From Fundamental Philosophy to Meta-Technology: Appendix A
THE HISTORICAL PERSPECTIVE OF INSTRUMENTAL COGNITION

(Draft 2, July 1980)

The research which I did in the process of writing critical and speculative manuscripts on physics, logic, and mathematics during 1978-80 has forced me to adopt controversial views on the history of such knowledge as purportedly has technological consequences. I am referring mainly to natural science and its antecedents (often called natural philosophy); but I also wish to keep in mind pre-scientific occult practices for purposes of comparison. The manuscripts which led to this commentary are as follows.

Critical
The Crisis in Physics and the Question of a New Science
The Bankruptcy of Logic, first section
Problematic Junctures in the Foundations of Classical Mathematics
(replaced by Anti-Mathematics)

Speculative
The Fundamental Reconstruction of Physics
The Bankruptcy of Logic, second section (entitled "The 'Real-World' Logic of Consistency)
Absorbing Contradictions Dishonestly: A Generalization of the Sophistries of Yessenin-Volpin

But first I must make a disclaimer. When I speak about history, I do so with a considerable sense of irony. My philosophy leads me to have a sense of absurdity when I argue about the facts of the remote past; and I am highly sensitive to the falsification of historical periods in the primary sources, i.e. the chronicles of the time. (The rubbish that has been written by art journalists about concept art and Fluxus and my connection with them has been a thorough education in these matters.) The problematic aspect which I most want to emphasize here is that our so-called factual knowledge about ancient times is a vast edifice of inferences from extremely scanty clues. Consider, for example, how many reconstructions depend on the assumption that the three texts on the Rosetta stone are translations of one another; or consider the disputes over the interpretation of Babylonian mathematical tablets, which disputes are unknown to all but a few archeological specialists. That is why it is so ironic that some thinkers who disdain the epistemology of contingent facts (and who may even be sympathetic to occultism on the basis of what we know of it from slipshod history books) propose to take history as an ultimate reality--a "ground" from which all other phenomena arise and derive their substantiality. Of course the anthropocentrism and geocentrism of this outlook

conflicts with the world-view of modern science--I don't know whether that conflict is an embarrassment to the historicists or not. But what should be emphasized most is that the historicists speak as if they obtained the facts of history through direct communication with the Almighty; there is no source left but the Almighty if the epistemology of contingent fact is disdained. But it would be a fairer assessment to say that history is thoroughly problematic at the level of contingent fact. To ignore this problem is to concede tacitly that the history dear to historicists is whimsical fabrication. As for me, any opinions which I express about history, especially the history of seven thousand to twenty-five thousand years ago, are characterizations of the stories told in the scholarly literature. I am providing parables of the form "If this were so, then ..."; and I do not pretend to be providing anything more.

Let me begin my discussion of technological or instrumental knowledge with some conclusions which I have reached concerning that tradition of knowledge which is represented in the modern era by natural science, and which in earlier eras is called natural philosophy. Actually, to affirm that there is such a tradition--to speak as if Aristotle's physics and Newton's physics and Heisenberg's physics are different manifestations of the same discipline, or to speak as if tribal African arithmetic, Babylonian geometric algebra, the infinitesimal calculus, and category theory are all different portions of a discipline called mathematics--is a generalization which Aristotle or Archimedes or Aristarchus was not in a position to make. In other words, natural philosophy as a tradition is itself a construct of modern historians. But this construct is enshrined in innumerable treatises and textbooks; and I propose to entertain it for what it is worth and to respond to it.

One of my major conclusions is that I cannot agree that science (natural philosophy) has unconditionally progressed over the centuries. (This thesis has been advanced before by a number of eccentrics, but wait and see what I make of it. My view is a very specific one into which I have been forced by my attempts to do science at the contemporary research frontier.) In other words, modern science is in some respects not more awesome as an intellectual achievement than the scientific activity which antedated the modern period. Of course, contemporary science manifests a vast gain in instrumental efficacy, which is the goal of science (at least for contemporary culture). I am not suggesting that this gain should be undervalued. But consider the following.

(1) The sort of cleverness which characterizes science was already fully evident in Babylonian mathematics; in Euclid, Archimedes, Eratosthenes and Aristarchus; or in the invention of zero.

(2) Contemporary science is not more secure foundationally than ancient scientific activity was. If contemporary science seems to be more secure foundationally, it is largely because the philosophical issues of the foundations have been buried by an emphasis on technical virtuosity (cf. category theory) without in any way being resolved. The best documentation of this contention is in Anti-Mathematics, especially in a quotation by Abraham Robinson, but I will repeat some elementary examples here. Questions concerning the legitimacy of irrational numbers, zero, and infinity are no more settled today within science than they were thousands of years ago.

