



WILLIAM LEISS ON TECHNOLOGY: A FOUCAULDIAN AND HABERMASIAN READING*

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Wesen ist das erste innere Princip alles dessen was zur Möglichkeit eines Dinges gehört. (Kant)

In a recent lecture, "The Information Society: A New Name for Some Old Tricks" William Leiss reminds us that the recent promotional hype about the communications revolution cannot be understood in isolation from the larger historical debate concerning technology and society.¹ Tracing the often occulted genealogy of the declaration that we are now in an information society, Leiss shows how it has its origins not merely in discourses of the "gurus" of the post-industrial society, namely Galbraith, Bell, Porat and Machlup, but also how the way in which technology is related to society extends back as far as Bacon's scientific project for the "Domination of Nature." The first lesson that may be derived from Leiss' writings, then, is that new fads of technology and new debates concerning these fads cannot be comprehended except within a larger field of discourse on society and technology in general. It is Leiss's own attempt to situate current issues and concerns of technology within this larger discursive field that interests me here.

Now, being a rebellious child of the classical episteme which organized texts around the supremacy of the author-subject I can think of only one justification for talking about the writings of William Leiss: to see if his texts constitute a field of discourse where some of the manifest themes, clichés, rhetorical techniques, presuppositions, and epistemological

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assumptions that underpin and condition current talk about technology are unveiled, historically contextualized and perhaps even surpassed.² My reasons for selecting such a task are the following: until such clichés or redundancies are brought to the surface we will not understand why contemporary discourses on technology and society raise the points they do, why certain issues are formulated in certain ways and not others. Furthermore, as long as we must follow the same presuppositions and themes dictated by past discourses on technology and society, it will be difficult to say anything new about this subject, or to posit and practice alternative technologies and alternative relationships between technology and society.³

We have all happened upon various clichés such as: "Technology is neutral; it all depends on how you use it;" "Technology is inherently good (or evil);" "Technology is progress and progress is inevitable;" "The chief social function of technology is to create new possibilities for human activity;" and "Technology controls nature for increased freedom for mankind." These timeless redundancies are responsible for the ways in which many government policy-makers, academics, and the mass media understand and suggest solutions for the problematic relationship between technology and society. Where technology is conceived as "inevitable," debate never questions whether we as a society want to have new communications technology at all. It concentrates, instead, on programming society to adapt to the technology. Where technology is understood as inherently good, evil or neutral, the social institutions which are responsible for developing and interpreting technology for society tend to abstract technology from its concrete realizations and to talk about or legislate it as some sort of idealized essence rather than as a concrete social phenomenon.

Talk about technology must be scrutinized for such regularities, the genealogy of these regularities must be traced, and where necessary, demythologized. By demythologized, I refer to Roland Barthes' use of the term in *Mythologies*, wherein he exposed attempts to "naturalize" statements as common sense, as *universal* or as inevitable. He demonstrated their historical contingency as opposed to their universal applicability or essentialism. By demonstrating the historical relativity of statements such as "Technology depends on how you use it," one can not only challenge their absolutism and doxalogical character, but also generate alternative statements and perhaps even alternative technologies. In other words, such a demythologization is the first and necessary step towards the realization of an alternative discourse on technology and an alternative technology itself. The implications of a discursive order for such political practices as policy-making are significant. Consequently, a good site to begin a study of a theory of technology is with an analysis of discourses on technology.

Many statements about new communications technology may be allo-

cated to one of two epistemological camps: a) one which treats technology as essence or as idealized abstraction from the environment in which technology is manifest, and b) one which treats technology as existing in no other way than as a material occurrence positioned within a real social environment. The essentialization or idealization of technology abstracts it from those concrete social contexts in which it necessarily exists. Such abstraction runs the risk of deferring social dialogue about desirable types of technology and about the means necessary for achieving this technology. Essentializing technology places it out of the reach of social judgement and decision-making because all such perspectives allow us to say about it is that technology is inevitably the way it is because such is its essence.

On the other hand, were technology to be understood as a form of historical, actual, social manifestation, then discourse about technology would be able to study technology in direct relation to society, and to suggest how society might influence concrete social manifestations of technology. Here, potential for judgement and change would replace a discourse of inevitability and acceptance of the naturalized or essential status quo of technology.

It is to these two alternative stances and to their respective implications for social discourse on and response to technology that Castoriadis makes reference:

But there is nothing different with the global attitude toward technics; most of the time, contemporary opinion, be it popular or knowledgeable, remains stuck in the antithesis of technics as a simple man-made instrument (perhaps today misused) and of technics as an autonomous factor, fatality or "destiny" (benevolent or malevolent). As such, thought is continuing its ideological role: give society the means with which to avoid thinking about its real problem and with which to elude its responsibility in the face of its own creation.⁴

I have rehearsed these epistemological issues grounding the technology debate in order to establish the terrain on which Leiss's work will be discussed. Indeed, there is a place for a study about Leiss's relation to the Frankfurt School or about his recent work on advertising. However, my intention in writing about Leiss's work, and in setting his ideas into dialogue with Foucault's and Habermas' writings, is an attempt to answer the questions: Does Leiss's field of discourses on technology consistently opt for the first or the second epistemological camp; and how does this choice imply the ways in which society and technology are related to one another?

Most of the traditional discourses on technology which Leiss himself will

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be seen to criticize fall into the essentialist epistemological camp. If Leiss himself wishes to go beyond a mere negation of these discourses then it will be crucial for his own discourse to remain consistently within the other camp. If Leiss's discourse is to posit an alternative relationship for technology and society, and also to posit alternative technologies, then, it must itself be an alternative discourse in terms of its regularities and epistemological presuppositions. Leiss's own discourse on other discourses that talk about technology would have to fall within a different "episteme" from the one which situated the criticized discourses.

