Confronting Technophobia: A Topology[1]

Robert Burch
University of Alberta

In the summer of 1951, or so legend has it,[2] the cultural world of Munich witnessed a remarkable event. The Bavarian Building Contractors Association, for reasons hidden in the depths of the Germanic soul, invited *Extraordinarius Professur* of philosophy, Dr. Martin Heidegger, to address their annual convention. For reasons no less mysterious and Germanic, Heidegger obliged with a talk entitled, fittingly enough, *Bauen Wohnen Denken* (Building Dwelling Thinking). The question of building, Heidegger declared, is more than a technical problem: It goes beyond all efforts to design, construct, and outfit ever more efficient and elaborate structures to house people and things, or to endow these with functionality and aesthetic appeal. To build genuinely, Heidegger said, is to construct a home, that is, an authentically inhabitable place where human beings could be at home in a world dominated by nihilism and the planetary triumph of technology.[3] Such construction, he showed, is essentially a kind of thinking, the sort that could recover a sense from the tradition, provide an orientation in the midst of a world pursuing unlimited technological mastery, and discover to the individual who she is and in what sort of space she is called to dwell.

Legend does not record what the reaction of the building contractors was. It is not inconceivable, given their professional interests, that some were actually sympathetic to the claim that dwelling is a matter of building (at least on their own terms). Yet one can scarcely imagine them being persuaded that genuine building is thinking. Even in the land of *Dichter und Denker*, this would be apt to seem too theoretical a point of view. And if perchance one or two of the contractors were convinced, Heidegger had offered them little, if anything, in the way of a strategy for the pursuit of this "fundamental building." In the main, one surmises, the result was confusion and misunderstanding.

The contractors no doubt listened to Heidegger's lecture as partisans of common sense, and hence, from the stern vantage point of the expedient "local knowledge" (Geertz, 1983) with which most everyone in our culture as a matter of course is at home. When the issue is technology, however, the authority of this common sense is bolstered by our scientific and philosophical orthodoxy. These are one in advancing what Heidegger has termed the "instrumental anthropological" conception of technology (1954, pp. 13-15), characterized by a number of familiar and purportedly self-evident theses: That technology is essentially a "means to ends" and a "human

activity"; that its implements and techniques are inherently neutral, and thus in principle under human discretion and control; that the distinctive feature of modern technology as a human activity lies in its systematic deployment as a means through the application of modern physical science; and that its problematic feature lies in the increasing complexity of skills needed to deploy it effectively. It is assumed, then, that the question of technology is comprised chiefly of technological problems that admit, in principle, to technological solutions. The specific task of "confronting technophobia" is thus seen in the same way, namely as a matter of technical education,[4] whereas radical questioning of technology is typically dismissed as fetishism, fatalism, or as simply medieval. At first glance, all of this appears obvious and uncontentious, for "who would deny that [the instumental anthropological conception] is correct" (Heidegger, 1954, p. 14). The reality, however, is more complex.

The Place of the Question

To the bewilderment of the contractors and to the derision and confusion of most philosophers and scientists, what Heidegger sought was not a new philosophical position more convincing than its antecedents, but a radical thinking (*wurzelhaftes Denken*) which would undercut our "common sense" and the prevailing orthodoxy in all of their entrenched forms. He sought this, moreover, not to bring knowledge that was "better" than science, nor to provide precepts of worldly wisdom, nor even to solve cosmic riddles, but simply to take the measure of what is truly going on with us as human beings. He struggled to make intelligible in a more comprehensive and critical way the "place" in which we presently dwell, not as points on a map that we delimit and command, but as the fundamental context of meaning that we discover and sustain. Thinking, he once suggested, is a "topology" and its "topic" is our historical being in the world, the "essential space" (*Wesensraum*) in which we are called to dwell.

Seen in this light, the "place" of the question of technology is the "topic" itself: The issue is not that of an isolated problem in a hierarchy of specific concerns and pursuits, but an interrogation into the essence of the "world" in which we now have our being insofar as our "being in the world" is determined technologically. Such a venture challenges both our taken-for-granted assumptions about the meaning of questioning, (i.e., about what is worthy of being interrogated, about the "way" of inquiry itself, and about the criteria and significance of legitimate response), and our familiar judgments about the essence of technology and the adequacy of the instrumental anthropological definition. It seeks to demonstrate (literally *monstrare* "to show forth") that contrary to the "sense" of common sense things are not really the way they seem in front of our noses, and that if we fix our gaze only there for the sake of "getting the job done," we risk a precipitous fall. In the process, it offers both

a different gauging of the "place" (*topos*) of our essential dwelling and a different understanding of how we are appropriated and must respond to this "place."

