the above section, the Heidegger of *Being and Time* recognizes ways in which praxis can be suspended through the use of tools but not in a way that these praxial breaks threaten Dasein's very existence. Even with regard to "permanent" breakdown, it is always possible for Dasein to adopt a scientific attitude toward objects and define itself in terms of theoretical research. Permanent breakdowns may be, as Heidegger says, "disturbing to us" but they are not so to the extent that one may no longer be capable of offering a self-description. Obviously, one can "be" a scientist as easily or without any more threat to the self as one can "be" a woodsman or "be" woodsman-turned-mechanic. Moreover, in all these modes of Dasein, self-descriptions can be offered because the nature of the disturbance is no more than a break in praxis and not a total *replacement* of it by (a form of) nonpraxial behaviour through which one could not hold an identity.

Consider, for example, Heidegger's descriptions of the nature of "disturbance" during periods of permanent breakdown. *Before* the woodsman-turned-mechanic may want to redesign the carburetor, his stance toward the world or the workshop is changed from one of submission to or reliance on the references and assignments of that workshop to a

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76 Heidegger, *Being and Time*, p. 122. Heidegger's nonpragmatic depiction of modern science as essentially mathematical can be traced to his understanding of the mathematical in its original, Greek sense. In the "Age of the World Picture," p. 118, he states: "*Ta mathe¯mata* means for the Greeks that which man knows in advance in his observation of whatever is and in his intercourse with things..." He states, also, in *What Is A Thing?* , trans. W.B. Barton, Jr. and Vera Deutsch (South Bend, Indiana: Regnery/Gateway, Inc., 1967), p. 74, that the mathematical "is 'about' things which we really already know. Therefore we do not first get it out of things, but, in a certain way, we bring it already with us."

77 Dreyfus, *A Commentary*, p. 81.

78 Heidegger, *Being and Time*, p. 409.

relationship in which his "circumspection comes up against emptiness, and now sees for the first time *what* the missing article was ready-to-hand *with*, and *what* it was ready-to-hand *for*."[79] In other words, the references and assignments of the workshop become explicit and woodsman-turned-mechanic becomes aware of the way the missing wrench is supposed to function and how it would fit into a practical context. Moreover, Heidegger says that when

> an assignment to some particular "toward-this" has been thus circumspectively aroused, we catch sight of the "toward-this" itself, and along with it everything connected to the work—the whole "workshop"—as that wherein concern always dwells. The context of equipment is lit up, not as something never seen before, but as a totality constantly sighted beforehand in circumspection. With this totality, however, the world announces itself.[80]

What was once taken for granted in the absence of a praxial break comes to the fore and the "world announces itself," or one becomes aware not only of one's equipment, but also, of one's community, which supplies the training and the skills to use equipment and, finally, of the "for-the-sake-of-which's" or purposes that define or bound the practices that tie the community together. Thus, in situations of temporary breakdown, the nature of one's relationship to the world can change in at least these two fundamental ways: i) both entities once understood as ready-to-hand and the assignments and relationships constituting those ready-to-hand entities "obtrude" or "stand out" or are revealed as present-at-hand, entailing, in a sense yet to be explicated, that ii) the "world announces itself" such that the relationship one has with one's community *and therefore oneself* becomes more explicit. With regard to i), Heidegger says that an entity can be disclosed as present-at-hand because, along with and against the background of one's understanding of the ready-to-hand, Dasein's being-in-the-world is structured by "anxiety." Heidegger says that the "present-at-hand, as Dasein encounters it, can, as it were, assault Dasein's being; natural events, for instance, can break in upon us and destroy us."[81]

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79 Ibid., p. 105. Ihde, in his *Technology and the Lifeworld: Garden to Earth* (Bloomington: Indiana University Press, 1990), p. 33, offers a particularly good example to illustrate the changed relation to the workshop: "That a context of involvements related to some technology can be shown by breakdown or malfunction does seem clear. Indeed, in the first serious world shortage of fossil fuel, the 1973 gasoline shortage, the set of involvements of automobiles in a very vast and complex network of industrial involvements became both obvious and frightening. It even stimulated some serious thinking about the need for alternative energy sources and motivated conservational practices to some degree."

80 Heidegger, *Being and Time*, p. 105.

81 Ibid., p. 193.

What is the nature of this ontological assault? How is it, for example, that out of anxiety "circumspection comes up against emptiness"? The first clue Heidegger gives us is that equipment or "entities within-the-world are not 'relevant' at all [such that, for example] the totality of involvements of the ready-to-hand...discovered within-the-world, is, as such, of no consequence; it collapses into itself; the world has the character of completely lacking significance."[82] Thus anxiety is, first, that state of mind or mood in which we simply do not know what to do with "things." With the breakdown of the log-splitting machine, for example, the woodsman-turned-mechanic may become so "unsettled"[83] that, as will be further explicated below, he can find no reason to use the machine. But it is important to note, here, to say that in periods of anxiety equipment no longer reveals itself as ready-to-hand is not to say that his workshop is reduced to a chaotic mass—it is not "empty" in this radical sense. The world still stands as a referential whole. Thus for Heidegger to say that the world is devoid of meaning in anxiety is to allow that the woodsman-turned-mechanic can still recognize the in-order-to of the machine but that the for-the-sake-of-which's which (ultimately) give the use of the machine its point are no longer available.[84] The machine no longer has any involvement in or relevance to the *process* of self-definition.

The second clue Heidegger gives us is that anxiety "individualizes Dasein and...what it does is precisely to bring Dasein face to face with its world as world, and thus bring it face to face with itself as being-in-the-world."[85] Thus with regard to ii) above, with the loss of the understanding of involvement, Heidegger says that Dasein becomes "individualized" and comes "face to face" with its own existence. Part of Heidegger's existential thesis is that Dasein must understand itself in terms of the "they" or the public world that its use of tools points to. But in anxiety, "everyday familiarity collapses" and the "world can offer nothing more, and neither can Dasein-with others. Anxiety thus takes away from Dasein the possibility of understanding itself...in terms of the world and the way things have been publicly interpreted."[86] One, simply put, can no longer exist in such a way that one can define oneself through the use of tools.[87] Another way of putting this is

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82 Ibid., p. 231.

83 Heidegger says that in "anxiety one feels '*unsettled*'. Here the peculiar indefiniteness of that amidst which Dasein finds itself in anxiety comes primarily to expression: the 'nothing and nowhere'." Ibid., p. 233.

84 See Dreyfus' discussion of this at p. 180f. in *A Commentary*.

85 Heidegger, *Being and Time*, p. 233.

86 Ibid.

87 Note Heidegger's description of anxiety in "What is Metaphysics": "In anxiety beings as a

that Heidegger's existential thesis no longer holds when anxiety comes to the fore. As was noted in the previous chapter, Dasein, as being-in-the-world, "is in every case what it can be," meaning that Dasein is always thrown into "definite possibilities," or that Dasein always already exists ahead of itself in order to be what it is. But in anxiety, there are no definite possibilities or "roles" such as being a teacher or house painter that Dasein can take on or understand as meaningful: "that which we have anxiety about is our potentiality-for-being-in-the-world."[88] What is "empty" about the world, then, is that there are no final ends available to Dasein through which Dasein can define itself; Dasein is not available to itself, as it were.