The Historical Contextualization of Discourses on Technology

Leiss treats present-day statements about technology as actual historical practices to be contextualized. *The Domination of Nature* demonstrates that many current discourses on technology which view it as the solution to economic, environmental and interpersonal problems define technology implicitly or explicitly as instrumental reason. By instrumental reason Leiss refers to the tradition which defines knowledge as means for *The Domination of Nature*. This early work may be read as Leiss's historical contextualization of the many statements and practices of technology based on instrumental reason. Even today, Leiss never relents from the task of showing present-day discourses's "failure to appreciate the long-range historical dimensions of the problem that they seek to elucidate." He impresses this upon the reader by returning to seventeenth-century thinkers such as Bacon, Hobbes, Descartes, and others in order to remind her that they founded "modern" science which conceived of knowledge, first and foremost, as *technological* knowledge, that is, as means to accomplish an end: mastery over nature. Leiss argues that in order to explain modern-day discourses on and practices of technology, one must demonstrate the link between power and knowledge which has occurred over the past three centuries.⁵

Leiss takes great pain to quote examples from Bacon, Descartes and Hobbes in order to demonstrate that they themselves spoke very explicitly of this link. Not only does Leiss quote the much over-used Cartesian statement that mastering the right scientific method would make us "masters and possessors of nature," but he also quotes Bacon's suggestion that "growing scientific understanding of the "laws of nature" (would) eliminate the familiar causes of human misery and social disorder."⁶ Leiss shows that seventeenth-century thought justifies the domination of nature on philanthropic grounds. Domination of nature, Bacon argued, leads to an increase in social and material well-being. Leiss notes that this dream "still enthalls the imagination of industrial societies."⁷

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Leiss demonstrates how confidence in the philanthropic ends of the technological domination of nature was justified more on metaphysical or religious grounds than on empirical material evidence. Bacon and Descartes grounded technological knowledge in God. They were simply understanding "God's plan."⁸ God assured the order of the universe which the scientist discovered and then advocated it as the right and the good order to be believed and followed by the rest of society, i.e., by the non-scientists. Natural, divine and social order were all identified with each other; the scientist discovered this order; God assured it; society should follow it as the good and just order.

Then, Leiss goes on to demonstrate that not only did Bacon and Descartes make "progressive" claims for science which we see repeated so often in writings about the information revolution, but Marx did as well.⁹

The first step in Leiss' historical discursive contextualization of present-day talk about technology was to reveal the overtness of claims to domination of nature by seventeenth-century science. The next crucial step in Leiss's argument is to suggest that certain aspects of that domination were not so candidly exposed: 1) domination of what kind of nature? and 2) domination by whom? Leiss suggests that something was awry with this utopian version of science's relation to society. Despite promises of equality, empirical historical evidence reveals that at this time human inequality and suffering continued, even in this society ruled by the new science. Furthermore, Leiss points out some properly discursive evidence: neither in Bacon's nor in Moore's utopian scientific projects was there ever any mention of democratic rule, and this, despite their promises that the fruits of nature yielded by science would be for all mankind.¹⁰

Leiss's explanation of this contradiction is based on an epistemological critique. He argues that the contradiction between utopian promises of mastery over nature and dystopian social relations ensues because Bacon and others took science and technology out of the concrete social contexts in which they were practiced in order to evaluate their social implications. In short, they idealized technology and abstracted from its social context.

Bacon prejudiced the understanding of the implications contained in the conquest of nature by abstracting it from the actual historical situation in which it was developing and by suggesting that the conquest of nature was intrinsically related to a harmonious social order.¹¹

These contradictions begin to reveal the darker side of the domination of nature, an aspect which was obscured by most of the philosopher-scientists of the mastery of nature: *the nature to be dominated was human nature in society; i.e., mastery of social change*. Leiss does suggest, however, that some

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thinkers made this darker side more apparent rather than occult it as did Bacon and Moore. Not only Saint-Simon, but also Hobbes, explicitly stated that the domination of nature would lead to the domination of human nature, i.e., to social control.¹²

In referring to Hegel's dialectic of master and slave, Leiss theorizes that there are analytical and logical grounds for demonstrating that domination must of necessity be domination of *human* nature. According to the *Phenomenology of Mind*, in order for there to be real domination, one must be recognized by that which is dominated. In other words, says Leiss, one can only dominate another self-consciousness, another "for-itself."¹³

Thus, when we read in business magazines from the 1950's to the present, such as *Fortune* and *Business Week*, that "new communications technology will increase 'control' and give executives the type of mastery over variables in the business environment,"¹⁴ we find but a repetition of this, the social meaning of domination:

If the idea of the domination of nature has any meaning at all, it is that by such means — that is, through the possession of superior technological capabilities — some men attempt to dominate and control other men. The notion of a common domination of the human race over external nature is non-sensical.¹⁵

"Mastery of nature seems less a grand enterprise of the species than a means of upholding the interests of particular ruling groups."¹⁶

Leiss affirms that he takes his cue for such an interpretation of the discourse of the domination of nature from Nietzsche and Marcuse, who both interpret science as serving to reinforce and establish relations of interhuman domination and social control.¹⁷ Indeed he quotes Lukács as defining "nature as a social category;" he reminds us that Marcuse stated: "Man's struggle with Nature is increasingly a struggle with his society;"¹⁸ and he quotes Horkheimer who makes explicit the logical relation between domination of nature and domination of mind: "Mastery over inner nature is a logical correlate of the mastery over external nature."¹⁹

While Leiss contextualizes the theme of the domination of nature within an historical reservoir of discourses on technology, showing that there is nothing new in this concept, he advances one step further. Leiss insists not only on contextualizing one discourse within other discourses about technology, but also within the empirical historical context. Between 1970 and 1972 at least, Leiss's writings make the case that the proper contextualization of the claims made by those who would associate the mastery of nature with utopian social possibilities is the socio-historical environment. In order to assess whether the social implications of the domination of nature

implied utopia or domination of man by man, Leiss suggests that we look to "a wide range of empirical data."²⁰ In an article which preceded publication of *The Domination of Nature*, Leiss, quoting Gresford, suggests that the domination of nature as the domination of man is empirically confirmed.²¹ At this early stage in Leiss's thought, then, the interface of society and technology can only be studied by looking at how technology operates within concrete historical contexts where it is itself a manifest social entity.