Nowadays, even common sense recognizes that ours is a technologically saturated culture and that technologies are implicated in virtually every dimension of our lives. This ubiquity alone demands a response, be that critical, adjuvant, resigned, or evasive. But there is more to our world, and to the question of technology, than these evident facts. Alongside the proliferation of individual technologies, a Promethean faith in the intrinsic power of technology has been a basic tenet of the Western ethos, coincident with our peculiar conceptions of progress, liberation, and the realization of "reason." Although somewhat tempered in recent times by technical mishaps and intellectual criticism, this "faith" both belongs to the effective principle of what is presently going on almost everywhere on the planet, and beyond all competing ideologies and political economies, it serves to characterize our world essentially. One may respond to it variously: from within as witness or heretic; from without as convert or infidel; and advisedly, fanatically, or by default as the case may be. Either way, simply to live in contemporary society is to take a stand with respect to this faith. Indeed, the extent to which one is involved with it is today the very measure of contemporaneity.

That this faith should be common to us is neither accidental nor adventitious, but is the fulfilment of a destiny implicit to the Western philosophy of reason. That this destiny should be of world-historical significance is a consequence of the inner "logic" of that reason, that is, its presumption to radical universality and to an absolute ordering of all things according to its own self-determined categories. Heidegger was not the first to point this out, nor to offer a response that placed the whole tradition into question.[5] But, arguably, he was the first to respond with a degree of radicalness appropriate to the phenomenon. The root of the question, he showed, lies in the implicit hubris of Western "subjectivism," that is, in the hegemony of a consciousness which in one way or another puts everything at its disposal for its own assurance, knowledge, and control. Such consciousness is concerned at all levels with "objects," and thus correlatively with how, as "subjects," we deploy and secure the world theoretically, technically, and practically. It is not, then, just the omnipresence of instruments and technics, nor in itself the hegemony of acquisitiveness and the will to mastery that marks our world. Rather, it is the presumption that our prime means of access to reality at all levels is a "stance" (*Stellung*) having various interests and purposes by which we set the world into discrete objective realms over which our concepts, technics, and precepts effectively rule. Our hubris is the conviction—sometimes tacit, sometimes

boldly affirmed—that in principle nothing escapes our grasp, and hence that reality belongs to us more than we do to it.

Yet prior to all positing and all subject-object relations, and thus prior to all efforts to "take things in hand," there is the place (*Ort*) in which we dwell. This "place" does have essential limitations—the ontic boundaries of physical conditions and particular contingent circumstances, and the ontological horizons of what has been granted us to think and know. The "subjectivist" project, which recognizes no limit, a will to will without end, is intrinsically alienating: Its goal of total knowledge and total control of conditions is an infinitely receding ideal (see Fell, 1981, p. 268), achieving only partial satisfaction, though not in a genuine appropriation that would make the world properly our own, but through a dialectic of distancing and domination. The world is represented as an object to be made our own through expropriation and consumption, set over against our being as subjects and then dissolved without essential remainder. Yet in the event, the world as a context in which we *dwell* is lost. To confront this alienation, to learn what it means to dwell, that is, to be truly at home *in* the world, we must go beyond all distancing and domination, and thus beyond all technics and "objects" of research, all assured answers, and effective results. The question concerns our very being and demands a "revision" of our building-dwelling-thinking.

6

To the thoughtful, however, questions and problems are not the same. A problem, Gabriel Marcel once wrote, "is something which I meet, which I find complete before me, but which I can therefore lay seige to and reduce.... A genuine problem is subject to an appropriate technique by the exercise of which it is defined" (1950. I, p. 211). Problems thus differ from questions in several decisive respects.

1. Problems concern "objects" in the broadest sense, that is, everything that can be the *noema* of intentional consciousness, and thus can be held discriminately in view, set off from ourselves and dealt with; anything which, in Heideggers' terms, is a "being" (*Seiende*) and thus can be either "ready or present to hand." As such, "objects" are that which can literally or figuratively be "taken in hand," with implements or concepts, through action or theoretical cognition, as the case may be.

   A question, however, concerns a matter in which we are involved essentially, an issue that pertains to our very being in the world. As such, it is indeterminate and nonobjective, eluding our certain grasp, however much that is enhanced technologically, scientifically, or philosophically. With it, the distinction between the questioning and the questioned, "what is in me and what is before me," intrinsic to all our debates over subjectivity and objectivity, "loses its meaning and its initial validity" (Marcel, 1950, p. 211). We do not so much posit a question, as we are en-

compassed by it; we do not so much *have* a question, as we *are in it*.

2. One attacks problems using the weapons of a predetermined method and a strategy of divide and conquer. Problem solving is intrinsically abstractive, calculative, and exacting. If the attack is successful, the problem is defeated once and for all. The goal of all problem solving is closure.

   In contrast, one thinks upon questions, seeking by means of this not a definitive answer, but an ever more radical and comprehensive context of understanding. Questioning is intrinsically disclosive, integrative, and invocative, with no goal beyond the on-going and open-ended venture of existential ontological self-appropriation and self-understanding.

