Tools for Conviviality - Ivan Illich

Introduction
During the next several years I intend to work on an epilogue to the industrial age. I want to trace the changes in language, myth, ritual, and law which took place in the current epoch of pack-aging and of schooling. I want to describe the fading monopoly of the industrial mode of production and the vanishing of the industrially generated professions this mode of production serves.

I want to monopoly of the industrial mode of production and the vanishing of the industrially generated professions this mode of production serves. trace the changes in language, myth, ritual, and law which took place in the current epoch of packaging and of schooling. I want to describe the fading

Above all I want to show that two-thirds of mankind still can avoid passing through the industrial age, by choosing right now a postindustrial balance in their mode of production which the hyperindustrial nations will be forced to adopt as an alternative to chaos. To prepare for this task I submit this essay for critical comment.

(...) Our present ideologies are useful to clarify the contradictions which appear in a society which relies on the capitalist control of industrial production; they do not, however, provide the necessary framework for analyzing the crisis in the industrial mode of production itself. I hope that one day a general theory of industrialization will be stated with precision, that it will be formulated in terms compelling enough to withstand the test of criticism. Its concepts ought to provide a common language for people in opposing parties who need to engage in the assessment of social programs or technologies, and who want to restrain the power of man’s tools when they tend to overwhelm man and his goals. Such a theory should help people invert the present structure of major institutions. I hope that this essay will enhance the formulation of such a theory.

It is now difficult to imagine a modern society in which industrial growth is balanced and kept in check by several complementary, distinct, and equally scientific modes of production. Our vision of the possible and the feasible is so restricted by industrial expectations that any alternative to more mass production sounds like a return to past oppression or like a Utopian design for noble savages. In fact, however, the vision of new possibilities requires only the recognition that scientific discoveries can be useful in at least two opposite ways. The first leads to specialization of
functions, institutionalization of values and centralization of power and turns people into the accessories of bureaucracies or machines. The second enlarges the range of each person’s competence, control, and initiative, limited only by other individuals’ claims to an equal range of power and freedom. (...) 

Two Watersheds

The year 1913 marks a watershed in the history of modern medicine. Around that year a patient began to have more than a fifty-fifty chance that a graduate of a medical school would provide him with a specifically effective treatment (if, of course, he was suffering from one of the standard diseases recognized by the medical science of the time). Many shamans and herb doctors familiar with local diseases and remedies and trusted by their clients had always had equal or better results.

Since then medicine has gone on to define what constitutes disease and its treatment. The Westernized public learned to demand effective medical practice as defined by the progress of medical science. For the first time in history doctors could measure their efficiency against scales which they themselves had devised. This progress was due to a new perspective of the origins of some ancient scourges; water could be purified and infant mortality lowered; rat control could disarm the plague; treponemas could be made visible under the microscope and Salvarsan could eliminate them with statistically defined risks of poisoning the patient; syphilis could be avoided, or recognized and cured by rather simple procedures; diabetes could be diagnosed and self-treatment with insulin could prolong the life of the patient. Paradoxically, the simpler the tools became, the more the medical profession insisted on a monopoly of their application, the longer became the training demanded before a medicine man was initiated into the legitimate use of the simplest tool, and the more the entire population felt dependent on the doctor. Hygiene turned from being a virtue into a professionally organized ritual at the altar of a science.

(...)

During the last fifteen years, professional medicine became a major threat to health. Huge amounts of money were spent to stem immeasurable damage caused by medical treatments. The cost of healing was dwarfed by the cost of extending sick life; more people survived longer months with their lives hanging on a plastic tube, imprisoned in iron lungs, or hooked onto kidney machines. New sickness was defined and institutionalized; the cost of enabling people to survive in unhealthy cities and in sickening jobs sky-rocketed. The monopoly of the medical profession was extended over an increasing range of everyday occurrences in every man’s life.
The exclusion of mothers, aunts, and other nonprofessionals from the care of their pregnant, abnormal, hurt, sick, or dying relatives and friends resulted in new demands for medical services at a much faster rate than the medical establishment could deliver. As the value of services rose, it became almost impossible for people to care. Simultaneously, more conditions were defined as needing treatment by creating new specializations or paraprofessions to keep the tools under the control of the guild.

At the time of the second watershed, preservation of the sick life of medically dependent people in an unhealthy environment became the principal business of the medical profession. (...) After this second turning point, the unwanted hygienic by-products of medicine began to affect entire populations rather than just individual men. In rich countries medicine began to sustain the middle-aged until they became decrepit and needed more doctors and increasingly complex medical tools. (...)