The reason why the Greeks did not discover coordinate geometry and calculus is that they had already provided impressive arguments against the concepts on which these later innovations depended. Also, the Greeks did not discover the law of inertia because it depends on the thought-experiment of a body moving unobstructed in an infinite spatial vacuum--a notion which the Greeks rejected, quite plausibly, as paradoxical. In What Is a Thing?, Heidegger already said that the law of inertia would have been senseless to the Greeks and the medievals. But I am proposing something more: that the Greeks were no less "in the truth" than today's physicists because the law of inertia would have been senseless to them.

(3) Greek logic, geometry, and physics were potentially richer than their modern counterparts. And what I have in mind here is not a truism of the "irrationalist" faction of the academic world. It is based specifically on The Fundamental Reconstruction of Physics and The "Real-World" Logic of Consistency. What happened was that when I attempted to do science at the contemporary research frontier, I found it more thought-provoking to read Aristotle as a physicist and logician than to read Heisenberg or Weinberg or Cohen or Kripke. Aristotle's logic was open to questions of the divisibility of the world materially and in thought, of one's consciousness as an observer, of the acts of one's attention relative to the world, of the stability of distinctions and the preservation of identity through the passage of time, of one's relation to other people, of human intent or motives, of the dependence of language and truth on community agreement, etc.--whereas mathematical logic excludes these questions (or what is even more outrageous, reinterprets the questions on the basis of norms established in pure abstract formal logic: the abstract mechanomorphic substanceless hierarchy of sets). As for geometry, Euclid was concerned with the logic of positional relationships in the visual field as well as with spatial magnitudes, whereas modern geometry considers number-spaces exclusively (and in a very strict sense is too weak to provide instructions for drawing the diagrams in geometric texts). And the physics of Aristotle was intensively concerned with the pitfalls involved in attaching quantitative structures to nature, whereas contemporary physics, which only concerns itself with the relation between matter and matter expressed in numbers, often creates natural laws unawares merely out of its choice of mathematical structures.

A second conclusion of mine is as follows. Modern European scientific technology is admittedly a distinct cultural phenomenon: especially inasmuch as modern European civilization has sought to make it autonomous, to extend this theoretically astute pragmatism as if it were the whole of cognition and the highest good to which humanity can aspire. But scientific technology is not so distinct that it springs forth from the void in the seventeenth century. On the contrary. As I have already said, when I was attempting to do science at the contemporary research frontier, and to probe questions of the foundations of science, and I turned to the history of science for stimulation, I was forced to carry my search back much farther than 1600 A.D. (Indeed, if we are to accept the stories told by anthropologists, then I would have to say that

the interesting decisions were made twenty-five thousand years ago. That is the period for which I, as a self-appointed mathematical physicist, would most like to have accurate primary sources.)

One reason why it is necessary to go back before 1600 A.D. has already been mentioned: the ancient sciences were more open to questions which have always been implicit in logic, mathematics, and physics, but which have been buried in the last few centuries by formalistic one-sidedness and uncritical (I might almost say cavalier or witless) mathematicizing.

But what is far more important is that there is an essential continuity from ancient natural philosophy and technology to their contemporary counterparts in certain respects. There is an ancestor/descendant relationship between the two. I am well aware that this contention will be unwelcome to romantics and "irrationalists" who wish to counterpose the past to the present as if the past could save us from the present. Heidegger, for example, advances this view in such works as Discourse on Thinking, The Question Concerning Technology, and The End of Philosophy and the Task of Thinking. His notion is that ancient technology sought to placate or cooperate with nature, whereas modern technology seeks to subjugate (i.e. rape) nature. And there are other reasons for counterposing ancient natural philosophy to its contemporary counterpart, some of which I will discuss. (As for the view of Heidegger's which I just mentioned, my response is that Heidegger correctly discerns something pathological in scientific technology, but that he does not understand the pathology satisfactorily. I will return to this matter later.) Let me state what I consider the continuities in the history of natural philosophy and scientific technology to be. For one thing, foundational questions which are implicit in science at the frontier today and are still unsettled within science were first asked explicitly in the ancient world—or first arose in ancient times. In order to discern the relatively deeper philosophical problems posed by enumerative arithmetic, for example, one has to consider (the stories we have about) its earliest manifestations. Most significant of all, if one is trying to find at what point human culture started down the path that EVENTUATED in contemporary science and technology, one finds oneself placing the turning-points which prefigured contemporary instrumental cognition earlier and earlier in history. Once one knows about the extensive geometric algebra of the Babylonians (not to mention their calculations of compound interest), one does not have the right to be surprised by instrumental cognition as it is practiced in modern European civilization. The precedent is already fully established, and the only question is how it will be extended. (Or the Pythagorean theorem could be cited to make the same point—and never mind whether its first application was in the construction of altars. If I may refer to Fellini's La Dolce Vita, I don't care whether helicopters are made for the purpose of transporting religious statues; what concerns me here is that helicopters are made at all.) Or if I ask an even more basic question about instrumental cognition—such as how people came to make measurements of spatial magnitude in the first place, a sensible answer cannot be given if one considers only the period after Newton or the period after Descartes.