13. Having no final end available does not, however, entail that one cannot offer a self-description if required. On the contrary, it is *in* anxiety that self-descriptions become appropriate and perhaps necessary: "Anxiety makes manifest in Dasein its *being toward* its ownmost potentiality-for-being—that is, its *being-free for* the freedom of choosing itself and taking hold of itself."[89] In anxiety, according to the workshop model, Dasein lives outside its undifferentiated existence as being-in-the-world and is faced, in what can be described as a "moment of truth," with two options: "authenticity" or "inauthenticity." Heidegger says that "Dasein always understands itself in terms of its existence—in terms of a possibility of itself: to be itself or not itself."[90] Consider, for example, that the undifferentiated existence of the woodsman-turned-mechanic is disturbed to the point where he is incapable of finding any point in using the log-splitting machine. His anxiety has become focused on the machine itself and he is now aware that the machine fits into a way of life inherent in which is the destruction of forests, the pollution of rivers, and the like. He suddenly finds this way of life distasteful and recognizes that, *as* a woodsman-turned-mechanic, he is unsettled about his participation in this way of life. He can recognize himself as the woodsman-turned-mechanic he is and choose to "do something about it" rather than passively accepting the social understanding of himself that, as Heidegger says, he has "grown up in."[91] He can, among other things, see the possibility of becoming an individual (in the sense of "coming to terms" with the status quo) by becoming an environmentalist or a politician and, therefore, freeing himself from

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whole become superfluous. In what sense does this happen? Beings are not annihilated by anxiety, so that nothing is left. How could they be, when anxiety finds itself precisely in utter impotence with regard to beings..." See *Basic Writings*, p. 104.

88 *Being and Time*, p. 235.

89 Ibid., p. 232.

90 Ibid., p. 33.

91 Ibid.

the status quo practices of his community. In this situation, Heidegger says Dasein has "chosen these possibilities itself."[92] Or, the woodsman-turned-mechanic could fail to see any meaning in environmentalism or political action and lapse back into his log-splitting activity, essentially re-accepting the understanding he has of himself that he has "grown up in" in order to hide from his anxiety.[93]

The important point for a philosophy of technology is not the nature of authenticity or inauthenticity or how these modes of existence can modify the self. As Heidegger has noted above, it is important at the outset to understand the self in terms of its undifferentiated existence. Thus it is important to note, for the purposes of the argument in this essay, that in anxiety the woodsman-turned-mechanic has, in manner of speaking, offered himself a self-description or could, if necessary, offer a self-description to anyone, for example, who may want to help him overcome his unsettledness. He is capable of answering the question Who am I? In Heidegger's analysis of the workshop, then, there is no evidence for anything like the implication Ellul wants to draw from the technical phenomenon. To the extent that permanent breakdown can lead to focused anxiety on the part of Dasein, it is not *itself* a permanent condition. Dasein always has the option of returning to the referential world, or to a meaningful, self-defining existence, in either the mode of authenticity *or* inauthenticity. In other words, there is, contra Ellul, an "exit." But can we imagine conditions under which permanent breakdown can lead to anxiety in which there is no exit? Is there any way to explain Ellul's technical phenomenon in terms of the workshop model of productive activity such that the use of tools can be threatening to the *undifferentiated* self? I will attempt to argue in the following and final section that the Heidegger of *Being and Time* did not see the possibility that one could find oneself in situations that can be described in terms of anxiety and in which self-descriptions are not possible, *and* that this can be tied to his understanding of equipment.

VI

14. I have suggested above that lacking in Dreyfus' analysis of Heidegger's workshop model of productive activity is consideration of how this model might prepare the way for a technological threat to the self. In connection with this, I have also suggested that

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92 Ibid.

93 As opposed to the unsettledness or "not-being-at-home" of anxiety, Heidegger contrasts "the everyday publicness of the 'they'," which brings tranquilized self-assurance—"Being-at-home," with all its obviousness—into the average everydayness of Dasein." See ibid., p. 233.

Heidegger's workshop model must be modified or at least pushed to the point were it can justify Ellul's technical phenomenon. Only then would we have a demonstration of a form of technological autonomy that is threatening to the self. The critic of technology must show, then, how the technical phenomenon could violate Heidegger's existential thesis and how this violation is tied to technology itself in order to have some ground upon which technology can be analyzed in philosophical (and not historical) terms. We can, I want to argue in this section, construct a demonstration of this from hints the later Heidegger gives us on the relationship between modern technology and the self. As argued at the outset, what might be called the "modern dilemma" is related to the ability or lack of ability to predict and control modern technology but, more importantly, is also related to the very essence of what it is to be a human being. Heidegger describes this (deeper) aspect of the modern dilemma in terms of "homelessness" and invokes phrases like "man today no longer encounters himself" and man "is the functionary of technology." So although Dreyfus has pinpointed the way in which the totalization of the workshop prepares the way for technology, his analysis does not follow up on what the later Heidegger realizes is implied in that totalization. Thus the challenge for the technological autonomist is to answer the question Under what conditions can it be said, in Ellul's words, that "there is no exit" or, in terms adumbrated throughout this essay, under what conditions can it be said that Heidegger's existential thesis is violated and the self cannot offer a self-description?

The workshop model of productive activity allows us to describe praxial conditions under which one might describe the self as insecure but not to the point where a self-description could not be offered. These conditions, all of which are a form of praxial break, are initiated by some form of technological breakdown, the most serious of which is "permanent." But even permanent breakdown is rectifiable and it is on the basis of this rectifiability that the workshop model of productive activity does not allow the description of the self as *necessarily* insecure. Heidegger's existential thesis, that is, is not violated even by a turn to theoretical reflection, whereby the self stands over and against the object as a thing in itself in order to "repair" the machine. Because science has a "praxis of its own," at least as Heidegger understands science in terms of the workshop model, there are no grounds upon which Ellul's technical phenomenon can be given an ontological explanation. But Heidegger's understanding of equipment is altered in one very crucial way in his "post-workshop" thought, and so is his understanding of science. With regard to the former, one can argue that what are called "permanent breakdowns" in the workshop model are no longer assumed to be rectifiable. With regard to the latter, science is no longer

understood to be autonomous, or unexplainable in terms of power. Moreover, and connected to these changes, Heidegger's understanding of anxiety changes. These are all clues the technological autonomist can take to show conditions under which the existential thesis of the workshop model can be violated and therefore, offer support for Ellul's technical phenomenon. We must describe, that is, conditions under which the self has "no exit" or under which the self cannot offer a self-description.