Bureaucratic medicine spread over the entire world. In 1968, after twenty years of Mao's regime, the Medical College of Shanghai had to conclude that it was engaged in the training of “so-called first-rate doctors ... who ignore five million peasants and serve only minorities in cities. They create large expenses for routine laboratory examinations . . . Describe huge amounts of antibiotics unnecessarily . . . and in the absence of hospital or laboratory facilities have to limit themselves to explaining the mechanisms of the disease to people for whom they cannot do anything, and to whom this explanation is irrelevant.” In China this recognition led to a major institutional inversion. Today, the same college reports that one million health workers have reached acceptable levels of competence. These health workers are laymen who in periods of low agricultural manpower needs have attended short courses, starting with the dissection of pigs, gone on to the performance of routine lab tests, the study of the elements of bacteriology, pathology, clinical medicine, hygiene, and acupuncture, and continued in apprenticeship with doctors or previously trained colleagues. These “barefoot doctors” remain at their work places but are excused occasionally when fellow workers require their assistance. They have responsibility for environmental sanitation, for health education, immunization, first aid, primary medical care, post illness follow-up, as well as for gynecological assistance, birth control, and abortion education. Ten years after the second watershed of Western medicine had been acknowledged, China intends to have one fully competent health worker for every hundred people. China has proved that a sudden inversion of a major institution is possible. It remains to be seen if this deprofessionalization can be sustained against the overweening ideology of unlimited progress and pressures from classical doctors to incorporate their barefoot homonym as part-time professionals on the bottom rung of a medical hierarchy.

(...)
But then medicine began to approach the second watershed. Every year medical science reported a new breakthrough. Practitioners of new specialties rehabilitated some individuals suffering from rare diseases. The practice of medicine became centered on the performance of hospital-based staffs. Trust in miracle cures obliterated good sense and traditional wisdom on healing and health care. The irresponsible use of drugs spread from doctors to the general public. The second watershed was approached when the marginal utility of further professionalization declined, at least insofar as it can be expressed in terms of the physical well-being of the largest number of people. The second watershed was superseded when the marginal disutility increased as further monopoly by the medical establishment became an indicator of more suffering for larger numbers of people. After the passage of this second watershed, medicine still claimed continued progress, as measured by the new landmarks doctors set for them-selves and then reached: both predictable discoveries and costs. For instance, a few patients survived longer with transplants of various organs. On the other hand, the total social cost exacted by medicine ceased to be measurable in conventional terms. Society can have no quantitative standards by which to add up the negative value of illusion, social control, prolonged suffering, loneliness, genetic deterioration, and frustration produced by medical treatment.

The crisis of medicine lies on a much deeper level than its symptoms reveal and is consistent with the present crisis of all industrial institutions. It results from the development of a professional complex supported and exhorted by society to provide increasingly “better” health, and from the willingness of clients to serve as guinea pigs in this vain experiment. People have lost the right to declare themselves sick; society now accepts their claims to sickness only after certification by medical bureaucrats.

(...) Other industrial institutions have passed through the same two watersheds. (...) It is sufficient to recognize the existence of these two watersheds in order to gain a fresh perspective on our present social crisis. In one decade several major institutions have moved jointly over their second watershed. Schools are losing their claim to be effective tools to provide education; cars have ceased to be effective tools for mass transportation; the assembly line has ceased to be an acceptable mode of production. (...) While evidence shows that more of the same leads to utter defeat, nothing less than more and more seems worthwhile in a society infected by the growth mania. (...) It has become fashionable to say that where science and technology have created problems, it is only more scientific understanding and better technology that can carry us past them. The cure for bad management is more management. The cure for specialized research is more costly interdisciplinary research, just as the cure for polluted rivers is more costly nonpolluting detergents. The pooling of stores of information, the building up of a knowledge stock, the attempt
to overwhelm present problems by the introduction of more science is the ultimate attempt to solve a crisis by escalation.

**Convivial Reconstruction**

The symptoms of accelerated crisis are widely recognized. Multiple attempts have been made to explain them. I believe that this crisis is rooted in a major twofold experiment which has failed, and I claim that the resolution of the crisis begins with a recognition of the failure. For a hundred years we have tried to make machines work for men and to school men for life in their service. Now it turns out that machines do not “work” and that people cannot be schooled for a life at the service of machines. The hypothesis on which the experiment was built must now be discarded. The hypothesis was that machines can replace slaves. The evidence shows that, used for this purpose, machines enslave men. Neither a dictatorial proletariat nor a leisure mass can escape the dominion of constantly expanding industrial tools.

The crisis can be solved only if we learn to invert the present deep structure of tools; if we give people tools that guarantee their right to work with high, independent efficiency, thus simultaneously eliminating the need for either slaves or masters and enhancing each person’s range of freedom. People need new tools to work with rather than tools that “work” for them. They need technology to make the most of the energy and imagination each has, rather than more well-programmed energy slaves.

(...) I choose the term “conviviality” to designate the opposite of industrial productivity. I intend it to mean autonomous and creative intercourse among persons, and the intercourse of persons with their environment; and this in contrast with the conditioned response of persons to the demands made upon them by others, and by a man-made environment. I consider conviviality to be individual freedom realized in personal interdependence and, as such, an intrinsic ethical value. I believe that, in any society, as conviviality is reduced below a certain level, no amount of industrial productivity can effectively satisfy the needs it creates among society’s members. (...) This reversal would permit the evolution of a life style and of a political system which give priority to the protection, the maximum use, and the enjoyment of the one resource that is almost equally distributed among all people: personal energy under personal control. I will argue that we can no longer live and work effectively without public controls over tools and institutions that curtail or negate any person’s right to the creative use of his or her energy. For this purpose we
need procedures to ensure that controls over the tools of society are established and governed by political process rather than by decisions by experts.