The ultimate issue here is thing-centered instrumental cognition, the thingifying manipulation and rationalization of the world, the instrumentalism of things. When did human societies start down the path of relating to the world as a quantified collection of things? The answer must be that thing-centered technology can be found as far back as the history of culture can be

reconstructed; and this answer is not negated by the circumstance that early societies did not place thing-centered technology in the same context that we do. I have noted that Heidegger's later publications sought to counterpose ancient technology to modern technology. But in Being and Time, Heidegger advances a dogmatic thesis of different import which is symptomatic of the state of affairs I am characterizing. Heidegger posits that the "present-at-hand" (I call it thingification) is one of the inherent structures of Man's* relation to his world. What is more, Heidegger never dares to suggest, in Being and Time or anywhere else, that modern physics is not a truth (on its own terms). That Heidegger would avow that thingification is inherent is symptomatic that there is indeed a continuity in instrumentally consequential natural philosophy which extends outside the present era.

As for contemporary natural science itself, it makes a much, much stronger claim of its own that its mode of apprehending the world is innate and inevitable. To express the matter simply, science presumes that the way the cosmos really is is the way mathematical physics says it is. Human beings and human brains have evolved in this universe from more elemental physical constituents. Reality is a copy of physics, and to survive in this reality, human beings must partake of and participate in physics in regard to the structure of their bodies, the structure of their brains, and the structure of their signal-registering and information-processing capabilities (not the structure of their thinking--thinking doesn't exist in the reality revealed to us by physics). Thus, thingified logic, mathematics, and tool-utilization are inherent in the physical structures of the nervous system--so that the hardware, the circuits, the wiring diagrams needed to process data (not think!) extra-scientifically are not even physically available in our nervous systems. Contemporary neuro-physiology even proposes to locate the portions of the brain congenitally devoted to the various types of thingifying behavior (so that there is, as it were, a lobe for Kripke semantics, a lobe for transformational grammar, a lobe for fiber bundle techniques in gauge theories, etc.). (Already Hegel devoted a long section in the Phenomenology to phrenology, but this science jive is just too much.)

But why is it important to me to inquire when human societies started down the path of thing-centered instrumental cognition? I need to describe explicitly the perspective in which I raise these questions. From now on, I expect to devote most of my efforts to a mode of activity which I now call "meta-technology." (And this is apart from the single effort I made in 1979 to find a new basis for mathematical physics.) The meta-technology is a technology whose field of action is the determination of reality. The meta-technology invents procedures in which established instrumental knowledge is perceptibly negated--and its power to do so derives in part from unbelief, from decrease of credulity. Also, it utilizes contradictions in established conceptual systems, and it utilizes procedures which inescapably engage one's

*I am well aware of the undesirability of using the masculine gender when the generic is meant. But unfortunately, this convention is a necessity in expressing Heidegger's ideas in English, because this usage of "Man" allows us to speak of "a" person as myself without an article or a possessive pronoun. To violate this convention would obstruct the visibility of the themes which I am paraphrasing and make Heidegger seem even more gratuitously bizarre than he already is.

subjectivity in tangible ways. Thus, the meta-technology is instrumentally effective at the interface of awareness and objectivity. It breaks out of the thing-world, and breaks the framework of objectivity. Inasmuch as the meta-technology breaks away from the thingifying orientation, it achieves a unification of human faculties which renders meaningless the distinctions between the practical, the subjective, and the spiritual.* Inasmuch as the meta-technology gives manipulative power over "the world" and is not a passive interpretation of life, it is an instrumental modality (and one which in principle should be able to overmaster scientific technology). Inasmuch as the meta-technology derives its power from unbelief, and from procedures which are specified to be carried out in the first instance by "the reader" and in which there is no room for mystery, it is antithetical to credulity and occultism. To coin a slogan, the meta-technology is an instrumental modality which is neither science nor superstition. Indeed, the outlook in which consciousness is a juxtaposition of thingifying instrumentalism and superstition is an outlook in which it is impossible to discern or to use meta-technological processes. I should also say that when I specify meta-technological procedures, I make manifest that the thingifying instrumental modality is not innate to human beings.