15. As noted in Chapter 1, the later Heidegger emphasizes the role technology plays in modern man's "homelessness," which he describes at one point as a "resettlement in the wastelands of industrial districts." He also says that modern technology embodies the "spirit of the age" and an element of that spirit, or the motivation for "technological resettlement," is the promise of productive security. Using atomic energy as an example, Heidegger notes that modern man no longer needs to concern himself with the search for energy. But Heidegger also says that modern technology has "outgrown" man's capacity for decision such that no "merely human organization is capable of controlling it." There is another side to productive security, then, and although this other side may at first seem like a purely technological problem, Heidegger is careful to put it in terms of "man's essence." Implied in what I have called the modern dilemma—having productive security on the one hand but not having the capacity to control the means to that productive security on the other—is a modification of the human condition such that, as Heidegger phrases it, "man no longer encounters himself" in his "essence." Thus inherent in the promise of productive security Heidegger sees a threat to the self. So if we are to unpack the ontological structure of this threat in terms of the workshop model, one point at which to begin might be through investigation of what Heidegger means by his description of modern man as "homeless" such that his homelessness is self-threatening.

Heidegger associates "homelessness" in the workshop model with anxiety. To be anxious, Heidegger says, means "not-being-at-home."[94] Heidegger defines anxiety in *Being and Time* as an ahistorical or basic feature of Dasein's being-in-the-world.[95] As noted above, the anxiety that is an essential feature of being-in-the-world is focused during periods of permanent breakdown. Heidegger describes anxiety during periods of permanent breakdown in terms of being "unsettled" to the point where "anxiety takes away from Dasein the possibility of understanding itself in terms of the world and the way things have been publicly interpreted." But in his post-workshop thought Heidegger tends to

94 Ibid., p. 233.
95 Ibid., p. 191f.

understand anxiety more in historical terms. His post-workshop thought characterizes anxiety, in Dreyfus' words, as "a *specific* response to the rootlessness of the contemporary technological world."[96] Heidegger, that is, characterizes anxiety as a response to the "spirit of the age" and not as a basic feature of human existence, although he still associates it with homelessness. In other words, anxiety as a response to what the spirit of the age is embodied in, modern technology, is both ever-present in the modern age and unique to that age. Thus in some sense we must allow for the logical possibility that, *in general*, Dasein understanding itself in terms of the world is problematic with respect to modern technology. And this opens up the possibility of outlining praxial conditions under which a self may be described as necessarily insecure, or conditions under which Heidegger's existential thesis is violated because of something inherent in technology and under which Ellul's technical phenomenon begins to look more defensible.

To outline these praxial conditions, the autonomist has at his or her disposal Heidegger's description of modern technology as uncontrollable. Consider that according to the dictates of the workshop model, equipment is understood as either ready-to-hand or present-at-hand but when understood in terms of the latter, readiness-to-hand is never completely lost. The logical upshot of Heidegger's characterization of equipment as possibly present-at-hand but never (completely) "un-ready-to-hand" is that the workshop model, at least as it is outlined in *Being and Time*, holds that even permanent breakdown is to be seen as necessarily rectifiable. Consider also Dreyfus' observation that the Heidegger of *Being and Time* understood equipment in terms of "taking care of it" but "care" here (and we will need to return to this below) is rather closer to the way an industrial foreman "inspects," "checks up," or "looks over the operations."[97] Thus Heidegger saw care in *Being and Time* as a form of *management.* To say, then, that permanent breakdown is necessarily rectifiable is to say that technology is inherently manageable. But this begs Heidegger's latter characterization of equipment or modern technology as uncontrollable. This means that we must allow for the possibility of permanent breakdown that is *nonrectifiable*, in that readiness-to-hand is either completely lost *or* is not existent in the first place. The Heidegger of *Being and Time*, that is, does not recognize the possibility that equipment can "be" such that it is not necessarily at our "disposal" and, therefore, that it must be characterized in terms *other* than "for" Dasein. I want to suggest below that such a characterization of equipment can be captured with the notion of manageability and argue

96 Dreyfus, *A Commentary*, p. 337. (Emphasis added.)

97 See Dreyfus' discussion at p. 177, in "Between Techne and Technology."

that this supplies the key to the identification of the ontological structure of the threat technology presents to the self.

16. Of principal importance to the autonomist position, then, is an explication of the notion of manageability that has at least *prima facie* plausibility. We have noted how Heidegger's understanding of anxiety shifted in his later work in that he came to see anxiety as a permanent response to the inability to control modern technology. This suggests, as indicated immediately above, that in order to make sense of this (historical) sense of anxiety *and* the connected description of modern technology as uncontrollable we must allow for the possibility that there is an implied change in Heidegger's understanding of the being of technology as essentially ready-to-hand. We must now try and make sense of the notion that there are inherently unmanageable technologies and ask about the existential significance of the "use" of these technologies. If the autonomist, that is, can begin to argue that modern technology, or at least some examples of modern technology, are unmanageable *in principle*, then there is ground upon which to argue further that under conditions of nonrectifiable permanent breakdown the self is necessarily insecure. In this way the autonomist would show how *Being and Time* prepares the way for the "takeover" of the self.

Perhaps the strongest argument that certain technologies are unmanageable in principle has been made by Charles Perrow.[98] He makes his argument in terms of the systemic characteristics of what he calls "high-risk" technologies, such as nuclear reactors. Perrow introduces the term "normal accident" to designate those technologies for which accidents are *inevitable* as opposed to probable or highly probable.[99] If any given technology is both interactively complex, or when there are "two or more failures among components that interact in some unexpected way," and tightly coupled, or when "processes happen very fast and can't be turned off, the failed parts cannot be isolated from other parts, or there is no other way to keep the production going safely," then a "normal accident" can be expected.[100] These characteristics, it is important to note for later

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98 See Charles Perrow, *Normal Accidents: Living With High-Risk Technologies* (New York: Basic Books, 1984).

99 Ibid., p. 5, where he states that the term normal accident is "meant to signal that, given the system characteristics, multiple and unexpected interactions of failures are inevitable. This is an expression of an integral characteristic of the system, not a statement of frequency."

100 Ibid., pp. 3-5 and especially Chapter Three, pp. 62-100, for a discussion of interactive complexity and tight coupling.

comment, are for Perrow *integral* to the physical organization of the technology in question: unmanageability, on this account, is a function of *design*.[101]

There are approaches other than systematic one can appeal to when offering descriptions of unmanageability that are tied to the design of technology. An historical approach to the notion of unmanageability, again using nuclear power as an example, might take the following form. The technology of nuclear power is constituted by elements in the entire nuclear chain. So even if any given society eradicates the nuclear reactor and thereby cuts a chunk of unmanageability out of the technology, there is still the problem of the management of nuclear fuel or nuclear waste. Plutonium, which exists by virtue of human design (at the University of California, at Berkeley, during World War II), is an intended by-product of some designs of nuclear reactors currently on line. Plutonium has a half-life of 24,000 years, which means that it takes 250,000 years before it becomes harmless. Thus, after the life of the reactor itself has expired—normally, 20-25 years—plutonium must be stored "safely" for a period of time longer than any culture in human history has lasted. Even if the technical difficulties could be worked out and the waste "properly" managed there are still, at the very least, political circumstances that defy prediction: How can we be sure that future cultures will behave "appropriately" with regard to this element of the technology even if we can convince ourselves that ours can?[102]