(...)  
I believe that the present crisis of our major institutions ought to be welcomed as a crisis of revolutionary liberation because our present institutions abridge basic human freedom for the sake of providing people with more institutional outputs. This world-wide crisis of world-wide institutions can lead to a new consciousness about the nature of tools and to majority action for their control. If tools are not controlled politically, they will be managed in a belated technocratic response to disaster. Freedom and dignity will continue to dissolve into an unprecedented enslavement of man to his tools. As an alternative to technocratic disaster, I propose the vision of a convivial society. A convivial society would be the result of social arrangements that guarantee for each member the most ample and free access to the tools of the community and limit this freedom only in favor of another member’s equal freedom.

(...)  
The individual’s autonomy is intolerably reduced by a society that defines the maximum satisfaction of the maximum number as the largest consumption of industrial goods. Alternate political arrangements would have the purpose of permitting all people to define the images of their own future. New politics would aim principally to exclude the design of artifacts and rules that are obstacles to the exercise of this personal freedom. Such politics would limit the scope of tools as demanded by the protection of three values: survival, justice, and self-defined work. I take these values to be fundamental to any convivial society, however different one such society might be from another in practice, institutions, or rationale.

Each of these three values imposes its own limits on tools. The conditions for survival are necessary but not sufficient to ensure justice; people can survive in prison. The conditions for the just distribution of industrial outputs are necessary, but not sufficient to promote convivial production. People can be equally enslaved by their tools. The conditions for convivial work are structural arrangements that make possible the just distribution of unprecedented power. A postindustrial society must and can be so constructed that no one person’s ability to express him- or herself in work will require as a condition the enforced labor or the enforced learning or the enforced consumption of another.

(...)  
A convivial society should be designed to allow all its members the most autonomous action by means of tools least controlled by others. People feel joy, as opposed to mere pleasure, to the extent that their activities are
creative; while the growth of tools beyond a certain point increases regimentation, dependence, exploitation, and impotence. I use the term “tool” broadly enough to include not only simple hardware such as drills, pots, syringes, brooms, building elements, or motors, and not just large machines like cars or power stations; I also include among tools productive institutions such as factories that produce tangible commodities like corn flakes or electric current, and productive systems for intangible commodities such as those which produce “education,” “health,” “knowledge,” or “decisions.” I use this term because it allows me to subsume into one category all rationally designed devices, be they artifacts or rules, codes or operators, and to distinguish all these planned and engineered instrumentalities from other things such as basic food or implements, which in a given culture are not deemed to be subject to rationalization. School curricula or marriage laws are no less purposely shaped social devices than road networks.

Tools are intrinsic to social relationships. An individual relates himself in action to his society through the use of tools that he actively masters, or by which he is passively acted upon. To the degree that he masters his tools, he can invest the world with his meaning; to the degree that he is mastered by his tools, the shape of the tool determines his own self-image. Convivial tools are those which give each person who uses them the greatest opportunity to enrich the environment with the fruits of his or her vision. Industrial tools deny this possibility to those who use them and they allow their designers to determine the meaning and expectations of others. Most tools today cannot be used in a convivial fashion.

(...) Certain tools are destructive no matter who owns them, whether it be the Mafia, stockholders, a foreign company, the state, or even a workers’ commune. Networks of multilane highways, long, range, wide-band-width transmitters, strip mines, or compulsory school systems are such tools. Destructive tools must inevitably increase regimentation, dependence, exploitation, or impotence, and rob not only the rich but also the poor of conviviality, which is the primary treasure in many so-called “underdeveloped” areas. (...) There are tools which can be used normally for fully satisfying, imaginative, and independent work; others tend to be used primarily in activities best labeled as labor; and, finally, certain machines can only be operated. The same can be said about physical artifacts and about the set of rules that define formal institutional arrangements. Cars are machines that call for highways, and highways pretend to be public utilities while in fact they are discriminatory devices. Compulsory schools constitute a huge bureaucratic system; no matter how convivially a teacher tries to conduct his class, his pupils learn through him to which class they belong.

(...)
This unqualified identification of scientific advance with the replacement of human initiative by programmed tools springs from an ideological prejudice and is not the result of scientific analysis. Science could be applied for precisely the opposite purpose. Advanced or “high” technology could become identified with labor-sparing, work-intensive decentralized productivity. Natural and social science can be used for the creation of tools, utilities, and rules available to everyone, permitting individuals and transient associations to constantly recreate their mutual relationships and their environment with unenvisaged freedom and self-expression.

(...)  

A just society would be one in which liberty for one person is constrained only by the demands created by equal liberty for another. Such a society requires as a precondition an agreement excluding tools that by their very nature prevent such liberty. This is true for tools that are fundamentally purely social arrangements, such as the school system, as well as for tools that are physical machines. In a convivial society compulsory and open-ended schooling would have to be excluded for the sake of justice. Age-specific, compulsory competition on an unending ladder for lifelong privileges cannot increase equality but must favor those who start earlier, or who are healthier, or who are better equipped outside the classroom. Inevitably, it organizes society into many layers of failure, with each layer inhabited by dropouts schooled to believe that those who have consumed more education deserve more privilege because they are more valuable assets to society as a whole. A society constructed so that education by means of schools is a necessity for its functioning cannot be a just society. Power tools having certain structural characteristics are inevitably manipulative and must also be eliminated for the sake of justice. In a modern society, energy inputs represent one of the major new liberties. Each man’s ability to produce change depends on his ability to control low-entropy energy. On this control of energy depends his right to give his meaning to the physical environment. His ability to act toward the future chooses depends on his control of the energy that gives shape to that future. Equal freedom in a society that uses large amounts of environmental energy means equal control over the transformation of that energy and not just an equal claim to what has been done with it.