To return to the history of instrumental knowledge, my third conclusion is as follows. There is a substantial overlap between modern European civilization on the one hand, and ancient (and non-European) cultures on the other hand, in regard to basic instrumental knowledge.**It has been said that histories of science only report the respects in which ancient cultures were just like ours. Indeed, this judgment has been vigorously justified by Lord Raglan and by Seidenberg, and their speculations are valuable in cautioning us against a certain kind of naiveté: namely the assumption that the purposes behind everything the ancients did were the same as those of modern European civilization. But if histories of science only report the respects in which ancient cultures were just like ours, then what is notable is that there is a very great deal to report--so much so that ancient instrumental lore must be viewed as a fully established precedent for contemporary instrumental cognition. Seidenberg claims that mathematics was originated for religious (numerological or cabbalistic) purposes, but he does not claim in the least that the "factual results" of ancient mathematics were any different from the "factual results" in elementary mathematics today. The "factual results" of Greek mathematics, Babylonian mathematics, Egyptian mathematics are identical to results incorporated in contemporary mathematics (except for a few cases which are attributed to inaccurate guessing by the Babylonians and Egyptians). (There is indeed the other consideration that Euclidian geometry envisages something more than number-space geometry, or that analytic geometry and the infinitesimal calculus depend on concepts which had been rejected as paradoxical by the Greeks. But these contrasts represent a kind of dispute which does not affect the factual results. The matter is clear in the research of Archimedes: there is only one formula for the area of a circle, and it is the same one that is taught in grade school in the twentieth century. The only issue on which the ancients might dispute the moderns concerns the method by which the formula is derived.

*It also supersedes the dichotomy of "science" and "poetry." See the Addendum on Page 14.

**There is in part an identity of content.

And disagreements of this kind are much more pronounced within modern mathematics than they are as between ancient and modern mathematics.) Let me restate this conclusion in explicit relation to my perspective. I couldn't care less whether the ancients sugar-coated the factual results of thingifying instrumental cognition with superstition. What I want to know is whether the ancients invented any meta-technological procedures. Nothing in Lord Raglan or Seidenberg intimates that they did. Even more significant, Lord Raglan and Seidenberg would be no more able to understand meta-technology than, say, Freeman Dyson --because the meta-technology is not located on the superstition side of the science/superstition dichotomy. In short, the ancient instrumental lore which was effective by contemporary standards had the same content as the analogous contemporary knowledge; and was thing-centered from the beginning. If you want a state of affairs in which 1=2 at the level of perception, you will find it not in the slipshod histories of cabbalism, but in meta-technology.

Let me address the issue of occultism directly and thereby give added weight to the remarks I have already made about it. As I have acknowledged, the "factual results" of instrumental activity in ancient societies were deeply submerged in, and subordinated to, what today would be called faith, occultism, or superstition. The motives for observing the motions of the celestial bodies were religious and astrological. "Mathematics" was heavily numerological and cabbalistic. And so forth and so on.* (Indeed, perhaps the single most amazing aspect of the entire history of instrumental activity is that during the first few thousand years of civilization, occultism was itself a principal component of purported instrumental knowledge. People engaged in occult practices not with the ultimate purpose of doing the gods a favor, but of enticing the gods into doing them a favor. Let us not imagine that occultism was a matter of disinterested spirituality: the purposes of sacrifice, divination, astrology, alchemy were thoroughly venal and mercenary. But what this means is that during the first few thousand years of civilization, people devoted massive amounts of energy to a technology which simply does not work. But ancient peoples also at all times possessed thingified instrumental procedures which were effective by modern standards. In modern terms, ancient peoples insisted on maintaining a technology and a pseudo-technology side by side with one another, and they refused to take the step, obvious to us, of applying the norms of the technology to the pseudo-technology and repudiating the latter as rubbish. But even this state of affairs has its analogue in the contemporary world, in which the science of electronics exists side by side in corporate technology with the pseudo-science of economics. Evidently the pseudo-science represents the realm in which the ruling class--or the whole population--finds charlatanism more useful and more necessary than impersonal effectiveness. But I must make a final disclaimer in this connection: I don't really believe that the claim of scientific technology to be more effective than occult practices is defensible in a philosophically profound context.)

*With respect to primitive society, something even stronger can be said. Thingified instrumental lore is submerged in cultural modalities having to do with the social reification of the subjective: dreaming, hallucinating, etc.

As I have just intimated, modern European culture contrasts with ancient societies in that it avows the goal of disentangling the factual results of technology from myth, faith, or superstition. It avows this goal, that is, except in regard to disciplines such as economics, in which myth, faith, and superstition are indispensable to the maintenance of the established social order. The goal in question is best represented by scientific medicine's program of "isolating the active principle," by which many superstitious remedies have been made to yield scientific drugs. Again, I recognize that the distinction between science and superstition is itself dubious. But in any case, modern European culture defines itself by positing this distinction.