3. Problems are matters of cognition and control. Problem solving seeks "correct" knowledge and information in order to get results. Indeed, the answer to a problem which did not "work" would be no answer at all. In this, cognition and control go together essentially. The opposite of correct knowledge is "mistake," whether figuratively or literally, theoretically or practically; to have the object elude one's sure grasp.

   Questions, on the other hand, concern the elucidation of meaning, that is, on the basis of which something is first intelligible as such. The deepest question is the question of the meaning of being itself. Being in this usage refers to the all-englobing set of interpretive horizons which, insofar as they illumine the mass of phenomena in a characteristic way, accounts for the existence of a "world." The term "world" names a context of meaning wherein objects are first freed for presence and absence, for correctness and mistake, for knowing and manipulating.

4. By and large the answer to a genuine problem concerns what we do, that is, how we can better deploy the various "objective" realms that our theoretical, scientific, and practical activities posit.

   The response to a question, however, concerns who we *are* as human beings: In all questions, it is we ourselves, our having and doing, thinking and being together, that is the principal matter at issue. The effect of questioning is not directly any technical enpowerment or practical instruction, nor is the answer to a question a propositional statement about an objective state of affairs. In questioning, effect and answer are the same, namely a transformation of being, which is to say, of our building-dwelling-thinking.

The foregoing account is not meant to be exhaustive nor certain, but it does serve to clarify the assumptions concerning the question of technology that are implicit to the "topology" I have been sketching.

They are three:

1. The issue of technology cast in its profoundest terms is a "question" and not a "problem."
2. It concerns who we are, more than what we do and the results we accomplish thereby.
3. The response that it demands is a transformation of our way of thinking and being, not a tactical action at isolated points where things seem temporarily out of control.

Following Heidegger's "way," I have characterized the medium of this transformation as a "topology," not to suggest that Heidegger is the authority and the last word, but to indicate that a response to technology (and by implication, to technophobia) must in general be made along such paths. It would not be possible here to develop and defend the notion of "topology" in enough detail to quell most doubts. But some of its basic features do need to be sorted out.

1. Although beyond all "subjectivism," topology is a form of transcendental inquiry in the broadest sense, that is, it is concerned not so much with objects as with the condition of objects, with that which lies behind and makes intelligible all relations of intentionality.
2. In this sense, then, it is also a phenomenology, for it seeks to provide the "logos" of what "appears."
3. It provides this logos as the fundamental context of meaning, itself largely concealed in favor of what appears, that is, the essential lived-spaced, both synchronic and diachronic, in which we have our being.
4. Hence, it is hermeneutic insofar as it calls forth an implicit fundamental sense, that is, a logos that is the hidden ground of what comes to be for us.
5. And it is historical, insofar as it appropriates this sense diachronically from the tradition, recovering and creatively projecting a meaning that is the "place" in which we dwell, making it more properly our own so that we come into our own (Langan, 1984).

However new this "topological" formulation may be, the question it carries out, namely, of what it means to dwell, is very old indeed. It is nothing less than learning the good life, which from time immemorial has been considered the true province of philosophy, the love of wisdom. Yet we undertake this task now in circumstances that are inauspicious and paradoxical. Along with our technical successes, the type of thinking that we accept today as preeminently rational and legitimate is technical calculative thinking, an instrumental reason whose hallmark is expediency, exactness, and control, a rationality for effective ordering, making, and doing. Professional philosophy, far from being a bastion against this hegemony, has been its

herald. It has systematically converted itself into analytic methods and logical calculi. In the event, the question of the good life has lapsed, as Theodor Adorno wryly observed, "into intellectual neglect, sententious whimsy, and finally oblivion" (1974, p. 15).

Herein lies a paradox: On the one hand, the question of the good life is for us especially dramatic and pressing, for we must raise it in a time when instrumental power and technological control have accelerated beyond all recognizable limit and comprehension, and when, like latter-day Babylonians, nothing seems impossible to us, but our pride and skill as builders outstrips our wisdom to ask "for the sake of what" we are building. On the other hand, it is instrumental reason which presently defines the concept of "legitimate" thinking and marks out the bounds of what is valid and above all "rational." At present, then, noninstrumental philosophy, much like the language of women as women hitherto, lies outside the currently sanctioned bounds of "serious" discourse.

The question of technology requires a "leap" outside of these bounds, for there is no easy transition. And the leap is a leap of "faith," for it affords no instrumental guarantees of success, no assured results (Burch, 1984).

On the Topic of Technology

In contrast to puzzles and curiosities which we can take or leave, genuine questions are the expression of needs, and the most fundamental questions are those rooted in the needs of the human situation. In this regard I want to defend three propositions uncountenanced by present orthodoxy and common sense.