Most of the power tools now in use favor centralization of control. Industrial plants with their highly specialized tools give neither the worker nor most engineers a choice over what use will be made of the energy they manage. (...) The principal source of injustice in our epoch is political approval for the existence of tools that by their very nature restrict to a very few the liberty to use them in an autonomous way. The pompous rituals by which each man is given a vote to choose between factions only cover up the fact that the imperialism of industrial tools is both arbitrary and growing. (...) The possibility of a convivial society depends therefore on a new consensus about time destructiveness of imperialism on three
levels: the pernicious spread of one nation beyond its boundaries; the omnipresent influence of multinational corporations; and the mushrooming of professional monopolies over production. Politics for convivial reconstruction of society must especially face imperialism on this third level, where it takes the form of professionalism. The public ownership of resources and of the means of production, and public control over the market and over net transfers of power, must be complemented by a public determination of the tolerable basic structure of modern tools. This means that politics in a postindustrial society must be mainly concerned with the development of design criteria for tools rather than as now with the choice of production goals. These politics would mean a structural inversion of the institutions now providing and defining new manmade essentials.

The Multiple Balance

The human equilibrium is open. It is capable of shifting within flexible but finite parameters. People can change, but only within bounds. In contrast, the present industrial system is dynamically unstable. It is organized for indefinite expansion and the concurrent unlimited creation of new needs, which in an industrial environment soon become basic necessities. (...) The overgrowth of tools threatens persons in ways which are profoundly new, though they are also analogous to traditional forms of nuisance and tort. These threats are of a new kind, because their perpetrators and victims are the same people: both operators and clients of inexorably destructive tools. Though some people may cash in on the game at first, ultimately all lose everything they have. I will identify six ways in which all people of the world are threatened by industrial development after passage through the second watershed. (...)

Biological Degradation

The precarious balance between man and the biosphere has been recognized and has suddenly begun to worry many people. The degradation of the environment is dramatic and highly visible. For years car traffic in Mexico City increased steadily under a sparkling sky. Then, within a couple of years, smog descended and soon became worse than in Los Angeles. This phenomenon can be easily discussed and appreciated by people who have never studied science. Poisons of unknown potency are discharged into the biotic system of the earth. There is no way to retrieve some of them, nor any means to predict how some of them may suddenly combine their action so that the whole earth, like Lake Erie or Baikal, will
die. Man has evolved to fit into one niche in the universe. The earth is his home. This home is now threatened by the impact of man. (…)

Honesty requires that we each recognize the need to limit procreation, consumption, and waste, but equally we must radically reduce our expectations that machines will do our work for us or that therapists can make us learned or healthy. The only solution to the environmental crisis is the shared insight of people that they would be happier if they could work together and care for each other. Such an inversion of the current world view requires intellectual courage for it exposes us to the unenlightened yet painful criticism of being not only antipeople and against economic progress, but equally against liberal education and scientific and technological advance. We must face the fact that the imbalance between man and the environment is just one of several mutually reinforcing stresses, each distorting the balance of life in a different dimension. In this view, overpopulation is the result of a distortion in the balance of learning, dependence on affluence is the result of a radical monopoly of institutional over personal values, and faulty technology is inexorably consequent upon a transformation of means into ends.

(…)

**Radical Monopoly**

(…)

By radical monopoly I mean a kind of dominance by one product that goes far beyond what the concept of monopoly usually implies. Generally we mean by “monopoly” the exclusive control by one corporation over the means of producing (or selling) a commodity or service. Coca-Cola can create a monopoly over the soft-drink market in Nicaragua by being the only maker of soft drinks which advertises with modern means. (…) Only if and when his thirst is translated without meaningful alternatives into the need for a Coke would the monopoly become radical. By “radical monopoly” I mean the dominance of one type of product rather than the dominance of one brand. I speak about radical monopoly when one industrial production process exercises an exclusive control over the satisfaction of a pressing need, and excludes nonindustrial activities from competition. Cars can thus monopolize traffic. They can shape a city into their image—practically ruling out locomotion on foot or by bicycle in Los Angeles. They can eliminate river traffic in Thailand. That motor traffic curtails the right to walk, not that more people drive Chevies than Fords, constitutes radical monopoly. (…) Radical monopoly exists where a major tool rules out natural competence. Radical monopoly imposes compulsory consumption and thereby restricts personal autonomy. It constitutes a special kind of social control because it is enforced by means of the
imposed consumption of a standard product that only large institutions can provide.

