Information Society: Cultural Impoverishment or Enrichment?*

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We are well upon 1984, the year of George Orwell.

In the years approaching 1984 it has become realistic to speak of the all-pervasive character of information and communication technologies. Although "Big Brother is watching you" is not yet a reality, the existence of these technologies means that the possibility that such a situation could develop is greater than ever. The political dictatorship behind the Iron Curtain has clearly been strengthened by the adoption of the latest technological possibilities, and is therefore more firmly in the saddle than ever. The Orwellian Society is now distinctly within the realm of possibility.

Perhaps you will already have concluded that I am a melancholy pessimist. At a time when many are suffering from technophobia, would it not be preferable to spotlight the positive aspects of the latest technical possibilities? I share heartily in that wish. The problem is simply one of discovering how to insure that our culture will be enriched and not impoverished as an information culture.

Orwell can teach us something pertinent to this problem. The society he described becomes possible, he says, when people cease to give a *spiritual* answer to the question of the meaning of existence and ·instead assume tacitly that the answer is to be found in a continuous development of science and technology (accompanied by a strongly enhanced specialization of experts) in a purely *materialistic* approach. Technology in that case becomes a modern form of *magic*.

The ancient legend of King Midas illustrates the point. The gods granted his request that all he touched be turned to gold. What an example he is of greedy, economico-technical, materialistic man! After a few days King Midas implored the gods to deliver him from this blessing, since literally everything he touched--his food, his wife, and so forth--turned into a lump of gold. All that gold could not satisfy King Midas's profound personal yearning for love, and he was threatened by physical and spiritual starvation.

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The prescient Spanish philosopher of culture Ortega y Gassett sensed long ago that our culture with its gigantic technical possibilities was on the road to becoming a spiritually suffocating society. He observed that many specialists promote this development in a barbarous manner, and that the masses surrender themselves to it in materialistic faith. "Therefore these years in which we live, although they are the most intensely technological that human history has known, are at the same time the most empty."[1]

The question I wish to address is how we can prevent that kind of disastrous development and promote a meaningful development in the information society. Or, to take to heart the lesson of King Midas, it is that of how we can prevent life's suffocation by an uncontrolled development of information technology while at the same time insuring that we do justice to the proper value of this technology throughout the whole of culture.

To answer these questions I shall examine the present trend of development in science and technology. Critical attention to this development makes clear that we face entirely new ethical problems. If no solution to these problems is forthcoming, society will be technicized and we will be confronted by increasing social dislocation. If, however, we can find ways of effectuating responsibility in technology and society both individually and communally, then culture will be enriched rather than impoverished by the newest techniques.

The technological culture

Modern information technology did not appear out of the blue. Rather, it is the continuation of the whole development of modern technology. Just as modern technology has its basis in the modern natural sciences, so computer technology has its basis in the natural sciences and in systems theory.

The influence of science on computer technology is often over-looked in discussions of this technology. The inevitable result is a certain superficiality. In that case computer technology is discussed in terms of traditional craft technologies--as if it were a means to an end, for example. Then it is forgotten that the computer is not an instrument or a tool but a component incorporated into systems. And these systems are more important than instruments. Yet computer technology is often thought of in instrumental terms. Computer specialists in particular often tend to say that they

[1] See Jose Ortega y Gasset, "Man the Technician" (pp. 87-161 in *History as a System and other Essays toward a Philosophy of History*. Trans. by Helene Weyl. New York: Norton, 1962), p. 151.

run the computers and will use them as they wish.[2]

That such statements are misleading can be made clear by substituting the word "automobile" for the word "computer." In that case it would be said, "We can use the automobile as we wish." However, such a statement completely overlooks the problems that have accompanied heavy use of the automobile, such as the problems of modern traffic control, traffic jams, the great number of accident victims, urban congestion, environmental pollution, and excessive damage to the landscape. Also overlooked are the many economic, social, and political problems that have accompanied increasing use of the automobile. We can expect a similar effect from the great number of applications of computer technology which will undoubtedly be developed in the future. The development of micro-electronics--the chips--has enhanced the likelihood of such an eventuality. Before computers can be applied in existing information and communication processes, these processes must be made subject to scientific control; only then can they be technically and efficiently managed.

Making the existing information and communication processes subject to scientific control involves enhancing these processes according to the norm of efficiency and likewise reducing them to universal, uniform, and homogeneous processes. In other words, the reality that exists must be made to fit the scientific-technical structure of the computer, and that is a structure which has been universalized. New information and communication processes are also characterized by that uniform and homogeneous quality. Of course, the consequences will be less conspicuous and burdensome in the case of small scale than of large scale systems.