Thus far I have concentrated on describing a particular example of modern technology as unmanageable for purposes of illustration (i.e., against the backdrop of Heidegger's workshop model in *Being and Time*). Normally, though, unmanageability is recognized as problematic in nonspecific terms. One way to clarify unmanageability from this perspective is to unpack the notion in terms of "domains of ignorance."[103] One can argue, that is, that new domains of ignorance are constantly discovered as *any* type of

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101 For another example of the unmanageability of nuclear reactors, one based on the impossibility of quantifying the concept of "operator error," see Gordon Thompson, "Regulatory Response to the Severe Accident Potential of Boiling Water Reactors With Mark I Containments," in *The Consequences of a Severe Accident at the Fermi II Atomic Power Plant*, ed. Hutchinson, Meleg, Disch, pp. 25-51. (Harrow: Iler Research Institute, 1992). Thompson notes that the nuclear industry and its regulators are dependent upon what are called Probabilistic Risk Assessment studies to determine the chances of various types of failures, especially those which can lead to severe accidents, as per Chernobyl. But he argues that even this "state of the art" approach fails because of, among other factors, the impossibility of quantifying human behaviour to the point where one can predict operator error with any degree of certainty. Operator error is the leading cause of severe accidents in the nuclear industry.

102 Something like this approach is hinted at by Dennis Hayes, *Nuclear Power; The Fifth Horseman*, (Washington, D.C.: Worldwatch Institute, 1979).

103 See Henry A. Reiger, "'Will We Ever Get Ahead of the Problems?'," in *Aquatic Toxicology and Water Quality Management* ed. J.A. Nriagu. (New York: John Wiley, 1989), pp. 1-6.

technological innovation proceeds, and that this results in situations in which it is not always evident what one is or ought to do. By far, the most common reaction to unmanageability described this way is to try and rectify the unmanageability thus presented; in effect attempting to manage what is recognized as unmanageable. One, here, can characterize it as a problem germane to decision theory and attempt to develop principles upon to which one can appeal when "making decisions under ignorance."[104] Perhaps one of the more thoughtful examples of this approach is found in Ursala Franklin's suggestion that rather than using (male-centred) reductionistic techniques such as risk assessment to maximize gain, we adopt what she calls a (female-centred) holistic management approach, which approach traditionally takes into account context and attempts to minimize disaster.[105] Whether either of these approaches prove fruitful—whether the management of the unmanageable is empirically possible—is indeed a very hard question to answer. This much is clear, though. Those who would attempt to control technology with more technology are still faced with what I have called in Chapter 3 the perpetuation objection and this, indeed, is a very hard objection to meet, given the lack of any credible empirical evidence to the contrary. We are left, as a result, with the necessity of looking at technological innovation from a different perspective.

Ellul and Winner, for example, have attempted to capture unmanageability *writ large* with the notions of "self-augmentation" and "technological drift," which notions point toward the possibility of criticizing technological innovation *itself*. Ellul argues that modern technical growth is *geometric*, meaning that once an improvement of technique is introduced into the overall ensemble of techniques, its consequences are literally incalculable. Winner argues that technological drift is the result of the "accumulated unanticipated consequences" of innovation, all of which is characterized by uncertainty and unintention.[106] One recent example of a critical approach to technological innovation, in a book aptly entitled *Fast Forward and Out of Control*," is Heather Menzies' call for a "negotiation of a post-industrial social contract." As she states, the "issue of technology" is "really what vision of society, what conception of progress, do we share against which...technology can be evaluated.... To what premises, what priorities should the

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104 See, for example, the discussion found in David Collinridge, *The Social Control of Technology* (London: The Open University Press, 1980), pp. 13-22.

105 See her *The Real World of Technology* (Concord, Ontario: Anansi, 1990), pp. 82-85. Franklin should not be placed solely in the decision theorist camp, though. Hers is an approach that is centred on the social and political aspects of technology, as is characteristic of those who tend to assume the conductivity model of productive activity in their thought on technology.

106 See Ellul, *Technological Society*, pp. 89-94, and Winner, *Autonomous*, pp. 88-100.

design...of technology be accountable?"[107] What I want to suggest in what follows and in some concluding remarks is that an answer to *this* kind of question can be found by investigating the existential significance of the unmanageability of modern technology.

17. Given the account of unmanageability above, it is significant to note at the outset that there are two related points the autonomist can make with regard to Marx's characterization of technology as necessarily conductive and with regard to Marx's understanding of the social and political nature of productive activity. As noted in Chapter 3, Marx's notion of conductivity is germane to his philosophical anthropology and that this qualitative aspect of technology is (analytically) separable from the purely quantitative "level" (of efficiency) of the productive forces. As also noted in Chapter 3, the inherent conductivity of technology is that which can be formed according to human design and that to the extent one can ascribe a lack of conductivity to technology this lack will always be in relation to the social and political circumstances surrounding its use. But the autonomist can now argue that i) conductivity is *not* a necessary feature of certain technologies, and he or she can do this on the basis of a design argument, and ii) when man finds himself in a condition of alienation with respect to technology, Marx's revolutionary praxis, or worker development and management to ensure the conductivity of technology, is not necessarily a solution to the problem of alienation.

But perhaps a more important upshot of the classification of technology according to its manageability is that we now have at our disposal a description of technology with which one might outline, in terms of the workshop model of productive activity, the praxial conditions under which a self may be described as necessarily insecure. We can put this in the form of a question, in terms of the conductivity model of productive activity. If the being of technology is such that it can be nonconductive of man's self-realization under *any* given set of social or political circumstance and if, as has been suggested above, having an identity is ontologically prior to and necessary for realizing one's species-being, then the question naturally arises How is nonconductivity to be described in terms of the workshop model of productive activity? In terms of the workshop model, the being of technology as nonconductive implies, first, that equipment must be described as present-at-hand *in its own right*, with no ontological tie to the referential whole, which whole constitutes readiness-to-hand. This is to say that presence-at-hand as an ontological category is not necessarily tied to the being of equipment as ready-to-hand; and this is to say further,

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107 Heather Menzies, *Fast Forward and Out of Control: How Technology is Changing Your Life* (Toronto: Macmillan, 1989), p. 626.

according to the logic of the workshop model, that permanent breakdown *can* be nonrectifiable. What is expressed, then, in notions like "self-augmatism" or "technological drift," which are meant to capture the unmanageability of modern technology, is the realization among (some) moderns that readiness-to-hand is not an essential but rather an *accidental* feature of equipment.

To follow the logic of the workshop model of productive activity one step further, we can say that what this means in existential terms is that contrary to the picture given by Heidegger in *Being and Time*, there is an "total" or double loss of transparency, and it is this loss that violates Heidegger's existential thesis. This is fairly obvious on what we can call the tool side of Heidegger's transparency thesis. As formulated in the previous chapter, this side of the transparency thesis states that when we use tools, it is generally the case that the various pieces of equipment we encounter remain *transparent* to our various concerns. But the workshop model, with its characterization of equipment as essentially ready-to-hand, forces us to read this side of the transparency thesis in much stronger terms, such that when it is not the case that tools remain transparent to our various concerns in general, it is always possible that they can be made to do so. This is just another way of saying that even "permanent breakdown" is rectifiable. But in the (as the later Heidegger says, vain) attempt to manage the unmanageable, there is no possibility that the tools can become transparent to our various concerns.