1. Although modern technology is at one level a means to ends and a human activity, at a deeper level it is a *grace of being*. Without pretending to reproduce in condensed form the logic of Heidegger's famous *Die Frage nach der Technik*, I would simply draw the reader's attention to the following points. No amount of analysis simply at the level of instrumentality discloses the peculiar character of modern technology, its intrinsic impulse to encompass all aspects of life and to render all things in terms of the instrumental will to power. The essence of technology, that is, the whole way in which technology comes forth and abides, lies ultimately in its character as a mode of disclosure, a way in which all the things-that-are get revealed. This essence is "of being," for it defines the essential space, always already in play, in which we have our being. It is a "grace," for this essential space is never simply at our disposal and under our control: *By itself*, no amount of voluntaristic busywork will change it fundamentally, neither that of rationally guided *praxis*, nor everyday, instrumental common sense.

2. Technology is at once a positive and a negative grace. It is positive, for it grants a perspective through which we do control and order the world, effectively deploying everything-that-is as a standing resource (*Bestand*) for use, control, and exploitation. Tangible benefits do accrue from this, a fact which the critics of technology are wrong to dismiss out of hand.

   Yet technology is also a negative grace. In opening up the world as material for unlimited instrumental action, (and human beings themselves are not excluded from this), it tends to close off other possibilities for human building-dwelling-thinking, the caring, meditative, creative aspects of our being, which along with exploitation and control, go to make up who we are. In the extreme, this closure threatens our very being, for it closes off the creative possibilities for realizing new meanings, of bringing forth and sustaining worlds other than that of instrumental action.

3. Yet, paradoxically, it is the negative grace which, in the face of all of our palpable successes, first engenders the "need" to raise the question of technology in a radical way. The urgency of the question is discerned precisely because, in the very midst of the technological society and because of it, one cannot help but sense that something is fundamentally lacking, something which continued technological virtuosity not only does not fulfill, but seems to exacerbate. It is a technological "night", one might say, in which the Owl of Minerva now "takes to flight."

Such talk will no doubt raise eyebrows, if not ire. In current discussions it is not always clear that technology poses problems, let alone evokes questions, not to mention the fundamental question of our time. This is especially true in nonacademic circles. James Young, a former senior vice-president of technical resources for General Electric writes: "Technology is all the techniques, knowledge, lore, methods, and tools that have helped society survive and improve its life" (Pascarella, 1979, p.5). Taken literally, this is a rather curious view, for it would imply that technology is good by definition. Presumably, if *in extremis* we were to annihilate ourselves tomorrow with nuclear weapons, the weapons on Young's account could not be technology! Obviously, Young's expertise is not philosophical. But as a kind of "techno-Candide," he has his equally extreme technophobic counterparts. They are the ones who also see technology in normative terms, but regard it as uniformly bad. The naive radical technophobe appeals to nature in its naturalness, and regards technology always as a corruption of the pristine state. The sophisticated radical technophobe appeals to the purity of the life-world, which technology is thought to deny. Although none of these views is especially credible, each reveals something important about the topic of technology.

The radical technophobe is wrong, since to be human is to break the bond of natural innocence. Unlike animals, human beings realize meanings essentially, they have a world and they make history, and their use of tools is one of the ways in which they mediate nature, alter the environment, and transform their world. All philosophical appeals to an immediacy of nature in its naturalness or to the purity of lived experience, as Hegel long ago pointed out (Gadamer, 1972, pp. 324ff), are self-defeating. Nonetheless, the radical technophobe offers a valuable lesson: She can make us more attentive to the scope and meaning of the transformations and mediations that we do effect.

The radical technophile is wrong, since there is nothing intrinsic to technology as a human activity and a means to ends that on balance guarantees use towards beneficial purposes. But, the radical technophile too offers a valuable lesson. In the face of seemingly more frequent mishaps, she reminds us that technology has been integral to our survival, and that in granting instrumental power, it does alleviate tangible needs.

Neither lesson is the last word. However wary the technophobe makes us, we cannot be blinded to the fact that we live in a thoroughly technologized world. This or that technology might be factored out selectively without serious collapse, but it is neither possible nor desirable to factor out technology radically. "To be technophobic in our time," Edward Ballard writes, "is to be willing to accept starvation and slavery" (1978, p. 1). The question for us is not one of doing away with the machines, nor of romantically invoking a pretechnological pastoral Eden (which never in fact was), but of keeping open the instrumental power of technologies in a properly human context.

On the other hand, however much we are comforted by the technophile's assurances, we should not be smug in our judgments about betterment and progress. This is a more complex issue. In the first place, ours is an age well acquainted with catastrophes and stands in legitimate fear of even greater ones to come, made more profound because of our technology. And although it may not be a situation without hope, scarcely anyone can be sanguine.