In short, the use of computers wherever feasible entails many consequences--cultural consequences that I believe will prove more significant and that will overtake us more rapidly than those accompanying increased use of the automobile. Although it is impossible to predict these consequences precisely, it is clear what the trend will be. The characteristics of scientifically controllable systems run counter to the fundamental characteristics of our everyday experience and reality. The characteristics of systems theory and information technology are universality, abstractness, impersonalness, and logical coherence; together these form an efficient technical network. These characteristics run counter to the unique, the concrete, the subjective, the full

[2] See George Grant, "The Computer Does Not Impose on Us the Ways It Should Be Used", pp. 117-31 in *Beyond Industrial Growth*, ed. by Abraham Rotstein. Toronto Press, 1976.

coherence of reality, and to our creative responsibility.[3]

Thus if computer systems are employed wherever it is feasible to employ them, we will be increasingly victimized as we are forced to adapt ourselves to fit these systems. Resistance to this development could be marked by numerous social and political conflicts. Many today are unconcerned about the un-normed use of the computer. People are succumbing to the expectation that they will be better off when the development is finished and the harvest is in. The fact that this dangerous development is sometimes irreversible makes the situation all the more perilous.

New ethical problems

To gain a somewhat better view and command of the new ethical problems of modern technology, and of information technology in particular, it will be helpful to compare the main differences between traditional and modern technology. It will then also become clear that we can no longer speak of modern technology in terms of the categories of traditional craft technology.

In traditional technology--think of a blacksmith, for example--everything is characterized by interpersonal relations. A traditional technology is comprehensible, its effects are short-term, and the negative consequences are few and predictable. Traditional technology is static. It does not affect the entire culture but is merely a sector of it.

All this is quite different in modern technology. Modern technology leaves its mark on the entire culture, to which it has brought an enormous dynamic. It touches the entire world. Its consequences affect both outer space and the distant future. The development of modern technology is increasingly incomprehensible. Moreover, it seems to have become unarrestable. Thus some now speak of an autonomous, self-governing development to which people contribute but which they no longer control. Many obviously feel they are no longer the lords and masters but the slaves of technology.

Our perilous human position is aggravated by the many unfavorable side effects that impact upon us before we can predict them. The devastation of the environment, the energy crisis, the many victims of traffic accidentts, cultural protests against technology--all are examples of such side effects. Furthermore, the scope of these problems is still increasing since the various negative

[3] See Egbert Schuurman, "Concern About Responsibility in Applying Science" (trans. by Herbert Donald Morton) in *Research in Philosophy and Technology* 5 (1982): 77-86.

impacts tend to reinforce each other, creating. a snowball effect.[4] This is especially conspicuous in the field of computer technology. When this technology is used wherever feasible, labor problems increase and a chilling routinization settles in upon society. Every individual seems to become a number--and an erasable one at that. Alienation and estrangement become the order of the day. Furthermore, large organizations and centralized control contribute to a growing incomprehensibility and anonymity of systems. Viewed ·from this standpoint, information technology leads to a growing, impersonal technocracy.

Further, the American philosopher Victor Ferkiss[5] has correctly pointed out that the old tension between power and freedom in our culture will intensify in the computer era. On the one hand impersonal technocracy will be able to develop in the direction of a computer-ocracy. On the other hand, however, the freedom ideal will also adopt the new technology and thereby introduce the possibility of a computer anarchy. Computer criminality is a sign of that side of the development. In other words, the tension enveloping science and technology in our culture will increase rather than diminish given the latest information and communication technologies. Social conflicts of no little scope may be the result. The almost unavoidable irreversibility of this entire process of modern technology comes into sharper focus at times when the problems and perils assume catastrophic proportions, for it is precisely at such times that we are made most keenly aware of our lack of experience in dealing with such developments. We have still not drawn any lessons from the past, though in view of the latest developments it would seem highly desirable to do so. From an ethical standpoint, too, we do not seem able to keep up with events. Inexperience, ineptness, and ignorance go hand in hand, impeding our search for solutions to new problems.

When we add up the differences between the older craft technologies and modern scientific technology, the question arises whether it is possible to be really responsible in modern technology. Certainly it is clear that the weight of personal and communal responsibility has grown much greater, both internally to science and technology and externally, that is, in society. Yet it needs to be understood that besides growing weightier, responsibilities have become more difficult to bear and to discharge.