The current debate over health-care delivery in the United States clearly illustrates the entrenchment of a radical monopoly. Each political party in the debate makes sick-care a burning public issue and thereby relegates health care to an area about which politics has nothing important to say. Each party promises more funds to doctors, hospitals, and drugstores. Such promises are not in the interest of the majority. They only serve to increase the power of a minority of professionals to prescribe the tools men are to use in maintaining health, healing sickness, and repressing death. More funds will strengthen the hold of the health industry over public resources and heighten its prestige and arbitrary power. (...) These basic satisfactions become scarce when the social environment is transformed in such a manner that basic needs can no longer be met by abundant competence. The establishment of radical monopoly happens when people give up their native ability to do what they can do for themselves and for each other, in exchange for something “better” that can be done for them only by a major tool. Radical monopoly reflects the industrial institutionalization of values. It substitutes the standard package for the personal response. It introduces new classes of scarcity and a new device to classify people according to the level of their consumption. This redefinition raises the unit cost of valuable service, differentially rations privilege, restricts access to resources, and makes people dependent. Above all, by depriving people of the ability to satisfy personal needs in a personal manner, radical monopoly creates radical scarcity of personal—as opposed to institutional-service.

(...)  

**Overprogramming**

The balance of learning is determined by the ratio of two kinds of knowledge in a society. The first is a result of the creative action of people on their environment, and the second represents the result of man’s “trivialization” by his manufactured milieu. Their first kind of knowledge is derived from the primary involvement of people with each other and from their use of convivial tools; the second accrues to them as a result of purposeful and programmed training to which they are subjected. Speaking the mother tongue is learned in the first way, while some pupils learn mathematics in the second. No sane person would say that speaking or walking or nursing a child is primarily the result of education, while competence in mathematics, ballet dancing, or painting usually is.

(...)
Crucial to how much anyone can learn on his own is the structure of his tools: the less they are convivial, the more they foster teaching. In limited and well-integrated tribes, knowledge is shared quite equally among most members. All people know most of what everybody knows. On a higher level of civilization, new tools are introduced; more people know more things, but not all know how to execute them equally well. Mastery of skill does not yet imply a monopoly of understanding. (...) When centralization and specialization grow beyond a certain point, they require highly programmed operators and clients. More of what each man must know is due to what another man has designed and has the power to force on him.

Learning thus becomes a commodity, and, like any commodity that is marketed, it becomes scarce. (...) The transformation of learning into education paralyzes man’s poetic ability, his power to endow the world with his personal meaning. Man will wither away just as much if he is deprived of nature, of his own work, or of his deep need to learn what he wants and not what others have planned that he should learn. The overdetermination of the physical environment renders it hostile. Radical monopoly makes people prisoners of welfare. Men overwhelmed by commodities are rendered impotent and in their rage either kill or die. The corruption of the balance of learning makes people into puppets of their tools.

(...)

**Polarization**

The present organization of tools impels societies to grow both in population and in levels of affluence. This growth takes place at the opposite ends of the privilege spectrum. The underprivileged grow in number, while the already privileged grow in affluence. The underprivileged thus strengthen their frustrating claims, while the rich defend their presumed rights and needs. Hunger and impotence lead the poor to demand rapid industrialization, and the defense of growing luxuries pushes the rich into more frantic production. Power is polarized, frustration is generalized, and the alternative of greater happiness at lower affluence is pushed into the blind spot of social vision.

(...)

The rich will get richer and many more of the poor will become destitute during the next ten years. But anguish about the hungry should not prevent us from understanding the structural problem of power distribution that constitutes the fourth dimension of destructive overgrowth. Unchecked industrialization modernizes poverty. Poverty levels rise and the gap between rich and poor widens. These two aspects must be seen together or the nature of destructive polarization will be missed. Poverty levels rise because industrial staples are turned into basic
necessities and have a unit cost beyond what a majority could ever pay. The radical monopoly of industries has created new types of demeaning poverty in societies of sometimes profligate affluence. The former subsistence farmer is put out of business by the green revolution. He earns more as a laborer, but he cannot give his children their former diet. More importantly, the U.S. citizen with ten times his income is also desperately poor. Both get increasingly less at greater cost. (…)

New classes of underconsumers and of underemployed are one of the inevitable by-products of industrial progress.

**Obsolescence**

Convivial reconstruction demands the disruption of the present monopoly of industry, but not the abolition of all industrial production. It does imply the adoption of labor-intensive tools, but not the regression to inefficient tools. It requires a considerable reduction of all kinds of now compulsory therapy, but not the elimination of teaching, guidance, or healing for which individuals take personal responsibility. Neither must a convivial society be stagnant. Its dynamics depend on wide distribution of the power to make effective change. In the present scheme of large-scale obsolescence a few corporate centers of decision-making impose compulsory innovation on the entire society. Continued convivial reconstruction depends on the degree to which society protects the power of individuals and of communities to choose their own styles of life through effective, small-scale renewal.

(…) [S]ocial polarization is the result of two complementary factors: the excessive cost of industrially produced and advertised products, and the excessive rarity of jobs that are considered highly productive. Obsolescence, on the other hand, produces devaluation—which is the result not of a certain general rate of change but of change in those products which exercise a radical monopoly. Social polarization depends on the fact that industrial inputs and outputs come in units so large that most people are excluded from them. Obsolescence, on the other hand, can become intolerable even when people are not directly priced out of the market. Product elaboration and obsolescence are two distinct dimensions of overefficiency, both of which underpin a society of hierarchically layered privilege.