Second, precisely because, barring some apocalypse, we are *irretrievably* committed to high levels of technology, we need to be more self-conscious and self-critical of the standpoint from which we judge its value. In this regard there have been radically negative voices. "Today," wrote Edgar Allen Poe, "man is only more active—not more happy, nor more wise—than he was 6000 years ago" (Gallagher, 1979, p. 89). Jacques Ellul goes further and questions the very grounds of such judgments. "We cannot say with assurance that there has been progress from 1250 to 1950. In doing so, we

would be comparing things were not comparable" (1964, p. 192). It would be easy, I suppose, to dismiss Poe as a romantic and Ellul as a crank. Still there is something right in what they are saying. On the one hand, there is no doubt that our technology grants us instrumental power. Moreover, just as we cannot recapture lost youth, we cannot win back a previous form of life. Hegel was surely right in this, that there is a certain irreversability to the history of spirit. Our possibilities must necessarily be possibilities granted from out of the technological society itself, however critical or transformative we may wish to be. But on the other hand, it is not self-evident that instrumental power is the exclusive nor even the principal benchmark of human value. If nowadays we are inclined to think so, it is because instrumental reason has no other criteria by which to judge.

We need to be clear about what is at stake here. I am not saying that instrumental power is not a value, and given the nature of our society, that it does not afford the leisure to pursue noninstrumental activities. I am just saying that it is not the absolute value. There is, of course, a paradox in this. The more we commit ourselves to instrumental power for the sake of leisure and see ourselves essentially as the wielders of such power, the less we seem open to those activities for the sake of which leisure deserves to be won (Arendt, 1958, p. 5). If we are technological beings essentially, then our leisure time free from the exercise of instrumental power is time for nothing. Ten minutes at any suburban shopping mall any night of the week will tell us what that means. (Out of sheer decency I shall refrain here from mentioning West Edmonton Mall, the largest shopping concourse and fun factory in the world, which sprawling on the hinterlands of Edmonton provides as compelling a symbol as any philosopher could demand.)

Yet I am also not advocating a radical nostalgia, as if leaving our technology behind (or at least its most obtrusive forms) we could transport ourselves back to some earlier time presumed to be "better." Such a notion is not just misguided, it is unintelligible. A past form of life is not a possibility for us at all, as long as we are who we are. That being so, we could not participate in what discernible virtues that form of life may have, since we are not of that world.

All this aside, what I am suggesting is that there are no straightforward, context free criteria by which to judge these different forms. As a child of the technological society, given the choice I myself would prefer to live even in the burnt out wastelands of the South Bronx, than in a cave in Mesolithic Iberia. But, I am not prepared to say categorically that life in the Bronx is absolutely better than life in the cave. Inevitably we are compelled to judge and judge on the basis of our own situation as we perceive it. Yet, when we take seriously the claim that such judgments are not categorical, then we

are opened to the possibility that afterall, things could be *essentially* different and have been in other times and other places. Thus we need not, and should not, be locked into a univocal standard of judgment that leaves open only a specific sort of possibilities, however efficiently they can be realized.

This brings me back to the comment by James Young. To see technological development in itself as progress is to overlook the fact that individual technologies are not isolated phenomena. Regardless of its demonstrable benefits, each one comes with a cost and is not just a means to an end, but is implicated in a transformation of ourselves and our world.

There is yet another check upon the technophile's enthusiasm. One cannot deny that Western science and technology produce results. Indeed, the uncanny thing is not that here and there our science and technology fall short, or that things break down, but that for the most part they "work" and work with a vengeance. Yet, as this science and technology spread out and threaten to absorb all other cultures and ways of thinking, leveling them to serve our demands, it comes to be assumed that ours is the only way of proceeding. Yet, consider the encounter with Chinese medicine. "Herbal medicine, acupuncture, moxibustion, the yin/yang duality, the theory of the chi" (Feyerabend, 1978, p. 102-03) were all dismissed in the West as arcane and largely ineffective. When for political reasons, however, the Party allowed the old teachings back into medical schools, it became apparent that the traditional medicine had methods of diagnosis and therapy more effective than ours in the West. Feyerabend takes this point even further.

> It is always taken for granted that older practices, for example rain dances, don't work. But who has examined *that* matter? And note that for examining it we would have to restore the harmony between man and nature that existed before the Indian tribes were broken up and annihilated. (1978, p. 138)

Western science and technology are universal in an abstract sense, that is, they *presume* to hold indifferently, irrespective of place and time (although how universal they are even in this sense is a matter of debate). The older practices, as revealed for example in Levi-Strauss' notion of *bricolage* (1966), are more deeply context dependent and context responsive, tied in with a whole web of practices, dispositions, and beliefs that support their effectiveness. When we invoke "nonstandard" techniques in the midst of current practices, this is something other than proposing an alternative universal method that we claim is more expedient. It is at root to propose a different way of life, in terms of which different practices are more effective. (Thus, for example, home births are not better purely and simply. But they may indeed be better for a society in which the

event of birth is more sacred, in which women have gained a better sense of their own bodies, where family life, friendship, community, trust, and risk have different values than they generally do now. It is the way of life itself, rather than a debate over the expediency and presumed universality of methods, that is ultimately at issue.)