Yes, ancient societies are quite different from modern Western society in subordinating the factual results of instrumental activity to superstition; but this difference matters little to me because I have originated an instrumental modality which will supersede both science and superstition. What is significant in my perspective is that the "factual results" of ancient technologically effective natural philosophy are substantially identical to contemporary results. The instrumental lore in ancient societies which was effective by contemporary standards says the same thing as contemporary instrumental knowledge. One legitimate way of interpreting ancient culture is to characterize it as a mechanical juxtaposition of superstition and thingifying technology. The superstition most definitely accepts the factual results; it certainly does not seek to confront and to obviate them. (The Christian attack on the wisdom of the Greeks is something of an exception; but even here there was more of a resentful co-existence with thingifying technology than an attempt to overmaster it intellectually.)

AND AFTER ALL, ON BALANCE SUPERSTITION AMOUNTS TO SPURIOUS THING-CENTERED KNOWLEDGE. ON BALANCE, SUPERSTITION IS A THING-CENTERED TECHNOLOGY BROUGHT INTO BEING BY SOCIALLY APPROVED FANTASY. TO THE EXTENT THAT SUPERSTITION ALLOWS FOR SUBJECTIVITY AND HUMANNESS, IT GIVES THEM THE GUISE OF A REALM OF THINGS, ALBEIT A CHIMERICAL REALM AND A REALM CONTROLLED BY SOCIETAL AUTHORITIES. SUPERSTITION THINGIFIES AND DOGMATIZES SUBJECTIVITY AND HUMANNESS AS GOD OR THE SOUL OR REINCARNATION OR RESURRECTION OR LUCK. WHAT IT EMPHATICALLY DOES NOT DO IS TO PROVIDE A TECHNOLOGY AT THE UNREDUCED, UNDISPLACED INTERFACE OF AWARENESS AND OBJECTIVITY. THAT UNDERTAKING BELONGS EXCLUSIVELY TO THE META-TECHNOLOGY.

Inasmuch as all human societies have hitherto possessed a foundation of thing-centered instrumental lore, Heidegger has made some astute observations in Being and Time about the human consequences of this state of affairs. Instrumental lore has always been a doctrine of Things which do not have the aspects which make ourselves human. Instrumental lore is always a doctrine of Things-not-capable-of-insight as bundles-of-qualities; of Things-which-are-unable-to-encounter-each-other in the way in which the Self encounters "its world." Thus, most importantly of all, when instrumental cognition is turned so that we ourselves are within its scope, it converts us into Things-not-capable-of-insight conceived as bundles-of-qualities, into Things-which-are-unable-to-encounter-each-other: into walking lumps of lard.

On the other hand, I reject Heidegger's view that

thingification is an inescapable structure of the human condition (in the guise of the present-at-hand). Here the philosopher's traditional task of passively interpreting the faits accomplis of culture has once again yielded an apologia-by-default for one of those faits accomplis (and Discourse on Thinking documents Heidegger's final surrender to the total materialist technification of culture). Heidegger notwithstanding, I have already undertaken the project of intellectually confronting, overmastering, and obviating thing-centered technology.

It is now possible to characterize more directly the state of affairs, regarding instrumental cognition, which concerns me. The simplest elements of the meta-technology do not depend in any obvious way on an advanced materialist technology. There is no obvious reason why they could not be discovered in an industrially undeveloped society. But as the originator of the meta-technology, I daresay that I am qualified to recognize contributions to it--and I have never heard of anything in ancient or pre-industrial society which represented an intended, developed meta-technological procedure. Any notion that superstition or occultism is an acceptable substitute for the meta-technology needs to be uprooted like a weed. The deluge of superstition which pours forth from ancient China, India, Egypt, Babylon, Meso-America, Greece, etc. does not add up to a single meta-technological procedure. Also, established thingifying technology cannot be converted into meta-technology by sugar-coating it with superstition.

But let me consider further the failure of industrially undeveloped societies to invent meta-technological procedures. All ancient societies were interested in dreams. Some primitive societies incorporate the socially regimented use of psychedelic drugs in their cultures. And Aristotle already mentioned two perceptual illusions which have important uses as primitive elements of the meta-technology (namely the waterfall illusion for the logic of contradictions, and the crossed-fingers illusion for intersensory discorrelation and also for the contradictory arithmetic of inconsistent-valued numbers). Yet none of these phenomena were ever apprehended from a meta-technological standpoint. As an example of the disregard of the "miracles" which are within one's grasp, Aristotle knew about the waterfall illusion, but he devoted all of his efforts as a logician to the syllogistic, two-valued logic of consistency. To repeat what I said earlier, the outlook of pre-industrial societies is an outlook in which consciousness is a juxtaposition of thingifying instrumentalism and superstition. And such an outlook makes it impossible to discern or to use meta-technological procedures.