Grounds for a Critique of Domination

"So what's wrong with domination, even if it is human domination of humans, and even if it is socially inequitable?" This is a question which has often been posed by the less philanthropic 'gurus' of the communication age. It would seem that, despite most governments' claims to be democratic and to ensure a just allocation of resources to all of their citizens, one must still find some basis on which to ground a critique of social domination. Indeed, the whole enterprise of critical theory and its successors might be viewed as the search for a "ground" for a critique of technology. In *The Domination of Nature*, Leiss has elaborated several grounds, not all of them epistemological, for a critique of the domination of human nature by other humans. In his later work, he abandons some of these grounds although he does not introduce any new ones. These grounds are:

- 1) An empirical, historical critique which exposes the broken promises, the contradictions and the crises of the utopian theory of technological knowledge. This early critique recuperates the Marxist critique of commodity fetishism and class alienation.
- 2) A Weberian critique of technology as instrumentalist reason which reduces all questions of technology and society to questions of means to the exclusion of any questioning of values or goals. This entails a critique of the ubiquity of instrumental rationality (means-ends rationality) at the expense of other forms of rationality, such as "Wertrationalität" — value rationality.
- 3) The Husserlian critique of exact science as having become universalized but unable to relate to or resolve non-instrumental problems of the "Lebenswelt" — lifeworld. This critique, I will argue, is in part tied to the Weberian critique of the ubiquity of instrumental reason.

1. Marxist Critique of Commodity Fetishism and Class Alienation

In his article "Technology and Instrumental Rationality in Socialism and Capitalism," Leiss outlines a critique of domination based on the thought of Marx and later of the Frankfurt School. The Frankfurt School combined a

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Marxist critique of commodity fetishism and class alienation with a Weberian critique of instrumentalist reason. This linkage enabled them to attach a negative value to the alienation stemming from commodity fetishism which they saw as arising out of instrumental reason's insistence on the domination of nature (human nature) in order to increase growth, efficiency and productivity. The aim of socialism for the Frankfurt School was to "overcome alienation, commodity fetishism, bureaucratic authority and domination over non-human nature."²² Leiss reminds one of his reviewers, d'Amico, that Marcuse's foundation for a critique of instrumental reason was the opposition to the intensity of the possible exploitation of human labour (which) is directly dependent upon the attained degree of mastery over external nature. In his article "Utopia and Technology," written relatively early, Leiss accepts this basis for a critique of domination in technological reason. He claims to find empirical grounds attesting to the link between technological reason and social domination, decrying that "the human social order has been characterized traditionally by vast inequalities of power and by the exercise of control by some men over the behaviour of others."²³

It is this ground for a critique of technology which Leiss rejected later in his writings. His reasons for so doing need to be explained at length because they not only requalify the status that Leiss gives to technology but also constitute his major contribution to critical social thought. In a recent paper entitled "Nature as a Commodity: Landscape Assessment and the Theory of Reification," Leiss elaborates upon his disagreements with the Frankfurt School's critique of technology based on the Lukácsian fusion of Weber's critique of instrumentalist rationality with Marx's critique of reification and commodity fetishism.²⁴ Of course, when looking at Leiss' critique we should bear in mind that, as a student of Marcuse, Leiss was once himself, as he terms it, "a true believer" in the Frankfurt School's critique of technology.

The starting-point for Leiss' criticism of a critique of technology based on reification is the dubiousness of the Frankfurt School's fusion of the Marxist critique of commodity fetishism with Weber's theory of instrumentalism. He then proceeds to take issue with the Frankfurt School's blanket acceptance of Lukács' distinction between reified and non-reified social relations, where technology (defined in Weberian terms as instrumental rationality) is identified with the former.* *In what he considers to be his major contribution to social theory*, Leiss looks more closely at the meanings

*This aspect of Leiss's thought certainly begs further discussion. Many Marxist scholars would argue that there is *no* Marxist critique of reification. Also, Lukácsian scholars will find entirely provocative Leiss' theorisation of the unresolved antinomies of organicism and rationalism in Lukács' critique of reification.

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associated with the German terms for the opposite of reified relations, namely "*naturwüchsig*" and "*urwüchsig*." These terms supposedly referred to non-reified or natural social relations. The tension in socialist thought, then, became one between, on the one hand, reification, identified with the technical rationalization of life, and, on the other hand, non-reification, the spirit of autochthonous communalism. However, when one sets out to discover just what non-reified, "*naturwüchsig*" social relations are, the distinction between reified and non-reified social relations becomes a tenuous one, according to Leiss. Lukács tries to flesh out a Marxist critique of reification by adding to the notion of reified relations all of the ideal traits that Weber associated with formal rationality.²⁵ Thus, non-reified social relations are defined as the opposite of the tenets of what Weber described as constituting instrumentalist rationality:

What are *urwüchsig* Beziehungen? In this mode human labor is an "organic" unity; it takes place in a community — for example (the only example offered) a "village community." The unity of labor's product is also described as "irrational" and "qualitatively determined;" this unity of product "as a use-value" means that produced things have an "immediate," "qualitatively," and "material" character. Finally, Lukács mentions — apparently as a model that synthesizes this list of terms — handicraft production and the "organic manufacture of whole products based on the traditional amalgam of empirical evidence."²⁶

And reified relations are described as the set of terms used by Weber to define formal rationality:

Conditions of human labor undergo a process of rationalization with the following characteristics: specialization of function, mechanization, calculation based on quantified units of measure, breaking down of productive stages into component units (atomization); determination of work by units of time (thus quantitative measure), abstract or formal equivalence of these quantitative measures, reduction of concrete individual attributes to general averages; fragmentation of the subject (the worker, whose specialized function never relates concretely to the whole finished product) and the assimilation of human agents into the whole process as if they were mechanical parts of a productive machine.²⁷

Leiss's criticism of this conflation of commodity fetishism theory with Weber's theory of instrumentalist/formal rationality, relies on his percep-

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tion that, for Lukács, non-reified social relations would exist only in "small communities made up of craftspeople, each of whom independently produces finished articles from ready-to-hand materials, including of course foodstuffs."²⁸ Leiss's objection to such a qualification is that it excludes any form of industrial production, including cottage industry. This, says Leiss, is probably not what Marx or most modern socialists would understand by non-reified social relations. The Frankfurt School conflated Marx's theory of much criticized fetishism with Weber's theory of formal rationality in order to condemn them both without really elaborating critique of the latter. However, in the absence of any adequate description of what non-reified society would be, the distinction between reified and non-reified society becomes an abstract one, for Leiss. The association of "good" values with non-reified and "bad" values with reified forms is entirely unjustified.²⁹ Furthermore, Leiss would add, this tension has not been a fruitful one in that it has given "no account at all (...) of what real alternatives to capitalism appropriate to contemporary conditions, were possible and desirable."³⁰ No other model than that of a village community has been suggested as a way of replacement for reified, formal rationalist social relations.

One cannot but agree that it is indeed theoretically tenuous to identify a Marxist theory of reification with Weber's theory of formal rationality. For one thing, a close reading of Weber's writings shows that he himself does not do so even though he was aware of Marx's theory of commodities. Weber states that this form of rationality existed before capitalist society and would continue to exist in a socialist society.³¹ Formal rationality for him was more a form of bureaucratic reason than a properly capitalist logic. Indeed, it served not only capitalist production but feudal record-keeping procedures and the allocation of tasks as well as the military.³²

However, in my opinion, the principal problem in identifying reification theory with Weber's theory of formal rationality is an *epistemological* one. Reification theory, of course, pretends to be based on an empirical, materialist epistemological ground. On the other hand, Weber's concept of formal rationality is Kantian. Formal rationality is a set of ideal(ized) traits which may or may not be manifest in "substantive rationality."³³ Actual practices of military organization, however, would also be a manifestation of "formal rationality." Weber, is perhaps best known for his theory of "ideal types" which, along with "formal rationality," cannot be divorced from the Kantian tradition. "Formal rationality," for Weber, is made up of ideal, non-manifest traits which may then subsequently be manifest in "substantive rationality." For example, a substantialization of formal rationality would be actual economic practices in business. In short, to combine a materialist concept of society with a somewhat idealist concept of rationality, is to describe technology within an epistemologically inconsistent framework.

The Frankfurt School first universalizes a theory of technology and then claims that in actual social activities, e.g., relations of production, technology always functions nefariously. This is an idealized abstraction of technology from the social context: "Technology is always inherently evil," which is then read back into an empirical materialist view of society."

2. Alternative Grounds for a Critique of Technology: Weber and Husserl

The second and third grounds for a critique of domination developed in *The Domination of Nature* and which Leiss continues to espouse today are derived from Weber's and Husserl's critique of technological reason. They argue that technological reason has become ubiquitous, replacing all other forms of reason. One of Weber's major critiques of instrumental rationality is that it disenchant — *entzaubert* — the world. The world has lost its magical qualities, having become explainable by instrumental science, by mathematical calculation, by an insistence on quantifiable means at the expense of values and goals. For Weber, other types of rationality, which do not disenchant the world have existed: religious, value-oriented, ritual, and affective rationalities. Indeed, Weber's main objection to instrumentalist rationality is not that it reifies social relations nor that it is inherently evil in itself, but that it has become ubiquitous or dominant and has replaced all other forms of rationality which served important roles in non-instrumentalist dominated societies. In Innisian terms, instrumentalist rationality exercises a "monopoly of knowledge." Or again, as Foucault would say, instrumentalist rationality had become the exclusively "dominant episteme."

A corollary of this objection to the reduction of all rationality to instrumentalist rationality is that it precludes the possibility of any discussion of ends or goals. The question: "What type of society do we want?" is sacrificed to the belief that the only rational discussion possible would be about means: "How do we most efficiently achieve?" All knowledge functions, in the sense of "episteme," are reduced to the knowledge function of knowing how to do or to make, i.e., to "techne." In the words of George Grant, all episteme is reduced to techne.³⁶ Or as Leiss states: "The real effect of the concept of formal rationality is to destroy the possibility of even imagining a process of rational *goal selection*."³⁷ And further, "The sustained effort of demythologizing modern times ends by stripping the world of all inherent purpose."³⁸

The cliché about technology which epitomizes the demythologization of the world is one where technological means legitimate themselves with no attempt to seek a ground in goals or ends outside of themselves: "Technol-

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ogy for technology's sake," and "Technology is imperative." Instead of asking what would be a good technology for society it is assumed that what is required is a good society for technology because only means are considered to be important (or able to be discussed rationally).