One reason for this is the fact that the scientist or engineer has become more and more of a specialist. The work of specialists may have implications for an ever widening terrain at the very moment the nature of that work precludes their having a comprehensive view of that terrain.

[4] See Hans Jonas, "Technology and Responsibility: Reflections on the New Tasks of Ethics," *Social Research* 40, no. 1, pp. 31-54.
[5] See Victor C. Ferkiss, *Technological Man: The Myth and the Reality* (New York: Brazi11er, 3rd ed., 1970):-Pp. 157, 201, 205.

Specialists know "more and more about less and less." They can no longer comprehend the whole. Hence they must place their confidence in associates who work with them in equally specialistic ways. Yet the specialization at issue undermines and saps the very community which, as a whole, has to shoulder the increased responsibility. Thus that is clearly a negative point.

For the rest, even where adequate insight exists to make possible the bearing of personal and communal responsibility, it appears there are not infrequently scientific, technical, economic, or political factors which impede its effectuation. To break through the existing dynamic, pre-eminently massive trend in present-day culture is supremely difficult. Given the preceding observations, I am prepared to join Hans Jonas in speaking of an *ethical vacuum*.[6]

The problems involved in a responsible development of information and communication technologies are great. The ethical vacuum looms all the larger when it is recalled that our technological society no longer possesses a common view of man, history, culture, and the future. The more the current development requires a communal sense of norms, the less possible it is to find it. The background to this state of affairs is the fact that technical integration is being matched by spiritual-cultural disintegration.[7]

Scientization and technicization

Meanwhile, the development of information technology is continuing apace. When scientists and engineers derive their norms for practice from the possibilities of science and technology as such, we see a process of scientization and technicization. Not least among those who foster this approach are philosophers who consider their ideas to have an affinity to computer technology, or who actually move in computer circles. I have in mind the father of cybernetics, Norbert Wiener[8] and just as importantly, the publications of Karl Steinbuch,[9] who is attached to the Technical University in Karlsruhe as a professor of informatica. Thinkers from the orthodox Marxist camp, too, such as the East German Georg Klaus,[10] hold an equally optimistic view of culture, calling for unimpeded use of computer technology wherever feasible. In a certain sense they have no brake or means of

[6] See note 4.
[7] See Egbert Schuurman, *Reflections on the Technological Society* (Toronto: Wedge, 1977), pp. 41ff.
[8] See "Norbert Wiener: "The Father of Cybernetics," pp. 177-211 in *Technology and the Future: A Philosophical Challenge*, by Egbert Schuurman
[9] See "Karl Steinbuch: "Cybernetics and Futurology", pp. 213-59 in *Technology and the Future: A Philosophical Challenge*, by Egbert Schuurman.
[10] See "Georg Klaus: "Marxism and Cybernetics," pp. 260-313 in *Technology and the Future: A Philosophical Challenge*, by Egbert Schuurman.

restraint on the way to strengthening the information society. In fact, they are of the opinion that the problems and perils of present-day science and technology as science and technology of the first degree can be solved by a science and technology of the second degree, namely, by systems theory and information technology. The consequence of this attitude is the derivation of the norms for practice from the systems themselves. This leads to the strengthening of these systems.[11]

Obviously, philosophical resistance to this development is vitiated if the relation between man and the computer is understood wrongly. All too often philosophers start out speaking anthropomorphically of the computer--it thinks, it learns, etc, --only to end up espousing a computeromorphic view of man.[12] In thinking about the computer, they abstract from humans at the very outset, whereupon the computer threatens to become an autonomous power. As a result people are "thingified" or thought of as mechanical objects. This *technicization* is at the basis of our culture's becoming artificial, routine, chill, uniform, levelled, abstract and totalitarian as a technological culture. This technicization results in the exclusion of the particular, of the unique, and of a rich cultural variety. The tendency towards technicization is apparent today in modern urban planning, domestic architecture, health care and social work, in numerous production processes, in economics, politics, and so forth.

Perhaps the prevalence of abstract, specialistic, scientific thought is nowhere more apparent than in the disappearance of love from modern society and the increase in estrangement and loneliness--in a word, in dehumanization. The love that builds communities cannot flourish in fragmented, universal structures. That is why so many in the technocratic state are' heard to complain that no one cares for them, that no one loves them. 'In the technicized culture the essential bonds of community are severed and exchanged for merely artificial ones. It is for this reason that love cools, that sympathy and compassion vanish from the technocracy, that loneliness and estrangement increase, and that people cry out in protest after protest for love and pity.