Thus, although my purpose in writing this commentary is to draw some conclusions about the historical status of science, it is even more to make a statement about the status of my undertaking. The meta-technology "could" have been originated thousands of years ago, but it wasn't. All previous purported instrumental knowledge, whether effective by contemporary standards or not, has not produced a single result which breaks the framework of objectivity. Rather, at the dawn of human culture (twenty-five thousand or so years ago as the stories have it), instrumental cognition started down

a path which was inimical to and incompatible with meta-technology. If I emphasize that thingifying technology is perennial in human culture--in opposition to those who want to romanticize the past as if it could save us from the present--it is because my results cannot be understood unless it is possible to be candid about their uniqueness and novelty. (The meta-technology is one of those undertakings which cannot become self-sustaining if it is pursued cautiously and modestly.) The novelty of my results is such that after twenty years nobody has yet used or extended them. (Péter Berényi managed to pose a genuine meta-technological problem in a letter of May 1979, but the answer which he provided along with his question failed to break the framework of objectivity. It was left to me to ponder the problem for a year and give genuinely framework-breaking solutions, in "Determination of an Objectivity by Reciprocal Subjectivity.") Christer Hennix has complained that my activities have absolutely nothing to do with anything that precedes them, and he is about right--unfortunately.

But it is not out of the question to find some explanation of why the instrumentalism of things has persisted so stubbornly, and why it is only now being challenged. Prior to the modern epoch, thingifying technological knowledge and superstition were able to co-exist. But in modern Western civilization, science begins to achieve a terroristic domination over people. A separation of science from superstition is demanded. Superstition, as a cheap means of allowing for subjectivity and humanness, is made a laughing-stock. Scientific technology is carried to the point of being a totally inhuman terrorism. The ascendant scientific outlook compels us to think that reality is nothing but mechanically consistent abstract formal objectivity. The scientific outlook compels us to think that we are automatons. The scientific outlook compels us to think that the only hope for the future is more tons of steel and longer automobiles. And finally science compels us to think that thinking does not exist. Science proclaims that it is going to rectify the universe so that all consciousness will be eliminated from it (cf. Scientific American, October 1979, pp. 219-232).

At the same time, science smashes the traditional moral imperative to pay homage to superstition, to be faithful and orthodox in a traditional religious sense. It laughs superstition's human-scale world-view out of court. To be precise, science stops us from "acknowledging" subjectivity and humanness by giving them the guise of a chimerical, socially controlled thing-world. There is no longer any intellectual authority in thingifying and dogmatizing subjectivity as God or the soul or reincarnation or resurrection or luck. Thus, science forces the issue in an acute way, proclaiming that it will relentlessly exterminate our humanness, that it will force us to think that thinking does not exist. Science ruthlessly diminishes people to walking lumps of lard; and it blocks the chimerical thing-world as an avenue of re-humanization. There is only one way to respond to this mortal challenge: to discompose the awesome reality of science through unbelief, and to turn to processes at the undisplaced, unreduced interface of awareness and objectivity.

And of course, the burden of showing that in principle I provide the appropriate and adequate response to scientific dehumanization does not rest on the single preceding sentence. I have produced hundreds of pages of manuscripts on meta-technological processes and procedures; some of these manuscripts have already been published. If nobody wants to understand me --if people would rather self-destruct than switch, as it were--then nothing I accomplish will help them. But the question now arises very seriously for me as to what the overall strategy should be for the project of revolutionizing the instrumental modality. I have had to think quite seriously whether it would be desirable to regress to pre-history, and to replay the long-run global evolution of culture differently. If we are now in "garbage," do we escape it by going back to the point where the "garbage" began? I have quickly decided that such a strategy would embody a profound misunderstanding. Regression and privation will get us nowhere. It may even be useful, as a parable, to consider the instrumentalism of things to be an unavoidable evolutionary stage, programmed into the human condition, as it were. If we merely regress, the imperative to cleave to the thing-world (as practicality) becomes more stringent than ever. Pre-historic tribes are least well situated to break the framework of objectivity. No, the correct breakout strategy is to build above the garbage by eclectically ransacking the garbage and rearranging the spoils under the control of the new purpose. Indeed, I have always assumed that pure meta-technological procedures will have to be cross-potentiated with natural science in ways which are not yet clear. In short, it seems that the meta-technology can only arise within the disintegration of the most sophisticated structures of civilization.

Also, ever since I cited Lukács' "Reification and the Consciousness of the Proletariat" in Blueprint for a Higher Civilization, I have acknowledged that a totally automated pure communist economy is in some way a precondition for the realization of meta-technology. As long as most people are "slaves of economics," their collective apprehension of the world will be controlled by their economic servitude. In this connection, the present historical juncture is something of an impasse, because the spread of the meta-technological idea may be necessary to dispel people's attitude of servility so that they will want pure communist economic relationships enough to struggle for them. Such an impasse requires us to take a fresh look at "uneven and combined development."