The transparency thesis also implies that we, the users of tools, remain transparent with respect to the tools we encounter in the concern we have with our work. Heidegger says that we unthinkingly follow or "submit" ourselves to the practical grammar of the workshop, otherwise we would not be able to "use" a tool. But to say that a technology is unmanageable is just to say that there is not a practical grammar, within the "sea of ignorance," as in the above, to which we *can* submit ourselves. During periods of instrumental breakdown that are rectifiable, this is not necessarily existentially damaging. But during periods of permanent instrumental breakdown that are *non*rectifiable, what Heidegger identified as Dasein's focused anxiety in the workshop model becomes, as he later realized, a *permanent* response to praxial conditions under which the "emptiness" Dasein experiences during periods of anxiety results in the loss of the communal for-the-sake-of-whichs through which Dasein defines itself. That these praxial conditions involve a permanent response entails that there is a total loss of transparency and, therefore, a nonrectifiable break in the *process* of self-definition, which break violates Heidegger's existential thesis. In essence, the self can be described as necessarily insecure because it

cannot understand itself in a *definite* way, in terms of its own possibility to be, as was laid out in the previous chapter, and, therefore, could not, if called upon, offer a self-description.

Ellul's technical phenomenon captures the essence of this nonrectifiable praxial break at least in this sense, that is to say, in that it asserts, in effect, that the self becomes indistinguishable from the machine. But we must not read Ellul's claim to mean that we are indistinguishable from our tools in the sense of being transparent with respect to those tools. Ellul's means that in *being* indistinguishable from our tools we cannot understand ourselves in terms of a for-the-sake-of-which, that our tools, as noted above, are "no more than a neutral bridge between reality and abstract man." Heidegger's transparency thesis decrees exactly the opposite of this: it says that in being transparent with respect to the grammar of the workshop the grammar of the workshop, which grammar constitutes a tool's readiness-to-hand, is *for* Dasein rather than *of* Dasein. Only when it is for Dasein can Dasein be properly described as that kind of entity "delivered over to [its] own being [such that] *being* is that which is an issue for every such entity."[108] In terms of the conductivity model, the grammar of the workshop is that which makes technology conductive of man rather than recalcitrant or alienating.

In the end, Heidegger's understanding of equipment in the workshop model of productive activity lays the ground for the "takeover" of the self in that it does not recognize the being of equipment as anything other than "repairable" or manageable. In *Being and Time*, that is, Heidegger does not recognize the existential possibility that Dasein could find itself, *because* of the inherent unmanageability of technology, anxious to the point where it could not "be for its own sake." In this *existential* sense, technology can be described as "autonomous," that is, as unavailable for Dasein in the *process* of self-definition. Thus to describe technology as autonomous in terms of the workshop model of productive activity is not to ascribe to technology any form of agency—an inherent *dynamis*—and therefore is a description of technology not rooted in the radicalization of the tool-use model of productive activity, as outlined in the Chapter 1. To recall Winner's observation, technology does not "somehow" become autonomous; rather, it is *designed* this way. So the question is not so much "how' does technology become autonomous but rather What is the motivation that leads to autonomy as that which is designed? Before this latter question can be resolved, though, there are a few brief points one must make about the later

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108 Heidegger, *Being and Time*, p. 67.

Heidegger's understanding of science or more precisely, about the role science plays in modern productive activity.

18. For the purposes of the present discussion, the crucial element in Heidegger's changed understanding of the nature of scientific understanding is his conviction that science became "instrumentalized."[109] In concert with Dreyfus, one may argue that Heidegger's understanding of nature as that which is ready-to-hand anticipates the modern, technological understanding of nature as standing-reserve.[110] We can also note that in the workshop model, this conception of nature is contrasted with the "nature" of science, which is essentially an abstract nature, or one present-at-hand and reducible to mathematical concepts. But if, as Heidegger later came to realize, the essence of technology is the mathematical or scientific ordering of the world as standing-reserve, then can science retain its "workshop" autonomy? According to the workshop model, what we traditionally understand as an "object" disappears in equipmentality. Objects in the traditional sense are retained as present-at-hand for science or for "theoretical observation." In Heidegger's post-workshop thought, though, "whatever stands by us in the sense of standing-reserve no longer stands over against us as object."[111] Thus, if a base requirement for the autonomy of science is its "objects" and if a subjective/objective stance is no longer possible once the world is reordered as a standing-reserve, the autonomy of science must come under question.[112]

Heidegger, indeed, came to believe that "technology is ontologically prior to science"[113] in just this sense: that science, in the modern era, is at the service of what I have called, following Dreyfus, the totalization of the workshop.[114] This implies that one

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109 For an account of this shift, see Drew Leder, "Modes of Totalization: Heidegger on Modern Technology and Science," *Philosophy Today*, XXIX, No. 3/4 (Fall 1985), pp. 245-316.

110 See Don Ihde, *Technics and Praxis* (Boston: D. Reidel Publishing Company, 1979), pp. 125-126.

111 Heidegger, "The Question Concerning Technology," p. 17.

112 See Ihde's, *Technics and Praxis* , discussion of this, at pp. 125-6.

113 For an excellent discussion of this, see Don Ihde, "The Historical-Ontological Priority of Technology Over Science," in *Philosophy and Technology*, ed. Durbin and Rapp (Boston: D. Reidel Publishing Company, 1983), pp. 235-252.

114 Leder, "Modes of Totalization," phrases it in this manner; "[I]n his later work, Heidegger comes to recognize crucial differences in the modes of presencing which distinguish historical epochs.... He becomes centrally concerned with articulating the essence of presencing specific to the modern world. One might rephrase his insights as follows: in the current age, presence-at-hand, in the form of mathematical science, lies crucially in service to, and prepares the way for the readiness-to-hand of the world viewed as standing-reserve. Far from being a mere deficient mode of readiness-to-hand emerging when objects become unusable or resistant, the modern scientific exploration of presence-at-hand plays an essential role in preparing objects for

can take the understanding of nature as ready-to-hand as the necessary condition for modern productive practice and the loss of scientific autonomy as the sufficient condition.[115] To put this in praxial terms, the later Heidegger became convinced that science has become absorbed into what was once "everyday" praxis. It is just this absorption that I think Ellul's technical phenomenon captures, and in such a way that it is possible, given that "reason and consciousness" can (and perhaps will) design inherently unmanageable technologies, that technology can become a threat to the self during non-rectifiable breakdowns. As suggested above, the force of Ellul's conception of the technical phenomenon can be seen through the mediation of knowing how by knowing that.

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use, envisioning them in a way which allows them to be subsumed into equipmentality...." See p. 254.