(…)

**Frustration**

(…)

13
High output leads to time lack. Time becomes scarce, partly because it takes time to consume goods and to undergo therapies, and partly because dependence on production makes abstention from it more costly. The richer we get in a consumer society, the more acutely we become aware of how many grades of value—of both leisure and labor—we have climbed. The higher we are on the pyramid, the less likely we are to give up time to simple idleness and to apparently nonproductive pursuits. The joy of listening to the neighborhood finch is easily overshadowed by stereophonic recordings of “Bird Songs of the World,” the walk through the park downgraded by preparations for a packaged bird-watching tour into the jungle. It becomes difficult to economize time when all commitments are for the long run. Staffan Linder points out that there is a strong tendency for us to over-commit the future, so that when the future becomes present, we seem to be conscious all the time of having an acute scarcity, simply because we have committed ourselves to about thirty hours a day instead of twenty-four. In addition to the mere fact that time has competitive uses and high marginal utility in an affluent society, this overcommitment creates a sense of pressure and harriedness.

(...) Machines turn against men at a much lower level of power than would be ruled out by the first five criteria. But while these criteria identify necessary safeguards for life and liberty, the balance of purpose depends on a different kind of value. Conceptual rather than empirical criteria can be set for the constitutional limitation of power. It ought to be relatively easy for a majority to rule what abuse it will take from any minority, or what damage it will not expose its offspring to. The recognition of the most socially desirable power of a tool is of a different nature; it can only be the outcome of political procedure. The value obtained for time wasted on speed transportation is conditioned by the consensus in a community about the level of its freedom as a concrete option of its civilization. (...)

**Recovery**

(...) There are two ranges in the growth of tools: the range within which machines are used to extend human capability and the range in which they are used to contract, eliminate, or replace human functions. In the first, man as an individual can exercise authority on his own behalf and therefore assume responsibility. In the second, the machine takes over—first reducing the range of choice and motivation in both the operator and the client, and second imposing its own logic and demand on both. Survival depends on establishing procedures which permit ordinary people to recognize these ranges and to opt for survival in freedom, to evaluate the structure built into tools and institutions so they can exclude those
which by their structure are destructive, and control those which are useful. Exclusion of the malignant tool and control of the expedient tool are the two major priorities for politics today. Multiple limits to overefficiency must be expressed in language that is simple and politically effective. This urgent task is faced, however, with three formidable obstacles: the idolatry of science, the corruption of ordinary language, and loss of respect for the formal process by which social decisions are made.

The Demythologization of Science

Above all, political discussion is stunned by a delusion about science. This term has come to mean an institutional enterprise rather than a personal activity, the solving of puzzles rather than the unpredictably creative activity of individual people. Science is now used to label a spectral production agency which turns out better knowledge just as medicine produces better health. The damage done by this misunderstanding about the nature of knowledge is even more fundamental than the damage done to the conceptions of health, education, or mobility by their identification with institutional outputs. False expectations of better health corrupt society, but they do so in only one particular sense. They foster a declining concern with healthful environments, healthy life styles, and competence in the personal care of one’s neighbor. Deceptions about health are circumstantial. The institutionalization of knowledge leads to a more general and degrading delusion. It makes people dependent on having their knowledge produced for them. It leads to a paralysis of the moral and political imagination.

This cognitive disorder rests on the illusion that the knowledge of the individual citizen is of less value than the “knowledge” of science. The former is the opinion of individuals. It is merely subjective and is excluded from policies. The latter is “objective”—defined by science and promulgated by expert spokesmen. This objective knowledge is viewed as a commodity which can be refined, constantly improved, accumulated and fed into a process, now called “decision-making.” This new mythology of governance by the manipulation of knowledge-stock inevitably erodes reliance on government by people.

The Rediscovery of Language

(...) Language reflects the monopoly of the industrial mode of production over perception and motivation. The tongues of industrial nations identify the fruits of creative work and of human labor with the outputs of industry. The materialization of consciousness is reflected in Western languages. Schools operate by the slogan “education!” while ordinary language asks what children “learn.” The functional shift from verb to noun highlights
the corresponding impoverishment of the social imagination. People who speak a nominalist language habitually express proprietary relationships to work which they have. All over Latin America only the salaried employees, whether workers or bureaucrats, say that they have work; peasants say that they do it: “Van a trabajar, pero no tienen trabajo.” Those who have been modernized and unionized expect industries to produce not only more goods but also more work for more people. Not only what men do but also what men want is designated by a noun. “Housing” designates a commodity rather than an activity. People acquire knowledge, mobility, even sensitivity or health. They have not only work or fun but even sex.

This shift from verb to noun reflects a transformation in the idea of ownership. “Possessing,” “holding,” and “seizing” no longer describe the relationships people can have to corporations, such as systems of schools or highways. Possessive statements made about tools come to mean the ability to command their outputs, interest from capital, or merchandise, or some kind of prestige connected with their operation. Fully industrialized man calls his own principally what has been made for him. He says “my education,” “my transportation,” “my entertainment,” “my health” about the commodities he gets from school, car, show business, or doctor. Western languages, and above all English, become almost inseparable from industrial production. Western men might have to learn from other languages that ownership relations can be restructured in a convivial way. For instance, in Micronesian tongues there exist entirely distinct devices to express the relationship I have to my acts (which can no longer be separated from me), to my nose (which can be cut off), to my relatives (who were inflicted on me), to my canoe (without which I could not be a full man), to a drink (which I serve you), or to the same drink (which I intend to swallow).