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I will continue by giving a brief commentary on Heidegger's Being and Time, because it provides an object-lesson in regard to issues raised in "From Fundamental Philosophy to Meta-Technology" and in this Appendix. (Page references are to the translation published by Basil Blackwell, which also shows the pagination of the later German editions in the margins.) I shall paraphrase Heidegger quite freely, as this discussion is not a scholarly exercise. Heidegger takes as one of his objectives the task of defining those aspects of Man (or the human condition) which are specifically human, and not derivative and Thing-like (c. p. 226). In connection with this enterprise, Heidegger observes (pp. 166-7) that formal logic is a doctrine of Things-not-capable-of-insight as bundles-of-qualities; and thus that it cannot

e.g. express the human conditions of inauthenticity and authenticity. Heidegger says in effect that whereas Kant tried to delineate the thought-forms of the mind, philosophy should delineate the thought-forms of Man's humanity (c. p. 227). This task would be described in the inaccurate traditional terminology as the analysis of the "subjectivities" in Man's condition. But since Heidegger is an heir of phenomenology, he further proposes to analyze the "inescapable subjectivities" in a context in which questions of contingent fact are held in suspension (cf. pp. 292, 309).

As an example of what Heidegger is doing, one of his theses is that Man always has a mood (p. 173). Man also "encounters a world" of his--in a sense which is specific to Man (cf. pp. 87-90). (This idea is related to the idea of thrown-projectedness; the import of these ideas is, in my terminology, that we comport ourselves to a "context of objectivity" even in immediate experience.) Furthermore, Man is always "interested" in the sense of "concerned" (p. 157); and according to Heidegger, "interest" is the basis of the derivative phenomena of desire, will, and wish (p. 227).

Very well. This seems like a promising beginning; although I do not find it as profound as the genetic epistemology which John Alten tried to draft between 1961 and 1976--and when Heidegger rejects the analyses for which preceding philosophers such as Schopenhauer and Bergson are best known, he is rejecting "solutions" which are more thought-provoking than his own. But all that is rather beside the point, because early on Heidegger's enterprise takes a horrible twist towards malevolence. In the first place, the only "subjectivities" which Heidegger accepts as authentic are the isolating experiences of death (p. 277 ff.), disgustful malaise (p. 231), and guilt (p. 315 ff.). What was there in this man's past to eventuate in this confession of desolation of the spirit? As a person who specializes in authentic self-assertion, I am violently offended by this trash. Heidegger's doctrine that the sole locus of authenticity is death makes it understandable why his "unfashionable profundity" did not prevent him from becoming famous and from influencing the famous. Heidegger is giving alienated mass man a cheap answer: that what one has to do to be authentic is to be free for death and shatter oneself against death (p. 437). Thus, authenticity is built-in for everyman; and at the same time it doesn't have all that much to recommend it over demeaning amusements. By telling alienated mass man that authenticity is a death-trip and a guilt-trip, he leaves mass man unthreatened by any sublime gratification which would humiliate him --which would let him know that he is missing something <u>difficult</u> which is worth the effort it requires. (Also, I have never been able to decide whether or not Heidegger is talking about biological death--which is only a contingent fact and not at all a Husserlian "phenomenon.")

But there is another equally outrageous perversion in Heidegger. I said in "From Fundamental Philosophy to Meta-Technology" that the entire modern era of philosophy has been tormented over the "scandal" that it has been unable to prove the existence of the external world and to refute skepticism. But no philosopher has ever reacted more hysterically and dishonestly to this scandal than Heidegger (p. 249). In an extension of Husserl's version of the "transcendental argument," Heidegger schemes and connives to choose a conceptualization in which the skeptic's doubt cannot be expressed at all (pp. 246-9). (And as I have said elsewhere, to pass from the imputation of contexts of objectivity in experience to the objective reality of the world is a classic non sequitur. By the same reasoning, prayer would be sufficient to prove the existence of God, and the worlds of our dreams would be proved to be more real than the waking