In short, if the technicization process is continued and enhanced by means of information technology, then the consequences will be comparable to those of the last phase of the Industrial Revolution, which was not only destructive of nature and the environment but also disruptive of society. In this case, however, the most important consequences will be psychic and social.

New Initiative

[11] Jacques Ellul, *The Technological System* (New York: Continuum, 1980), p. 117.
[12] See F.H. George, *Philosophical Foundations of Cybernetics* (Kent: Abacus Press, 1979), pp. 5 and passim.

The question is not of rejecting the latest information technology. It is precisely one rather of doing information technology *justice* by relativizing instead of absolutizing its *meaning*, in order to generate a meaningful countermovement to the technicization process. A first requirement is that we should resist surrendering ourselves to science and technology and delivering ourselves naively to computer systems. We should assume instead a position of *critical distance*. Having done that, we shall have created room for responsible reflection about the meaning of this technology and its significance for culture. *We should not make all that we are able to make but only just what we need*!

Now, that means we should be sensitive to the threatening dangers of human loneliness, the abuse of power, the aggrandizement of political dictatorships, growing unemployment, and social dislocation.[13] Insight into all these processes requires not only specialized knowledge but also and especially *wisdom* regarded as comprehensive insight.

To attain wisdom we must acknowledge and accept both the individual and communal responsibilities of scientists and engineers, and also their professional and social responsibilities. In general we need not be unduly concerned about the acceptance of the professional or technical responsibility. The educational system and the professional organizations pay a great deal of attention to that. With respect to *social* responsibility, however, there is reason for serious concern. Education and the professional organizations pay too little attention to that.

Modern technology is not an abstraction but a many-faceted cultural phenomenon involving enormous social consequences. Hence it imperative to render the respective roles of technology and society more transparent. It is also essential, furthermore, to build bridges between technologists and society. That will restore society's confidence in the engineering world. By the same token it is mandatory, as Joseph Weizenbaum of the Massachusetts Institute of Technology has so lucidly stated, that the computer specialist not become addicted to his own theories. As an addict, he would apply his theories without restraint, thereby exacerbating the technicization process.

There are two ways of meeting the need to accept social responsibility. In the first place, scientific and technical work must responsive to society. Education must meet a clear requirement here *Specialists* shall have to be *generalists* as well, sensitive to the coherence of their respective

[13] See (1) J. Reese *et al*., *Gefahren der informationstechno1ogischen Entwickelung*. Frankfurt: Campus Verlag, 1979; (2) U. Kalbhen *et al*., *Gesellschaftliche Auswirkungen der Informationstechno1ogie*. Frankfurt: Campus Verlag, 1980; and(3) S. Nora and A. Mine, *The Computerization of Society*. Boston: MIT Press, 1978.

professional fields with society. *Technological potentiality may no longer be permitted to technicize the social situation. The social situation should relativize technology*. The materialistic attitude must yield to a profound spiritual conviction in which the material--and technology as well--is relativized. In this way justice can be done to the meaning of technology.

The social responsibility accepted by engineers fosters responsible technology. A first step in the right direction is the methodology of "technology assessment," which studies the economic, ecological, cultural, and social aspects of new technologies. It would be better to go even further and add philosophy and ethics to the educational requirements of scientists and engineers. This is all the more urgent now that the computer has begun to play an important role in education, with the possible side effect of narrowing the student's intellectual horizons. The danger is great that from the student's point of view everything the equipment cannot control or that cannot be programmed will simply cease to exist. Furthermore, an exclusively technical education is patently inadequate given the many d powerful interactions between technology and society.

In the second place, society shall have to assume a most critical prudent stance with respect to the latest information technologies. Wherever computers are to be introduced an inquiry should be conducted o the view of science and technology and the view of society involved. The result of such an inquiry should be decisive for appoval or disapproval of the introduction of the latest technology. Measures must certainly be taken in all cases to guarantee that those use the computer are also made *constantly* accountable. In all cases users must be required to make clear *why*, to *what end*, and *how* the computer is to be employed. In a certain sense, this is to speak of an obligatory *social* responsibility, a social testing (or certification, if you will), the proper framework for which must be shaped via politics. Moreover, "incomprehensible" computer programs must be made and kept "comprehensible," so that users are not tempted .to transsfer their own responsibilities to others.[14] These personal and social responsibilities are very extensive indeed, since information technologies are fraught with consequences for human beings as individuals and as communities.