115 See Ibid., pp.. 127-8.

Conclusion

1. I have argued that the autonomist claim that technology is a threat to the self can be demonstrated by appeal to the notion of nonrectifiable praxial breakdown, which notion is rooted in the later Heidegger's understanding of anxiety as a permanent response to the unmanageability of modern technology. But to show the ontological possibility of a necessarily insecure self, it was imperative, first, to argue against Ellul's claim that the technological threat to the self follows necessarily from the technical phenomenon. This amounted to showing how Heidegger's existential thesis is not necessarily violated by either the application of reason and consciousness to the productive process or by man's changed relationship to nature. This may or may not have very desirable consequences for nature but the philosophical point that the technical phenomenon is not *as such* a threat to man's essence must be made. The woodsman-turned-mechanic, that is, is still a self-defining being even though he no longer recognizes nature as possessing an inherent teleology, even though he is a participant in modern productive practice.

Thus it is crucial to note that not all modern technology *requires*, as Ellul says, "the complete separation of the goal from the mechanism, the limitation of the problem to the means, and the refusal to interfere in any way with efficiency." In terms of the language used to outline the two selves in the introduction of this essay, the woodsman-turned-mechanic can still be described in terms of a secure self, as this is manifested in classical man. At most, the woodsman-turned-mechanic is subject to permanent breakdowns of the rectifiable sort. And this is to say that not *all* modern means are discontinuous with classical end. So it is not so much a form of activity that is contrary to the self but, rather, technology, and only those technologies that can be described as unmanageable in principle. They "assault our being," as the later Heidegger recognizes, such that anxiety becomes a permanent response to that unmanageability. Thus one *can* describe modern or Cartesian man in terms of a necessarily insecure self, because in a state of permanent anxiety, the communal ends and practices that go to make up the undifferentiated self are permanently unavailable during periods of nonrectifiable breakdown. We would not want to say that Cartesian man *is* necessarily insecure—we would not be able to explain the behaviour of the woodsman-turned-mechanic—but, rather,

that when the explicit use of power involves the use of unmanageable technologies, Cartesian man must be described in this way to capture the full existential significance of his conduct.

2. To expand on the latter point, I proposed earlier in this essay that in order to prove the thesis that modern means can be necessarily at odds with classical end one would need to i) describe the conditions under which classical man can manifest an insecure self and ii) give reasons for not describing classical man as an insecure self. In other words, how is it that Cartesian man must be described in terms of an insecure self whereas classical man escapes this requirement? I have suggested that the latter question rests on a philosophically coherent answer to the further question What is it about an ontological disposition to the explicit use of power that can manifest a necessarily insecure self? With regard to i), we have discussed that classical man can manifest an insecure self under conditions brought forth by the more extreme forms of praxial break outlined above. As also outlined above, breakdowns occur but as a rule they are rectifiable. This holds for both the woodsman and the woodsman-turned-mechanic and their respective understandings of nature. This is to say that anxiety and the resultant loss of the communal ends—the various identities and the practices that fix those identities that Dasein "grows up with"—is temporary, as the early Heidegger emphasizes. Classical man cannot be described as necessarily insecure because his community is always available to him. And classical man can draw on the (pre-existing) resources of his community to offer a self-description if required.

With regard to ii), though, Cartesian man, who is prone to the explicit use of power, can be defined as a necessarily insecure self if we recognize the possibility of nonrectifiable breakdown and the resultant loss of community. This follows by definition. But *how* is it that Cartesian man becomes an essentially insecure self? As noted in Chapter 1, given Cartesian man's calculating or disengaged stance toward nature, we must consider the possibility that he can offer a self-description albeit in disengaged terms. There are three points with regard to this latter possibility. First, as noted in the first chapter, the ontological security enjoyed by Cartesian man is not one that is *naturally* binding. This is what it means to say that Cartesian man's freedom is a radical freedom, the source of which is a re-secured self such that, as stated in Chapter 1, "he *is* only insofar as he is in and for himself, that is to say, insofar as he is in *control*." One way to see what is involved here is to note the replacement of what stands at the root of the ontological security enjoyed by classical man, the practices and traditions of his community, with the practices and traditions of another *form* of community. As the workshop model allows, science has its

own praxis too. To be sure, this is not a naturally binding source of ontological security but one can argue, as I have above, that scientific practice nevertheless is self-defining. And, in accordance with the workshop model of productive activity, Cartesian man could, therefore, offer a self-description in terms of himself as one who is motivated by controlling nature for the good of mankind.

But, second, to say that Cartesian man always has available to him the possibility of defining himself in disengaged terms begs the later Heidegger's concern with the modern dilemma. The workshop model, as argued above, does not recognize the possibility of unmanageable or autonomous technologies and the praxial significance thereof. The praxial significance of technological autonomy, I have further argued, is rooted in non-rectifiable praxial breakdown, such that under conditions of which any form of community breaks down or under which all forms of significance are (for all philosophical intents and purposes) permanently unavailable. Thus the driving motivation of Descartes—to marry modern means with classical end—can lead to existential conditions under which we would want to say that the self is necessarily insecure. Third, the process under which these conditions can be realized is the loss of scientific autonomy or the instrumentalization of science. It is through the latter, in which the "laboratory" is extended into what was once naturally binding,[1] the community, that unmanageable technologies can exist. It is just this extension of the laboratory or, as phrased above, the "totalization of the workshop" or the "absorption of science into everyday praxis" that gives the explicit use of power existential significance.[2]

Neither the tool-use nor conductivity models of productive activity allow one to describe Cartesian man in terms of the praxial dimensions of the explicit use of power. The first fails miserably because of its absolute distinction between man and tool and the second, albeit with a more sophisticated account of the relationship between man and tool, still does not see praxial frustration as tied to technology itself. Thus the workshop model, at least if it is expanded to recognize the possibility of non-rectifiable praxial breakdown rooted in "equipment," seems to be the best bet for generating a solution to the modern dilemma. The workshop model, that is, gives us an account of anxiety and how this concept, if taken ontologically, is interwoven with the (lack of) community. Another way of putting this is to say that although Marx realized the community had social and political

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1 See, for example, Joseph Rouse's treatment of this in his *Knowledge and Power: Toward a Political Philosophy of Science*, (Ithaca: Cornell University Press, 1987).

2 On the non-juridical nature of this power see Rouse above, "Science and Power," pp.. 209-247.

significance, it is Heidegger that recognizes the community's role in the definition of the self. For Marx, technology is only "for" the community if the community adapts to it. But I want to suggest that a Heideggarian reading of the relation of the self and technology it is rather the other way around (whether one admits the existence of autonomous technology or not). Technology, that is, can only be for the community if it is *contained* within the community.

3. What I am suggesting is that if the anxiety of the modern age results in the stark "individualization" of Dasein and if this individualization is rooted in the loss of community, then technology can only present a threat to the self if it renders impotent the communal practices and ends inherent in those practices that go to make up the undifferentiated self, that go to make a self-identity in the first place. And it follows logically from this that technology must be contained within the community to stave off any possible threat to the self. This entails that the manner in which we produce material security need not invite social and political adaptation to technology but, rather, adaptation of technology to the community or the way we want the community to be, which ultimately points to or makes possible the way we want to be.