(...)

**The Recovery of Legal Procedure**

(...)  

Public confidence in the existence of shared procedures has been shaken because these procedures are constantly misused. They have become tools to support unlimited production through converging arguments that alternately take a moral, a political, or a legal character. Christian churches preach meekness, charity, and austerity but finance industrial programs; socialists enforce a Stalinist mode of production, and the common law has come to favor the firm over the individual. Soon the computer will be used to define at every juncture what should be done for the growth of tools, unless people rediscover that they share a deep commitment to formal
procedures by which they can decide how their present major institutions ought to be turned around.

(...)

Legal procedure applied to a society filled by optimism about its expanding tools has turned into the most effective instrument for the social control of people at the service of these tools. To advance an industrial society, the law is systematically used for social engineering and the continually more complete and effective elimination of waste and friction in the megachine. Anglo-American industry has consistently been more successful, in the long run, than the industry of socialist countries. Law is more effective than centralized planning in bringing and keeping people under the rule of machines. Yet the current misuse of the juristic structure is not a valid argument against its use for precisely the opposite purpose, though it suggests caution against overly optimistic hopes for such an inverted use.

Most of the present laws and present legislators, most of the present courts and their decisions, most of the claimants and their demands are deeply corrupted by an overarching industrial consensus: that more is better, and that corporations serve the public interest better than men. But this entrenched consensus does not invalidate my thesis that any revolution which neglects the use of formal legal and political procedures will fail. Only an active majority in which all individuals and groups insist for their own reasons on their own rights, and whose members share the same convivial procedure, can recover the rights of men against corporations. The use of procedure for the purpose of hampering, stopping, and inverting our major institutions will appear to their managers and addicts as a misuse of the law and as subversion of the only order which they recognize. The use of due convivial procedure appears corrupt and criminal to the bureaucrat, even one who calls himself a judge.

**Political Inversion**

(...)

The alternative to managerial fascism is a political process by which people decide how much of any scarce resource is the most any member of society can claim; a process in which they agree to keep limits relatively stationary over a long time, and by which they set a premium on the constant search for new ways to have an ever larger percentage of the population join in doing ever more with ever less. Such a political choice of a frugal society remains a pious dream unless it can be shown that it is not only necessary but also possible: (1) to define concrete procedures by which more people are enlightened about the nature of our present crisis and will come to understand that limits are necessary and a convivial life style desirable; (2)
to bring the largest number of people into now suppressed organizations which claim their right to a frugal lifestyle and keep them satisfied and therefore committed to convivial life; and (3) to discover and revalue the political or legal tools that are accepted within a society and learn how to use them to establish and protect convivial life where it emerges. Such procedures may sound idealistic at the present moment. This is not proof that they cannot become effective as the present crisis deepens.

**Myths and Majorities**

The ultimate obstacle to the restructuring of society is not the lack of information about which limits are needed, nor the lack of people who would accept them if they became inevitable, but the power of political myths.

Almost everyone in rich societies is a destructive consumer. Almost everyone is, in some way, engaged in aggression against the milieu. Destructive consumers constitute a numerical majority. Myth transforms them into a political one. Numerical majorities come to form a mythical voting bloc on a nonexistent issue; “they” are invoked as the unbeatable guardians of vested interest in growth. This mythical majority paralyzes political action. At closer inspection, “they” are a number of reasonable individuals. One is an ecologist who takes a jet plane to a conference on protecting the environment from further pollution. Another is an economist who knows that growing efficiency renders work increasingly scarce; he tries to create new sources of employment. Neither of them has the same interests as the slum-dweller in Detroit who purchases his color TV on time. The three belong no more to a voting bloc that will defend growth than clerks, repairmen, and salesmen are somehow politically homogenized because each fears for his job, needs a car, and wants medicine for his children.

There can be no such thing as a majority opposed to an issue that has not arisen. A majority agitating for limits to growth is as ludicrous a concept as one demanding growth at all cost. Majorities are not created by shared ideologies. They develop out of enlightened self-interest. The most that even the best of ideologies can do is interpret this interest. The stance each man or woman takes when a social problem becomes an overwhelming threat depends on two factors: the first is how a smoldering conflict erupts into a political issue demanding attention and partisan action; the second is the existence of new élites which can provide an interpretative framework for new-and hitherto unexpected-alignments of interest.

**From Breakdown to Chaos**
I can only conjecture on how the breakdown of industrial society will ultimately become a critical issue. But I can make rather firm statements about the qualifications for providing guidance within the coming crisis. I believe that growth will grind to a halt. The total collapse of the industrial monopoly on production will be the result of synergy in the failure of the multiple systems that fed its expansion. This expansion is maintained by the illusion that careful systems engineering can stabilize and harmonize present growth, while in fact it pushes all institutions simultaneously toward their second watershed. Almost overnight people will lose confidence not only in the major institutions but also in the miracle prescriptions of the would-be crisis managers. The ability of present institutions to define values such as education, health, welfare, transportation, or news will suddenly be extinguished because it will be recognized as an illusion.