When all the conditions I have described are met, it can be seen that computers will not be employed to solve economic, social, or political problems as such. Rather, such problems must first be reduced to *technical* problems, whereupon the *solutions* advanced will like-wise be nothing more than technical solutions. Where insight concerning this key point is lacking, the process of

[14] See Joseph Weizenbaum, *Computerpower and Human Reason* (San Francisco: Freeman, 1976), p. 228

technicization will go forward with all conceivable intensity. However, where insight concerning this key point exists, computer technology will acquire a place not of supremacy but of service. The relativity, the abstractness, and the provisionality of the computer's solutions will then be obvious. We shall interpret these solutions cautiously and wisely. Furthermore, we must never forget that even salutary use of the computer can give way to misuse. It is for this reason that, given the growing trend towards infobanking, many people are increasingly concerned about protecting their personal freedom and privacy.

Enrichment or impoverishment of culture

We have returned to the question posed at the beginning: will information technology impoverish or enrich culture? The answer to this question must depend on our view of technology in culture as a whole. If we proceed from the standpoint that all problems can be solved through technology, then the technicization process will impoverish culture and cast it into crisis. Another direction is possible too, of course, namely, that of the enrichment of culture. In that case, however, information technology will have to satisfy ethical criteria.

Bringing norms to bear upon technology will not dislocate or disturb but rather disclose the real meaning of technology. It is our responsibility to choose the path of the enrichment of culture. To make the point at 'issue perfectly clear, I shall mention a number of , *ethical criteria*, or principles, the simultaneous realization of which discloses to us more of the meaning of technology.

In the first place, it is necessary to satisfy the *cultural* norm of differentiation and integration, of continuity and discontinuity, of large-scale forming and small-scale forming, of uniformity and pluriformity. These various components must not be regarded as contradictions. In forming culture it is necessary to do justice to both elements in each case, in order 'prevent one-sided and dangerous developments. Naturally, if justice is done only to centralization while the principle of decentralization is disregarded, the result will be an unstable, vulnerable culture or an oppressive technocratic rigidity. If, however, justice is done to both these elements, the result will be the promotion of a stable and richly varied cultural development. This point needs to be taken into consideration--if I may be permitted a topical Dutch example--in planning a national payments circuit for the Netherlands. The development in that direction is irreversible, and it comes at the cost of variety--a variety which while it does satisfy the requirements of pluriformity, nevertheless very possibly fails to satisfy the requirements of efficiency.

Personal and social responsibility likewise demand that we do justice to the *social norm* of communication. It is not superfluous to seek consideration for this norm in an age of communication technologies, so that the danger of manipulation can be recognized from the outset and the fact acknowledged that all should be involved in various ways, shouldering their various responsibilities, in the formation of culture.

Furthermore--to mention yet some additional ethical criteria--justice needs to be done to the norms of economy (stewardship), aesthetics (harmony), jurisprudence (justice), and ethics (concern, love). All these norms taken together assure that justice is likewise done to information technology itself. In that case information technology comes to its proper meaning and makes its proper contribution to the meaning of technology in general. This perspective is diametrically opposed to the technicization process. Pursuit of the cultural perspective of *service in responsibility* affords every conceivable opportunity for technical creativity and inventiveness while at the same time providing insight into the social and cultural limits of technical activity. Given the perspective of service in responsibility, it is possible to break through the dilemma that juxtaposes something desirable -- increased possibilities for human creativity, provided especially by information technologies-- against something undesirable--the suffocation of human creativity that results from ever more complex, more massive technologies. As the amount of *technical* work we need to do is diminished by information technology, we should take every opportunity to engage in other kinds of work, such as social, health, and artistic work. Reflective and intellective work will also flourish. At bottom, the insight at issue is based on the *meaning of technology*.

The meaning of technology is vastly rich and deep. Certainly it can be said to include the following: Technology can ease the difficult circumstances in which people live “by nature.” Technology can lighten burdens and conquer diseases. It can afford an enlargement of life’s opportunities, i.e., it can relieve the burdens and difficulties of physical labor. Technology can free people from deadly routine, avert natural catastrophes, provide food and shelter; work can be made mental, and social security and prosperity can be advanced. Real information and communication can be expanded. In all these matters, of course, human responsibility is increased. Material prosperity and spiritual well-being should advance together. Through technology, the cornucopia of gifts and qualities of individuals and nations should be enhanced and enjoyed. Technology creates room for a rich cultural development, for numerous and many-faceted cultural activities, and much more.

In short, every over-estimation of science and technology--together with the ultimately pernicious threat such over-estimation inevitably entails--should be rejected in favor of the responsible pursuit of a cultural perspective offering the prospect of a meaningful development of the most modern information technologies. Thus, far from being forbidden, *computer power should be advanced in the perspective of service.*