What can possibly be meant by an appeal to what we might call the "principle of containment" by which technology is "adapted" to the "community" is admittedly obtuse and a full philosophical and empirical explication of a principle of containment cannot be undertaken here. Nevertheless, there are some preliminary suggestions and observations that can be made. In terms of a workshop model of productive activity that includes the notion of non-rectifiable breakdown, the notion of containment suggests that if any given manner of producing material security is to be contained within any given community, then that technology will have to be capable of meeting Heidegger's requirement for transparency. It will need to be capable, as Heidegger says, of disappearing within daily praxis. Nuclear technology, for example (as well as many other forms of technology that might not be described as unmanageable), obviously does not fit this requirement. Thus to say that technology is "adapted" to the community will indicate that it is designed to disappear (as opposed to but not necessarily at odds with being efficient) in at least this sense: it will not require that we pay more attention to it than to the end it serves. That "technology" is even a topic of philosophical discussion indicates that we are far from this kind of adaptation.

How these considerations are to be interpreted will depend on how literally one takes "community" and "containment." One steeped in the Marxist tradition, for example,

might well agree with a "workshop" analysis of modern industrial society by conceiving of community in global terms and by defining technology as contained, so long as the latter is manageable and managed by workers. On the other hand, one steeped in a traditional farming community might be more prone to understand community in a more literal, geographically centered fashion. This will colour her understanding of containment. And, therefore, her picture of what modern society could be like might be far from the highly industrialized and centralized society of the Marxist. The farmer and the worker may even compromise on the notions of "community" and "containment" and agree to a society in which "windmills" exist alongside cooperatives. These, then, are some of the base considerations that must be taken into account for a philosophical appraisal of the manner in which material security is attained. However one interprets these considerations, they lead us away from purely "ethical" or "social and political" attempts to deal with the modern dilemma and invite us to concentrate on the design of technology, its architecture, and take what might be called a praxial approach to the role technology might reasonably play in our lives. Concrete examples of technology that might be less prone to praxial breaks than those currently in vogue and counter arguments to the inevitable charge that what I am calling for is driven by nothing more than nostalgia for days long past must be supplied. But suffice it to say for now that I think it is possible to contain technology within the community, at least to the point where modern man will no longer need to grasp so hard for a *telos.*

4. In conclusion, it seems that there may be two fundamental objections levied against a praxial approach to technology, at least as I have outlined it above. Answers to these objections allow for the *location* of the technological threat and its proper *characterization.* The first objection is this: I have followed Heidegger and argued that self-identity is determined by the anyone (community) but that it is possible to be shaken out of this identity and go authentic (i.e., as an ecological activist). In a sense, the "authentic" possibility of being an ecological activist is partly attributable to the community—the notion of an Athenian ecological activist is incoherent—but it is more determined by the existence of subcommunities. Now, if we allow for the existence of subcommunities, which can support self-identity, how can one argue that technologies can come along and prevent self-definition? Even in societies that are defined through the use of "unmanageable" technologies, there are counter modes of self-definition available through oppositional stances. In the oppositional stance, there is no attempt to manage the unmanageable but, rather, to eradicate, and therefore, according to my thesis, no possibility of praxial frustration. So the nuclear society, the objection goes, does not *necessarily* prevent the

possibility of self-definition. I must, that is, allow that the hegemony of the community is never total and that the possibility of self-definition is ever-present. In essence, it's not the case that one is required to "manage" the "unmanageable" to allow for the process of self-definition (which is implied in my thesis) *and this means* that I have not identified a form of praxial frustration that is tied to technology (as opposed to social relations).

In answer to this, the "counter mode" objection, I want to argue that there comes a point with technologies that can be described as "unmanageable" where we are all caught up in the horror, as it were. Even the ecological activist is affected by this. For example, even in an oppositional stance to nuclear technology, the ecological activist's identity (or the "authenticity" of that identity) is threatened because she can't simply step out of the technology/way of life/community and completely adopt another, subcommunal identity. She is still tied to the threat technology presents to the self in virtue of the fact that the unmanageable must be managed in order for *any* food, clothing, and shelter to be produced. If we can describe nuclear accidents as normal, then it follows that the ecological activist, with the solar panels on the roof, the organic garden in the backyard, etc., will suffer when an accident does occur, as much as anyone else. And this activist or the whole subcommunity of ecological activists, and the ecological activist generations following them, are by necessity responsible for the proper management of nuclear waste, as per the above example. The way I read Heidegger is that to have an identity one must be *coherently* engaged in the workshop but if everybody's workshop is in chaos, if the garden is full of radioactive material, then there is a grievous loss of transparency, for *everyone*. I think that we moderns must admit that this is at least a logical possibility (whereas an Athenian would not need to). Therefore, *counter modes are available to moderns but the technological threat to identity is not therefore eradicated.*

It is important, then, to note the *location* of the technological threat to the self. At first glance, one might be tempted to argue that the technological threat to the self is global. This is, for example, what is suggested in Ellul's description of modern, technological society. But, as noted at the outset, it is rather the current ecological crisis that is global and this crisis is global because modern technology is global. Heidegger wants to argue, though, that the technological threat to man *precedes* the environmental threat. As noted in the first chapter, Heidegger cautions that an "attack with technological means is being prepared upon the life and nature of man compared with which the explosion of the hydrogen bomb means little." So it is in this ontological precedence that we must find the technological threat to the self. I do not deny, therefore, that one can escape the threat to a

certain extent by living in subcommunities, perhaps even far away in a land where people have never heard of nuclear reactors. But the threat that technology presents to the self is one that cannot be described in geographical terms; rather, as I have argued, it is one that must be described in praxial terms alone. This is to say that at some point problems inherent in (vainly) attempting to manage modern technology will inevitably effect us all, in our very nature. Nor am I arguing that a nuclear engineer will feel the threat so acutely that she will be unable to get out of bed in the morning, or walk down the street without falling down. It is rather that nuclear engineers especially bring into existence technologies that prevent the formation and maintenance of average ways of being and in this sense frustrate our praxial nature.

So the technological threat to the self, at least as we know it today, is perhaps best characterized as a more or less affair. Commensurate with our dependence on technologies that are unmanageable is an undermining of our undifferentiated self, and the loss of intelligibility and meaning that comes part and parcel with that way of being. And this, for all practical purposes, must be balanced against the existence of subcommunities, even though, as I have argued above, the existential efficacy of subcommunities cannot totally escape the opacity of unmanageble technologies (like nuclear power). Consequently, how acute one thinks the threat actually is may very well depend on how optimistic or pessimistic one is about the modern dilemma, and also what kinds of empirical considerations one would be willing to admit into the debate. But this concern, and how we might resolve it, is outside the scope of the present argument. The point that needs to be made here is that the technological threat to the self, to whatever extent it exists, is a "background" threat and that this is what it means to say that it (ontologically) precedes (and yet is still related to) the modern ecological crisis.