(...)

We still have a chance to understand the causes of the coming crisis, and to prepare for it. If we are to anticipate its effects, we must investigate how sudden change can bring about the emergence into power of previously submerged social groups. It is not calamity as such that creates these groups; it is much less calamity that brings about their emergence; but calamity weakens the prevailing powers which have excluded the submerged from participation in the social process. It is the power of surprise that weakens control, that shakes up the established controllers, and brings to the top those people who have not lost their bearings.

When controls are weakened, those accustomed to control must seek new allies. In the weakened economic-industrial state of the Great Depression, the establishment could not do without organized labor, so organized labor got its share of power within the structure. In the weakened labor market during the Second World War, industry could not do without black labor. The blacks began to assert their power.

**Insight into Crisis**

Forces tending to limit production are already at work within society. Public, counterfoil research can significantly help these individuals become more cohesive and self-conscious in their indictment of growth they consider destructive. We can anticipate that their voices will acquire new resonance when the crisis of overproductive society becomes acute. They form no constituency, but they are spokesmen for a majority of which everyone is a potential member. The more unexpectedly the crisis comes, the more suddenly their velleities can turn into a program. But the ability to direct events at that moment depends on how well these minorities grasp the profound nature of the crisis, and know how to state it in effective language: to declare what they want, what they can do, and what
they do not need. The critical use of ordinary language is the first pivot in a political inversion. A second pivot is needed.

(...) I have already argued that these groups must be prepared to provide a logically coherent analysis of the catastrophic event and to communicate it in ordinary language. I have argued that they must be prepared to propose the necessity for a bounded society in practical terms that have general appeal. Sacrifice must be shown as the inevitable price for different groups of people to get what they want—or at least to be liberated from what has become intolerable. But beyond using words to describe the limits as both necessary and appealing, the leadership of these groups must be prepared to use a social tool that is fit to ordain what is good enough for all. It must be a tool which, like language, is respected by all; a tool which, like language, does not lose its power because of the purpose to which it has been put in recent history; a tool which, like language, possesses a fundamental structure that misuse cannot totally corrupt.

I have already argued that such a tool can only be the formal structure of politics and law. At the moment of the crash which is industrial rather than simply financial, the transformation of catastrophe into crisis depends on the confidence an emerging group of clear-thinking and feeling people can inspire in their peers. They must then argue that the transition to a convivial society can be, and must be, the result of conscious use of disciplined procedure that recognizes the legitimacy of conflicting interests, the historical precedent out of which the conflict arose, and the necessity of abiding by the decision of peers. Convivially used procedure guarantees that an institutional revolution will remain a tool whose goals emerge as they are enacted; the conscious use of procedure in a continually antibureaucratic sense is the only possible protection against the revolution itself becoming an institution. Whether the application of this procedure to the inversion of all major institutions of society is then called a cultural revolution, or the recuperation of the formal structure of law, or participatory socialism or a return to the spirit of the *Fueros de España*, is merely a matter of labeling.

**Sudden Change**

(...) When business is normal, the procedural opposition between corporations and clients usually heightens the legitimacy of the latter’s dependence. But at the moment of a structural crisis not even the voluntary reduction of overefficiency on the part of major institutions will keep any of them functioning. A general crisis opens the way to social reconstruction. The loss of legitimacy of the state as a holding corporation does not destroy, but reasserts, the need for constitutional procedure. The loss of confidence
in parties that have become stockholders’ factions brings out the importance of adversary procedures in politics. A loss of credibility of opposing claims for more individual consumption only highlights the importance of the use of adversary procedures when the issue to be decided upon is the reconciliation of opposing sets of society-wide limitations. The same general crisis that could easily lead to one-man rule, expert government, and ideological orthodoxy is also the great opportunity to reconstruct a political process in which all participate.

The structures of political and legal procedures are integral to one another. Both shape and express the structure of freedom in history. If this is recognized, the framework of due procedure can be used as the most dramatic, symbolic, and convivial tool in the political area. The appeal to law remains powerful even where society makes access to legal machinery a privilege, or where it systematically denies justice, or where it cloaks despotism in the mantle of show tribunals. Even when he who upholds the formal structure of ordinary language and procedure earns the scorn, ridicule, and persecution of his fellow revolutionaries, the appeal of an individual to the formal structure embedded in a people’s history remains the most powerful instrument to say the truth and denounce the cancerous domination of the industrial dominance over production as the ultimate form of idolatry. I feel almost unbearable anguish when faced by the fact that only the word recovered from history should be left to us as the power for stemming disaster. Yet only the word in its weakness can associate the majority of people in the revolutionary inversion of inevitable violence into convivial reconstruction.

Reconstruction for poor countries means adopting a set of negative design criteria within which their tools are kept, in order to advance directly into a postindustrial era of conviviality. The limits to choose are of the same order as those which hyperindustrialized countries will have to adopt for the sake of survival and at the cost of their vested interest. Such social reconstruction cannot be supported by a high-powered army, both because the maintenance of such an army would foil reconstruction and because no such army would be powerful enough. Defense of conviviality is possible only if undertaken by the people with tools they control. Imperialist mercenaries can poison or maim but never conquer a people who have chosen to set boundaries to their tools for the sake of conviviality.