For Leiss, Husserl's critique of technology is closely related to the "ubiquity argument" that we find in Weber, although there is a slight twist with the insertion of the problematic of the "Lebenswelt."³⁹ Although Leiss, in his review of Husserl's *Crisis*, rejects the phenomenological alternative to technological knowledge, he does accept Husserl's theory that there is nothing inherently wrong with technology *per se*. It is simply that technological reason is not relevant to another series of problems and concerns that occur in other than calculable realms of life, i.e., the "Lebenswelt."

(...) unlike the situation in earlier historical periods, there is no crisis "of" the *modern sciences*, strictly speaking. Rather, the sciences proceed from success to success, incorporating an increasingly refined methodology and set of techniques, while, by virtue of these very successes, simultaneously contributing to the development of a general social crisis.⁴⁰

For Husserl, then, modern science is itself not a failure. It *succeeds very well* in *knowing* its *objects* in the natural world and in manipulating that world. However, this exact science can shed no light on another category of objects, "value objects" and "practical objects" belonging to the "lifeworld" of human, subjective experience. We can only criticize as *ideological* the ubiquity of instrumentalism, as a totalization of one type of knowledge, not instrumentalism *per se*.

This is an interesting use of the term ideological in that it intersects with Umberto Eco's definition of ideology in semiotic terms as a-contextuality while maintaining the Marxist notion of ideology as false consciousness.

Eco declares any sign-field to be ideological which is partial yet which takes itself to be total.⁴¹ Thus, for Husserl and Leiss, technological reason would be ideological in that it is a partial form of reason which totalizes itself, resulting in its application to contexts to which it is not pertinent. Both Husserl and Leiss abandon the quest for a ground upon which to critique technology in itself, looking rather to a critique of the fit between technology and its context of application.

Furthermore, Leiss, again referring to both Weber's notion of instrumental rationality and to Husserl, attacks traditional discourse on technology because it "idealizes" the world as opposed to recognizing the "existence" of various types of nature:

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Husserl argued that the rationality of modern science is based upon an "idealization" of the world which can be called "the mathematization of nature." This idealization is a way of looking at the world as if it were nothing but non-qualitative material objects ... existing in relations that can be expressed in symbolic (mathematical) form; ... This rationality represents ... a kind of "mastery" over *idealized* nature, in the context of its "openness" to technological applicability and the openness of a particular social setting to these applications, the operational capacity of human beings in the world was expanded enormously.⁴²

Instrumental rationality is simply guilty of social abstraction. Where instrumental science attempts to deal with all nature it is making both an epistemological error, in that it claims to be dealing with empirical things but it does so through abstraction, and an ontological error in that it equates all nature with the ontological status of "the objects of natural science." ... The ontological basis of current social science methodology is essentially rooted in a particular form of society, and likewise the "truth" of its results is meaningful only in reference to it.⁴³

In other words, Husserl is suggesting that we need to revise the ontological status of the object of "true" scientific knowledge: "... the exact sciences of nature, ever more refined and perfected in their methodology *do not give us any* "true" knowledge of nature;... ." ^{44/45}

Technology: inherently neutral essence?

In order to decide whether or not Leiss himself avoids the pitfall of idealizing technology it is necessary to rehearse a set of distinctions that he wishes to make between 1) science and ideology; 2) technology and interests or values; and 3) between technology and techniques. Special attention will be paid to the epistemological and ontological grounds on which these distinctions are made.

In *The Domination of Nature*, Leiss argues that we cannot separate values or interests from science. He takes his cue in this matter from Nietzsche, whose basic intention was "to show the primacy of evaluation in all forms of human experience — in religion and aesthetics as well as in logic and metaphysics."⁴⁶ And, of course, Leiss still upholds the Weberian critique of technical science on the basis that it eliminates all concerns of values and goals from possible scientific discussion. Leiss, then, would still

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wish to uphold a place for value, despite instrumentalism's attempts to evacuate it, in all science, technical or other. As recently as 1980, Leiss argued that values must be incorporated into science. In "A Value-Basis for Conservation Policy," Leiss insists that science must provide us with some value-legitimation about the sense of well-being. Science must identify relations between society's values and its social economic order. "Values must possess recants his earlier espoused Marcusean and Lukácsian identification of instrumentalist rationality with "bad" social values. This indicates a wish to declare that technology and science have no inherent values, be they good or bad, as indeed he had done with reference to Husserl. Could Leiss be reiterating a variation of the old adage "It all depends on how you use it" when he states: "Castigating ideas for the emergence of repressive social development is a fruitless undertaking?"⁴⁸ when he states: "Castigating ideas for the emergence of repressive social development is a fruitless undertaking?"⁴⁸

In order to argue that technology is not inherently value-laden or ideological, Leiss makes an *analytical* distinction between "technique" and "technology." Leiss will argue that technology is somehow potential whereas techniques are actually manifest and applied combinations.

Technologies, therefore, are combinations of techniques, and the combinations represent choices among alternative uses or goals in the service of which the techniques are applied. In most cases it is inaccurate to refer simply to "technology," because very often this term carries the implication that there is some fixed character in a society's technological apparatus itself. (...)