5. This second objection may be introduced in the following way. I have put all my philosophical eggs in the "unmanageable" technologies basket, and this seems to lead me away from a Heideggarian approach to technology. Specifically, the later Heidegger identifies the technological threat to the human essence with a mode of revealment, which has more to do with the suppression of the human power of poetry than (the design of) technology. Indeed, the threat that Heidegger identifies could be perpetuated even with manageable technologies because the technological mode of revealment, or the relegation of beings to standing-reserve, could still be left unchanged (and the human power of poetry left untapped). Furthermore, it is not clear how the principle of containment would solve this problem. Therefore, I must still show:

1. Why unmanageable technologies make self-definition impossible, even for those who go along with them, since "The instrument still fits into the whole project."
2. Even if unmanageable technologies make self-definition impossible, how would manageable technologies stave off the threat to the human essence that relegating beings to standing reserve constitutes, which threat Heidegger says is this: the inability to recognize oneself in one's involvement with the world. ("Man no longer encounters himself in his essence.")
3. How a principle of containment helps show 2.

With regard to 1., if what I have tried to show in answer to the first objection has any plausibility, then the answer to this problem can go something like this: the instrument *does not* fit into the whole project. We don't have a project in a strong sense, or at least the sense that the workshop model demands. In a weak or literal sense we do: we still make and use power with nuclear power plants but the project gets more unmanageable (less transparent) all the time, to the point where it begins to fall in on itself. Notwithstanding the possibility of subcommunual definition, then, the praxial circle that is self-definition, that constitutes the human essence, is fractured by instruments that make projects in the workshop sense untenable, and thus the threat to the self is tied to technology. I can expound on this in answer to 2. and 3. in terms of Heidegger's notion of "care."

It is crucial to distinguish between two notions of care that can be found in Heidegger, which are (or seem to be) rooted in two different notions of the relation between technology and nature. For the Greeks, Heidegger says, *techne* was a form of knowledge subordinate to *physis* ("upon its basis"). But in *Being and Time* there is the more industrial notion that *physis* is subordinate to *techne* (or the referential totality). As Dreyfus notes, with the latter we have no outright attack on nature but neither any craftsman-like openness. Heidegger says that the essence of *techne* for the Greeks was care, meaning "mastery of openness to beings."[3] But in *Being and Time* beings are revealed only in so far as they fit *Dasein's* concerns. Here, "care" is not openness to beings but rather inherent in Dasein's being an issue for itself.

In *Being and Time* one form of care is the involved use of tools. What I am arguing is Dasein-as-care can be threatened in its projects if the involved use of tools is "broken up" through nonrectifiable breakdown. Heidegger didn't see this possibility. He thought that

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3 See "The Scope and Context of Plato's Meditation on the Relationship of Art and Truth," in Martin Heidegger, *Nietzsche* Vol. I: The Will To Power as Art, trans. David F. Krell (New York:

even if the instrument became unmanageable, it could be repaired, adjusted, etc., and that the praxial break would only be temporary, that the instrument would still fit into the project. I have criticized Marx for assuming that technology is necessarily conductive (in the right social and political setting) and, similarly I want to criticize Heidegger for thinking that equipment is necessarily transparent (once it has been adjusted, etc.). In answer to 2., then, manageable technologies, or those capable of transparency, would allow us to recognize ourselves, in that there would exist no possibility that in the involved use of tools Dasein's care structure could be "broken up." So much for technology and the self. What about technology, self, and the *community*?

There are two reasons for invoking a containment principle. First, in order to ensure the integrity of the process of self-definition, it follows logically that the solution is to contain technology within the community. The involved use of tools is a communal activity (as against the tool-use model) and when that involved use of tools breaks down, there is a loss of community. This follows from Heidegger's description of anxiety as that existential state following from a praxial break and in which the world no longer has any "significance." To say that technology must be contained within the community is really another way of saying that it must be designed such that we can be sure that communal standards will always apply to its use, repair, etc. One of the striking things about unmanageable technologies is that we just don't know what to do with them. What is existentially striking about this is Heidegger's suggestion that our lack of ability to predict and control the "forces" of technology is ontologically tied to "homelessness."

6. But the question still remains, Is it not, for Heidegger, more a *mode of revealment* that is involved here and not the design of machines? One could still design machines that are contained within the community and yet promote the relegation of nature to standing reserve, as per our discussion of Ellul's technical phenomenon above. I have no ready answer to this question because Heidegger confuses me on this. On the one hand he says we must adopt a new attitude toward technology, so that it does not enslave us. He says that we can use technology for our own ends. So he seems to *allow* for the relegation of nature to standing reserve but does not see this as a problem as long as we adopt a poetic attitude toward technology. This is to say that he seems to allow for the transparency of modern technology, just as he had for industrial technology. In the beginning of this essay I suggested that Heidegger is not a full-fledged autonomist, and this is why. So is he contradicting himself, allowing for two essentially different modes of revealment to

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Harper & Row, 1979), p. 164.

coexist? If he is, then the principle of containment gives him an escape. *Under certain circumstances*, I would argue that you can have both as long as in our relegation of nature to standing reserve the machines we use are judged not only by their efficiency but also by their design/potential for transparency.

I suggest, then, that there is not a necessary connection between the technological mode of revealment and unmanageability and that it is only the lack of a praxial approach (or judging/defining technology in terms of its role in our lives/care) that would allow for such a connection. To the extent that we would want to talk about "limiting" technology, then, perhaps it should not be (exclusively) in terms of risks/benefits (tool-use model) or ownership (conductivity model) but rather by holding it up against the role it has to play in the process that we are: self-defining beings. In other words, the only way to "guarantee" the care structure of Dasein is through limiting technology in terms of the community/undifferentiated self. Here, *physis* may very well end up being subordinate to *techne* but at least *techne* would be subordinate to or "for" the community. Authenticity may or may not follow but the possibility would be there. The important point is that technological issues are properly *communal* issues, rather than issues of morality or freedom or even environmental degradation.[4] Again as noted immediately above, the threat to man's nature precedes the threat to the environment.

Now, having said this, it must be recognized, as hinted at above, that there is no guarantee that a solution to the problem of technology with respect to the self is a solution to the problem of technology with respect to the environment. It cannot be denied that manageable technologies, which (in principle) present no threat to the self, can nevertheless destroy thousands of forms of life on the planet. However, neither can one deny that even though we all (or most of us) have a problem with fission, nobody has a problem with photovoltaics, and yet both technologies involve understanding nature in mathematical terms, which "technological" understanding reveals nature as mere standing reserve. There is nothing to say, that is, that one cannot reveal nature technologically to design machines whose use does not commit us to treating nature as mere raw material or, conversely, whose use can even (help) reveal nature as possessing its own teleology. But the question of technology's relationship to the environment and all that is involved in that relationship with respect to the relationship between the self and technology cannot be given systematic treatment here. Obviously, I think that the two relationships are analytically separable, and

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4 For an excellent discussion of some of the political aspects of the communal nature of technology, see Franklin, The *Real World of Technology*, pp. 66-72.

perhaps less obviously I would suggest that solutions to problems inherent in one may very well constitute solutions to problems inherent in the other. In any case, I would urge that if we concentrate solely on technology's threat to the environment and ignore the existential threat it poses, we do so at our peril.

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