Much of the foregoing was provoked by James Young's tacit, though probably unintended, claim that there are no "problems" of technology. At the very least it should be clear that however much political, ideological, and socio-economic forces stand in the way of it, we do need to learn to deal more effectively and cost efficiently with the instruments of technology, to be less foolhardy in what we venture to do and more adept at predicting the tangible, quantifiable effects of various uses. Even to the instrumentally skilled and committed, this should go without saying.

Such cautions, however, still move within the instrumental account of technology. Here the problems are thought by and large to be technical, and thus the province of technical experts. The basic issue concerns what we do with the implements and techniques, in terms of which the consideration of the "effects" of specific uses comes afterward as a cost/benefit calculation. If technology is inherently problematic, the issue is one of "taming the tiger," of controlling technology more effectively by taking it more resolutely in hand.

Yet, even at this level, matters are not so straightforward. There is no technical expertise without vested interest, nor technology without the possibility of error. That is not to say that scientists and technicians are not honorable people or that our technologies are generally shoddy. But, the commitments and agenda of scientific-technological research do entail implicitly self-affirming values, and nowadays are everywhere carried out directly or indirectly under economic and ideological imperatives. Moreover, "a foolproof technology," as David Suzuki once remarked, "is a technology without fools," which means without any relation to human beings and hence not a technology at all.

It is important to realize that even the problems of technology point beyond themselves to the realm of questions. In what direction new scientific and technical knowledge *should* be taken "cannot be decided by scientific means; it is a political question of the first order, and therefore can hardly be left to the decision of professional scientists and professional politicians" (Arendt, 1958, p. 3), not to mention professional philosophers (if that oxymoron is permitted too). The public confuses the issue and abdicates its own responsibilities when it defers to so-called "experts" on such issues. And the experts overstep their bounds when they presume to fill the gap.

The instrumental conception of technology pushes beyond itself in yet another respect. At stake is the whole range of our nontechnical

experience of technology, that is, not of what we do with the implements and techniques per se, but of what the use and proliferation of technology does to us (Ihde, 1984, 1986). At this level it is a question of how technology is implicated in, and conditions in fundamental ways, our self-understanding, and our relations to other human beings; our whole experience of the world.

Questions of this sort arise at two levels. The first is the level of instrumentality itself, of how the equipment and artifacts that we make and use—those things those things employed for the sake of doing something—serve a mediating function between the experiencing subject and the object experienced. Contrary to the assumptions of the prevailing orthodoxy and common sense, this instrumentality is *nonneutral*. In saying this, however, I do not mean to side with either the technophiles or technophobes, who affirm an intrinsic positive or negative value. The thesis of nonneutrality claims instead that merely to have a tool ready to hand is in itself, *whether for better or for worse*, already a transformation of experience. With this readiness to hand, things come to be for us differently as a new range of possibilities opens up, whether it is specifically acted upon or not. Yet, this is not simply a matter of how things happen to appear. Reality itself is changed because of the possibilities the instrument grants. In their mediation, instruments effect both material changes and existential-ontological transformations. The use of tools is a form of our being in the world, and thus, a fundamental mode of the original disclosure of things, that is, of how the world comes to be for us as a world in the first place.

However "correct" this analysis, it is still too abstract, for it fails to disclose the full contextual meaning of instrumentality. All tool use is use in a context, and transformational functions are fully intelligible only against a wider background. It is this fact which pushes us beyond the level of intentionality. There is a basic "ontic" context inscribed in things and their interrelations, a context of particular artifacts, people, documents, natural resources, physical settings, forces and relations of production, and channels of power; and there is an "ontological" context, a context of lived-meaning in various worlds, and an over-riding interpretive framework that gives a fundamental sense to things as such as a whole. It is in this latter context that the real essence of modern technology is to be found, that is, in that prevailing mode of discourse, understanding, and disposition that deploys everything first and foremost as material for ordering, control, and exploitation.

Taken on these terms, the most basic issues concerning technology are not those of technical expertise. They are more than a matter of finding "right" answers in the form of expedient and efficient methods and techniques to deal with seemingly self-evident and

objectively posed "problems" in the field. Prior to all answering, the scope and meaning of the questions themselves must be considered. The real issue, then, is not a matter of asking "How Not to Have Technophobia" (*Folio*, May 1, 1986), as if this were some sort of fearful psychosomatic disease for which only the "techno-medical" experts have the cure. The prior task is to ask: "What does it mean to think in terms of 'confronting technophobia' in the first place?" "What is assumed when we take this for granted as a fundamental concern, as a problem that needs to be solved, and when we speak of it in almost pathological terms?" Yet to ask in this way is to alter our prevailing assumptions about what would count as a proper response.