The main reason for distinguishing between techniques and technologies is that only the general modes of social organization and not the specific properties of techniques themselves determine which types of techniques will be encouraged and promoted and which will be downplayed or perhaps forbidden.⁴⁹

By arguing that "there are almost always alternative technologies potentially present in any ensemble of techniques," Leiss maintains that the socio-economic contexts within which technologies are realized as techniques determine whether or not technology will be ideological or value-laden. "Technologies are, in turn, incorporated into more general forms of social reproduction and in the latter they often embody structural contradictions that give rise to alternative possibilities for their application."⁵⁰ Technology, which is not taken as specifically manifest, socially situated techniques, is an abstraction from society, a sort of aesthetization or essentialization of material reality. Leiss is making a distinction between applied technologies

— “techniques — within specific social contexts or cultures and technology which exists above and beyond these “techniques:” “(...) cultures have differential capacities for adopting new techniques and for recombining techniques within alternative technologies.”⁵¹ Leiss does, however, insist that applied technologies may indeed be very value-laden. In a recent essay entitled, “Politics of Environmental Issues,” Leiss shows how in policy debates the figures concerning water pollution were somewhat “fudged” in order to convey the tremendous economic weight of the outcome.⁵² Time and again, Leiss tells us that the values and ideologies are not in technology *per se* but in the socio-economic contextual manifestations or applications or combinations of technologies as techniques. Indeed, this is in keeping with Leiss’ Husserlian and Weberian analysis of technology whereby technical reasoning in itself is not considered to be ideological, but rather the social context in which technology is ubiquitous.

If rationality is simply identified with rationalization — in other words, if knowledge means only or even primarily organized technical knowledge applied to production — then the concepts or rationalization and organized knowledge themselves tend to become “ideological,” dogmas propounded to serve the particular interests of those who manage the productive process.⁵³

Leiss does not criticize the domination of nature as an inherent trait of technology itself but as a set of technologies or techniques which are manifest within particular exploitative, capitalist social, political and economic contexts. The domination over human nature is *not* an inherent aspect of science or technology *per se* but of contradictory modes of social production which, for Marx, says Leiss, include: 1) generalized market exchange; 2) incorporating technologies of production and consumption; 3) a particular form of political domination; and 4) domination over non-human nature.⁵³

Furthermore, Leiss is entirely consistent with this epistemological position in his concrete advice concerning how to deal with technology in society today. He restates in his more applied work on environmental and new communications technology issues that there is nothing inherently evil about technology; the evil lies with its contextual manifestations. For example, he claims that the hype on new communications technologies, acts as a form of noise, which distracts policy issues from real social problems and goals such as “zero sum issues.”⁵⁴ In other words, don’t worry about technology *per se* but worry rather about the *social context* of technology. Social organization determines our choices of techniques and it is with these that we should be concerned rather than with technology in general. This

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position appears similar to that taken by an Enzensberger or a Goldhaber, who argue that in the right socio-economic conditions the right technologies (techniques which will be emancipatory) will be chosen and made manifest. Technology, therefore, is potentially emancipatory or potentially constraining depending on how it is concretized as techniques in the social environment. In the following quotation, Leiss makes it clear that he holds out for a difference between applications of technology and a sort of "essential" technology which he refers to as technology itself.

In modern society the dominant forms of social reproduction have shaped the *applications* of industrial technology in accordance with authoritarian hierarchical modes of authority; one of the consequences of this pattern is the pervasive alienated character of labor activity, which is by no means an *inherent* attribute of technology itself. (...) the choice of which techniques and how they have been utilized is primarily the outcome, not of the inherent "rationality" of the techniques, but of the serviceability of the chosen techniques for the maintenance of wealth.⁵⁵

To summarize, Leiss has certainly not abstracted the technology debate from the social. Nor has he idealized or essentialized the social context of technology. We must query, however, whether Leiss does not essentialize technology by virtue of his analytical distinction between technique and technology wherein the latter is somehow non-manifest but existent. If one separates technology from the social and cultural forms in which it is embodied as a specific set of choices or combinations then the ontological status given to this non-manifest technology can only be that of essence, and, epistemologically, one must be an idealist to know such essences. I do not think that Leiss would accept such an epistemological position given his commitment to empirical contextual observation in his ongoing analyses of other social phenomena such as advertising. However, in several places Leiss actually does talk of essences in relation to technology. In an early essay entitled "Utopia and Technology," Leiss seems to agree with Benjamin's use of the term "essence" to qualify technology:

Walter Benjamin remarked that it is incorrect to regard the *essence* of human technique as the ability to dominate nature. Rather he suggested, we should see it as the mastery of the relationship between nature and humanity.⁵⁶

More recently, Leiss once again uses the term "essence" when he quotes a policy research document. While he disagrees with the argument of the

following document that we need to find a response to the essence of technology, I do not think that he is taking issue with the notion that there is an essence of technology. Instead, he is stating that we need to come to terms with society rather than with (the essence of) technology which may nevertheless exist:

A new technology demands a response from us that is appropriate to its essence and modes of action. We need to find civilized ways of dealing with such issues.⁵⁷

Without this essentialist aspect, Leiss' discourse does provide an alternative to the dominant epistemological and discursive presuppositions that underpin most statements about technology. If we made one small modification to Leiss' approach to technology we could avoid the ontological equivocation between social manifestation and essence, as well as the epistemological compromise between materialism and idealism. In so doing, Leiss' discourse on technology would permit us to criticize not only social environments but technology as well. Moreover, this revision would provide a discursive and epistemological basis upon which to suggest alternative technologies and alternative relationships between technology and society which policy-making might in future encourage.

Technology as Nothing but Social Practice

What if we were to say that above and beyond what Leiss calls techniques or actual social occurrences of technology, technology does not exist? What if we were to define technology simply as a type of social practice?