world.) The consequence of Heidegger's ploy is that it is impossible for him to make a critique of contingent propositions as regards their correctness or error. Heidegger succeeds in proving the world only at the cost of guaranteeing that whatever he has proved is empty. Superficially, it seems that his phenomenological orientation will lead him either to a kind of idealism (p. 251 --I call it cathectic individualist idealism because of the role ascribed to "interest"); or inability to take a position on contingent theses (cf. his weaseling on life after death, p. 292); or acquiescing by default to the vulgar determination of reality (again cf. pp. 246-9). But the actual outcome is worse than this. From Heidegger's offhand remarks, it becomes evident that he actively affirms the vulgar determination of reality, and most especially on questions which should be subjected to a thorough critique. Cf. his invocation of Newton's laws as truth, p. 269--I have in mind especially the law of inertia, which it is a disgrace for somebody who claims to know the Greeks and the Scholastics to accept as indisputable fact. (In What Is a Thing?, this naiveté is somewhat rectified; but Heidegger never dares to suggest that modern physics is not a truth.) Eventually, every philosopher who has considered it beneath himself to have a theory of the correctness or error of contingent assertions has ended by parroting the conventional wisdom of his historical period with less critical self-consciousness than scientists at the frontier of research manifest. Furthermore, Heidegger proclaims that the skeptic commits suicide (p. 271). Thus, he echoes the chorus of philosophers who say that there is no substantive benefit to be gained from skepticism.

Once again, a philosopher's frenzy to ostracize the skeptic and "prove the world" (in this case by making it conceptually impossible to doubt the world—but what does this "world" amount to that is disconnected from all contingent fact?) has condemned us to this vulgar status quo and this vulgar world, Newton's laws and all. Furthermore, the only purpose for which Heidegger inquires into Man's humanity is to provide a death-trip and an ersatz religion (Tillich's substitution of Being for our Father in Heaven) as consolations to "poets" already defeated by the materialist technification of culture. It did not and could not have occurred to Heidegger that the "factual reality" which he felt it beneath him to scrutinize can be superseded. It did not and could not have occurred to him to use the modalities of Man's humanity to challenge the monopoly of Thing-centeredness on instrumental cognition.

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How, then, do we proceed if we do wish to use the modalities of Man's humanity to challenge the monopoly of Thing-centeredness on instrumental cognition? As I said, I have already provided some substantial answers in this connection. But let me now point out another contribution of mine, "Representation of the Memory of an Energy Cube Organism" (written in 1961) —and in particular the passage on p. 117 of Blueprint for a Higher Civilization. This passage is a parable of an instrumental plan of action which utilizes moods such as stupor, euphoria, vertigo, anxiety, etc., in an overall situation in which the Self can choose its factual world by choosing the order in which it recalls the totality of facts which define the world. (Cf. the example of a physics in which the weight of a collection of particles depends on the order in which the particles are noticed.) This passage indeed previews a mode of activity of a civilization of a higher order. Indeed, I already had the necessary perspective twenty years ago—as I unsuccessfully keep trying to

tell my associates. Now, however, a further development is possible. As a result of trying to concretize my critical views on logic, mathematics, and physics, and my positive proposals in the logic of contradictions, a priori neurocybernetics, etc., I have acquired a familiarity with the interconnections of inherited concepts which makes it possible to "translate" the preview of a framework-breaking plan of action into detailed instructions which take the established "reality" as starting-point. Thus it is that my main pending project is writing a treatise entitled Manipulating the Determination of Reality. I have already produced an outline of the treatise which shows where a number of my previous manuscripts will be incorporated in the treatise; I have produced a list of solved and unsolved problems which are typical of meta-technology; and I have produced a few new manuscripts written especially as sections of the treatise.

Addendum to Page 6:

In addition to distinguishing between the practical, the subjective, and the spiritual, the established culture also counterposes "science" and "poetry" in a way which is very symptomatic. On the one hand, truth, reason, and intellect are affairs of the specialty known as "science," and they are best achieved by inhuman, mechanical functioning. The capacity to function inhumanly and mechanically is psychologically hygenic and admirable. On the other hand, subjectivity, emotion, imagination, and being human are another field of specialization, namely "poetry," and this field is associated with irrationality, illogicality, neurosis, infantilism, superstition, and self-indulgence. Poetry is psychologically inhygenic; therefore it is not so admirable. Being human is dirty: it contaminates truth with psychologisms. This dichotomy of science and poetry interacts on occasion with the older Christian dichotomy of spiritual sanctity and the sinfulness of the flesh. The latter dichotomy reinforces the notion that it makes sense to flee from the "contamination" of humanness, and to flee toward mechanistic asepsis, in works of the spirit and the intellect.

The powerful grip of these dichotomies on the consciousness of intellectuals is evidenced by one of my associates who says that "all psychological considerations must be eliminated from logic," and who does mathematics part of the time and writes poetry part of the time and imagines that he is thereby a whole human being—not realizing that neither of his activities makes sense.

[And since "poetry," or art, is so often invoked as a counterweight to the dehumanizing effect of thing-centered technology, I should make a further remark about it. Art, properly labelled, is not itself an instrumental modality. Thus, it cannot supersede the dehumanization of thing-centered technology at its source. At best, it can only be a consolation for the defeated and self-destructing "poets."]