Confronting Technophobia

To our common sense, technophobia is a "problem" that admits of a more or less direct solution. The issue is one of educating ourselves to be more at ease with the implements of technology in order to take them more effectively in hand, exchanging fears based upon technical ignorance for informed mastery and control. To the extent that ours is a technological society, this is a rational agendum. One may, of course, be justifiably sceptical about the degree of technical skill required to get along effectively in our society (Burch, 1985), or question the meaning of "mastery" itself, or personally choose on rational grounds priorities other than technical expertise. Nonetheless, at the instrumental level, to lack technical knowledge is to lack a certain kind of power, to which technophobia based on ignorance precludes even minimal access. Without the possibility of such access, one is limited in real choices from the outset, whether pro or con.

But there is more to the issue than this, for rarely, if ever, is technophobia based just on the happenstance of technical ignorance. It almost always has its roots in social, psychological, and existential conditions, in a sense of estrangement from the world into which one is cast. Here common sense cannot help, for it is from the prevailing common sense that one is estranged. To the technophobe, the technological world seems alien; to common sense, the technophobe seems foolish.

It is not mistaken nor misguided to affirm the importance of technical education, but it is wrong to assume that this alone is an adequate response to the issue of technology and technophobia. Common sense is correct to insist that technology is not demonic. But to teach that lesson, to transform fear into technical mastery and control, alienation into a sense of what it means to dwell, is more than a "problem" and more than technics. At the level of skills, technical knowledge is better taught in a humane rather than an instrumental context, and no amount of technical expertise in itself makes a context humane. Moreover, the questions of estrangement and

dwelling go beyond technical skill and instrumentality to the meaning of instrumentality in our world, and this is at root a philosophical issue. *Confronting technophobia is a matter of thinking.*

Now it is one thing to invoke "thinking" as a saving grace (among philosophers, almost a professional duty); it is quite another to say what this means. As a craft of "place," thinking does not provide universal injunctions nor technical recipes, that is, criteria or principles that can be directly applied with an easy assurance and validity. Thinking arises "out of response to what is owing to the situation—its demands" (Bakan, 1984, p. 76). Thus we only truly discover what it means to think in the situated venture of thinking itself, which united with building and dwelling, are the modes of our being in the world.

As a "topology," thinking encompasses two *topoi*: the ontic space of empirical conditions that define where we are as physical beings; and the ontological space of lived-meanings, the "worlds" of significance that constitute our "hermeneutic situation." Although irreducible one to the other, these two *topoi* belong together essentially as a single world of interpenetrating spaces. It is here that one must learn to dwell, and thus both "existentially, factically" (*faktisch*), that is, as the locus and medium for the generation of meanings, and "insistently, factually" (*tatsachlich*), coping with the ontic here and now. Neither mode of being, however, is exclusively active or passive.

This places thinking in a special relation to common sense, to instrumentality, and to positive science. Thinking does not seek to abandon or repudiate common sense, but to situate it in a more comprehensive context of intelligibility, which yet in itself presages a transformation of common sense. Thinking does not seek to preclude or belittle instrumental action. It acknowledges that our being in the world requires that we find out how to deal with things, if no longer just exploitively, nonetheless with competence. And it acknowledges that there are instrumental activities which are "thoughtful," that is, which besides merely producing or accomplishing, are in themselves a deliberate gathering and disclosing of sense. Thinking does not seek to replace or reform positive science, nor to dismiss it as merely a theoretical construction remote from lived experience. (Afterall, upon this science is founded our rockets, nuclear installations, and telecommunications networks—the majority our technology—and many would find this close enough.) Yet, amid the successes of science, thinking must ask about the proper scope of scientific knowing and the ground and limit of its effectiveness, and hence, among other things, recall science to itself.

Overall, this characterization of thinking as "topology" might well be seen as an attempt to mediate between two fundamental interpretive schemes, each having its own distinctive "metaphysics" (i.e.,

ruling truth relation and understanding of reality as such), its own "economy," (i.e., how in terms of the production and consumption of scarce values, the world is first and foremost encountered and deployed),[6] and its own modes of discourse (i.e., its dominant "logic" and rules of "serious" speech). On one side is the intelligibility of instrumental reason rooted in "subjectivism," namely, the prevailing sense of our time. As we have seen, it operates through a metaphysics of things, of objects deployed and secured in various ways and at different levels for our assurance and control. Its economy is essentially "extractive," expropriating resources and enhancing their value for sale through skillful manipulation. Its discourse is "nominalistic," that is, paradigmatically denotative and univocal, a tool at our disposal for the effective ordering of things and the processing of information. In this scheme, wisdom lies in the efficiency, mastery, clarity, and certainty with which we deploy all the things-that-are.