Leiss' distinction between technique and technology resembles the semiotic distinction between '*parole*' and '*langue*', respectively. *Parole* and technique are manifest practices characterized by the imperfections of a particular in relation to a universal or ideal, which latter is the non-manifest, ideal structure (*langue* or technology) or essence of language or technology. Somehow the particular and the universal are related but we never quite understand how, since the manifest structure is judged or derived in relation to the non-manifest one, and yet the ideal structure is an abstraction from and universalization of the manifest particulars. *To say that technology or language is both a universal, ideal structure and an historically situated material manifestation is to wish to have one's empirical cake and to eat it (idealistically) too.*

While maintaining Leiss' refusal to abstract from nature or society, I argue that technology itself is nothing more than a social practice. There are no pure formalities of technology, no non-manifest structure. And, as such,

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there are no non-ideological, no non-value-laden technologies because each manifestation of technology is socially contextualized, but also socially produced as a practice. If we can "generalize" about the properties of technology it is not by idealizing it but rather by perceiving *post res* any regularities in the specific practices that repeat themselves in any given time and place. Foucault would call such regularities "procedures", which are nothing more than regularized sets of very concrete, very contextually manifest empirical practices. Beyond this, there is nothing: the ontological status stops with the regularization of social practices. Now, for Foucault, knowledge, science and technologies are themselves nothing more than such regularized sets of social practices, some of which are discursive practices and some of which are non-discursive. For Foucault, technology and knowledge are social practices, which may be discursive or non-discursive, and which when regularized become rules or procedures of how to practice knowledge and technology. For example, Taylorism would be a set of discursive procedures understood as regularities of the discursive practices of instrumental rationality, i.e., how to increase efficiency, productivity, control of labour, etc. The assembly line, based at least in part on Taylorism, would be a set of non-discursive practices designed to increase efficiency and control of labour. Furthermore, Foucault, in a recent lecture at the University of Vermont, Burlington (Fall 1982), declared that these regularities, taken as a set of discursive and epistemological rules which characterize social practices and which condition future possible practice, may be called "technologies." Technologies, then, are nothing more than social practices of knowledge. Technology would be neither a machine-object, nor an essence, but the set of regularities that these practices manifest, by virtue of their redundancy. Thus, for example, new communications technologies would be nothing more than regularized sets of discursive practices.

This alternative definition of technology gives rise to a very different conception of the relationship between technology and social context. Neither social context nor technology is idealized. Rather than totalizing the economic (as Foucault accuses small "m" marxist critics of doing),⁵⁸ Foucault has shown in *Les Mots et les choses* that the procedures of economics, taken as a discipline, do not determine the procedures of technology or dictate its ideological content. For example, the procedure referred to by Foucault as "exchange" is not specific to the economic discourse but is found also in the discourses of grammar, zoology and the pictorial arts in the seventeenth-century. The ideology of exchange is a practice of false identity which is redundantly practised by all of the discursive practices of what Foucault calls the "classical episteme." Such procedures are not universal; they are redundancies of specific discursive practices within a delimited time and place, in this case occidental society since the seventeenth-century.

Exchange, then, is not a procedure of the economic context imposed upon technology; it is the regularity of the set of discursive practices making up the classical episteme. There is no question of treating technology as some form of superstructure that is conditioned by an economic infrastructure. Both technology and economics constitute the discourses of the episteme and both constantly repeat the practice of exchange. The procedure of exchange is inherent in the practice of technology and of economics. Hence values and ideology are inherent within the social practices of technology. Other procedures that constitute the regularities of the practices of science in the seventeenth-century have been excavated by Foucault's discursive analyses of various types of discourse in this age and include those of order, hierarchization, exclusivity and panoptic surveillance.⁵⁹ This set of procedures makes up the rules of knowledge for the classical episteme, rules which characterize the scientific practices known also as technical or instrumental reason. Before discussing how this alternative ontological status for technology opens the way for the suggestion of alternative technologies and alternative societies, a rather concrete example of a social practice in modern day technology will help to clarify what is meant here by social practice and discursive procedure as opposed to essence or universal.

In a recent study of new communications technology, I analysed how contemporary technology is conditioned by specific discursive practices. I also illustrated how new communications technology itself could be understood as a set of discursive practices. The study of many of these practices as manifest in a host of texts dealing with new communications technology as well as in the very organization of the hardware and software of new communications technology revealed certain redundancies or regularities. Again these regularities are determined *post res* as opposed to pre-supposed *ante res*. They are more akin to what C.S. Peirce would call "habits" of actually manifest semiotic relations than to ideals or a priori categories.⁶⁰ By way of example, I will concentrate on a single procedure of the discourses both on and of new communications technology: *Panopticism*.

Notes

1. William Leiss, "The Information Society: A New Name for some Old Tricks," paper presented at the annual 1982 Departmental Colloquium, "The Social Responses to Technological Change and Environmental Impact," Department of Sociology, University of Calgary, March 24-26, 1982.
2. Michel Foucault, "What is an Author?" in ed. & trans. Donald Bouchard, *Language. Counter-memory. Practice*, (Ithica, New York: Cornell University Press, 1977).
3. Marike Finlay-Pelinski, "Technologies of Technology: A Critique of Procedures of Power and Social Control in Discourses on New Communications Technology," Working Papers Series, Graduate Program of Communication, McGill University, 1983.
4. Cornelius Castoriadis, *Les Carrefours du labyrinthe*, (Paris: Seuil, 1971), p. 222.