On the other side is a "meditative" intelligibility. Its metaphysics is that of meaning, the sense of things not just as such, but "as a whole" (*im Ganzen*). Its economy is "providential," based on the exchange of gifts "from other persons, from divine beings, from nature, . . . from 'good fortune'" (Bohm, 1985, p. 541), or from *Sein selbst*. Its discourse is disclosive, itself a gift rather than a tool, an appropriation of the lived meanings in and through which we dwell. Wisdom in this scheme "consists in being able to receive gifts (as a blessing, when opportunity knocks), and being able to give gifts in turn (as alms or as a sacrifice, for example)" (Bohm, 1985, p. 541).

Thinkers, (like artists and poets),[7] are presently caught in the struggle between these two interpretive schemes. The struggle is paradoxical, and in the face of the irreducibility of the ontic and ontological, one that is without the possibility of absolute mediation. To meditative thinking the hegemony of the instrumental scheme threatens us in our very humanity. Yet this hegemony comes as a consequence of the inner logic of instrumental reason, that is, its intrinsic impulse to order, exploit, and control absolutely. Thinking, therefore, struggles against this hegemony at the risk of its own expropriation; for without its own effective means of ordering, exploitation, and control, it seems impotent. Thinking is thus impelled by a twofold demand: Negatively, it must resist the temptation to succumb either to the pragmatic wilfulness of instrumental reason, or to the passive other-worldliness of philosophy; and positively, it must struggle "here and now and in the little things" (Heidegger, 1954, p. 41), which means with a certain amount of wilfulness and control, to develop its own strategies for holding open the essential space in which a new revelation of sense and hence a new way of being can be received as a gift (Langan, 1982).

How then do we begin truly to confront technophobia? We do so by struggling for a deeper, more comprehensive self-understanding in the midst of technological transformations. As educators we must prepare students to live in the technological society by helping them (and ourselves) to perceive the full sense and possibilities of our world situation, and along with care and concern, providing them with the skills and tools to allow that perception to happen. However grandiose or star-gazing it may sound, what is required is a historical understanding that reaches to the essence of our civilization. Such an undertaking is the necessary, if not the sufficient, condition for the kind of self-direction needed in the midst of the powerful changes we are witnessing. Without such an orientation one could not understand the place wherein she is called to dwell, nor the dimensions of its true possibilities, and therefore would not stand of chance of understanding *for the sake of what* and in terms of what she should seek to dwell. Indeed the question in this form would not even occur to her.

Heidegger climaxed his improbable lecture to the contractors with a line from the 19th Century poet Friedrick Hölderlin. To the question how do we dwell, Hölderlin responded: "*Dichterish wohnet der Mensch auf dieser Erde*" (Poetically dwells human being on this earth). Hölderlin was not enjoining us to the reading and writing of poems. The poetic here is the coming to be of the genuinely creative, the struggle to open up new horizons of significance and to realize possibilities for human building-dwelling-thinking that are more than use, exploitation, and control. The earth is all that to which we are indebted for our being, ontic and ontological, that from which our creative activities arise and to which they return. In this dwelling there are no guarantees of success, no assurances of control, just the on-going venture. But in the words of another poet: "For us there is only the trying, the rest is not our business" (Eliot, 1963, p. 203).

Notes

1. A version of this paper was first presented to a plenary session at the annual meeting of *The Association for the Advancement of Science in Canada* (AASC), Edmonton, May 10, 1986. The present edited text is still very much programmatic.
2. This opening is largely a paraphrase from memory of some remarks made by Professor Thomas Langan in the *Protokoll* to a graduate seminar on the philosophy of history, April 1976. It turns out, however, that the incident is apocryphal, or at least, that Langan took poetic license in recounting it. Yet, as is often the case in philosophy and always so in literature (both *mythos* in the original sense), what is lost in faithfulness to the facts is gained in the disclosure of truth.
3. On the semantic difficulties surrounding the term "technology" see Ronald Bruzina's remarks in Axelos, 1976, pp. xiv-xviii, and Burch, 1984, pp. 19-21. In the present discussion I use "technology" as an omnibus term whose specific sense must be gleaned from the context.

4. This view was starkly apparent at the AASC meeting. Although the conference theme was "confronting technophobia," with very few exceptions the papers were of the "science for the layperson" variety.
5. In Nietzsche, for example, one finds a radical critique of Western rationality that goes beyond any previous scepticisms, and in Bergson's *L'évolution créatrice*, an attempt to contrast technology as the necessary expression of this "rationality" with creative intuition, the *elan vital*.
6. This notion of "economy" is a hybrid from ideas found principally in works by Bourdieu and Levinas. The specific contrast of the two economies, as well as the encouragement to take matters in this direction, come from Professor Arnd Bohm.
7. For the struggle with respect to artists and poets see Hyde (1983), especially Chapter 8, and Bohm (1985).

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