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5. W. Leiss, *The Domination of Nature*, (New York: George Braziller, 1972), p. 49.
6. Leiss, *Domination*, pp. 57-59.
7. Leiss, "The Social Function of Knowledge in the Liberal Tradition," in ed. Michael McGrath, *Liberalism and the Modern Polity*, (New York: Marcel Dekker, 1978), p. 196.
8. *Domination*, p. 52.
9. *Ibid.*, p. 86.
10. *Ibid.*, p. 70.
11. Leiss, "Social Function," p. 583.
12. *Domination*, p. 142.
13. *Ibid.*, p. 122.
14. Finlay-Pelinski, "Nouvelle technologie des communications: émancipation ou contrôl social?" in *Communication/Information*, Automne, Vol. V, no. 1, pp. 147-177.
15. *Domination*, I. V pp. 122-123.
16. *Ibid.*, p. 171.
17. Michel Foucault, "Truth and Power," in ed. Colin Gordon, trans. Gordon et al., *Power/Knowledge: Selected Interviews and Other Writings*, (New York: Pantheon Books, 1980), pp. 134-145.
18. *Domination*, p. 22, note 22.
19. Max Horkheimer, in *Domination*, p. 152.
20. *Domination*, p. 155.
21. Guy Gresford, "Qualitative and Quantitative Living Space Requirements," *Final Report*, Annex IV, p. 1. (Unesco document SC/MD?9, 6 January 1969), in Wm. Leiss, "Utopia and Technology: Reflections on the Conquest of Nature," *International Social Science Journal*, Vol. XXII, no. 4 (1970), pp. 578-9.
22. *Domination*, pp. 135-6.
23. Leiss, "Ideology and Science," *Social Studies of Science*, Vol. 5, (1975), pp. 196-8.
24. Leiss, "Nature as a Commodity: Landscape Assessment and the Theory of Reification," forthcoming in *Boston Studies in the Philosophy of Science*.
25. "Nature as a Commodity," ms., p. 6.
26. *Ibid.*, ms., p. 7.
27. *Ibid.*, p. 9.
28. *Ibid.*, p. 8.
29. *Ibid.*, p. 9.
30. *Ibid.*, p. 10.
31. Weber makes it quite explicit that bureaucratic reasoning did not emerge with the advent of capitalism but rather long before. Weber traces its existence back to the rationalization of public finances in Egypt, the organization of feudal societies, and to the functioning of the military in pre-capitalist societies.
Max Weber, *Economy and Society: An Outline of Interpretative Sociology*, ed. Guenther Roth and Claus Wittich, trans. Mills, Parsons et al., (Berkeley: University of California Press, 1982), pp. 71-72.
32. That this debate is still current in critical theory is attested by Agnes Heller's dialogue with

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- Habermas in: Jürgen Habermas, "A Reply to My Critics," in ed. J.B. Thompson and Held, *Habermas: Critical Debates*, (London: The Macmillan Press Ltd., 1982), pp. 225-9.
33. Weber, *Economy and Society*, pp. 85-86.
There is no question in this discussion of attempting value judgements in this field, but only of determining and delimiting what is to be called "formal." In this context the concept of "substantive" is itself in a certain sense "formal;" that is, it is an abstract, generic concept.
 36. George Grant, "Ideology in Modern Empires," in ed. J.E. Flint and G. Williams, *Perspectives of Empire*, (New York: Longman, 1973), pp. 189-193.
 37. Leiss, "Technology and Instrumental Rationality in Capitalism and Socialism," in ed. Frederic Fleron, *Technology and Communist Culture*, (New York: Praeger, 1977), p. 125.
 38. *Domination*, p. 150.
 39. Leiss, "Husserl's Crisis," *Telos*, no. 8 (Summer 1971), pp. 109-121.
 40. "Husserl's Crisis," *Telos*, p. 114.
 41. I discuss Eco's and Marx's theories of ideology at length in: Finlay-Pelinski, "Semiotics or History: From Content Analysis to Pragmatics of Communicational Interaction," *Semiotica*, Vol. 40, no. 3/4 (1982), pp. 229-266.
 42. Leiss, "Ideology and Science," p. 195.
 43. "Husserl's Crisis," *Telos*, p. 117.
 44. *Ibid.*, p. 116.
 45. As it is described in Husserl's *Crisis*, the life-world, the *Lebenswelt*, is not simply the world in which we live; it is the world we live in as contrasted to the world of exact science. Furthermore, it is this world, so contrasted, as named by phenomenology. "Life-world" in a word expressed in transcendentalise, not a word expressed in ordinary language. The turn to the life-world is a philosophical move, not simply a relapse into prephilosophical and prescientific experiencing." p. 92. Robert Skolowski, "Exact Science and the World in Which We Live," in *Lebenswelt und Wissenschaft in der Philosophie Edmund Husserls*, ed. Elizabeth Ströker (Frankfurt am Main: Klostermann, 1971), 92-106.
 46. *Domination*, p. 107.
 47. Leiss, "A Value Basis for Conservation Policy," ms., p. 13.
 48. Leiss, "Ideology and Science," p. 199.
 49. Leiss, "Technology and Instrumental Rationality in Capitalism and Socialism," in ed. Paul Brienes, *Critical Interruptions*, (New York: Herder and Herder, 1970), pp. 119-120.
 50. Leiss, "Technology and Instrumental Rationality," p. 121.
 51. *Ibid.*, p. 121.
 52. Leiss, "Political Aspects of Environmental Issues," in ed. Leiss, *Ecology Versus Politics in Canada*, (Toronto: University of Toronto Press, 1979), p. 264.
 53. Leiss, "The Social Function of Knowledge," p. 188.
 54. Leiss, "The Information Revolution," cf. Conclusions.
 55. Leiss, "Technology and Instrumental Rationality," pp. 121 & 129.
 56. Leiss, "Utopia and Technology," p. 588.
 57. Gamma Group, in Leiss, "The Information Revolution," ms., p. 22.
 58. Frank Lentricchia, "Reading Foucault (Punishment, Labor, Resistance)," Parts I & II, *Raritan*, Vol. 1, no. 3 and Vol. II, no. 1, pp. 5-33 and pp. 41-70.

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59. Michel Foucault, *Les mots et les choses* (Paris: Gallimard, 1966).
60. Finlay-Pelinski, *Powermatics: Discourses on New Communications Technology: New Communications Technology as Discourse* (forthcoming).