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EVOLUTION AND REVOLUTION

THE DRAMA OF REALTIME COMPLEMENTARITY

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WERE I to exploit a cue that Alistair M. Taylor provides in his essay on evolution and revolution in society, I might begin by saying that my own remarks will be *complementary* to his. For, although those aspects of the human scene that I have chosen to emphasize remain peripheral to his expressed interests, our views are not, I think, incompatible, especially when interpreted as divergent estimates of systems boundaries. However, a discussion carried on between us at this level might well resemble a quarrel between movie cameramen . . . about when to catch the panorama and when to zoom in for a closeup. I do not question his claim that evolution and revolution may be considered complementary models of societal change.' Nor would I seriously question the appropriateness of drawing upon general systems theory to develop a level-theory of societal change.2 But were I to proceed along these lines I would merely contribute to the sort of inter-personal equilibrium that is painless for all concerned but clarifies nothing. This would be regrettable, since an a normative level . . . our disagreement proceeds from different views about the procedural ground-rules, the scope and perhaps even the very goals of societal analysis.

In a word, though we are both participants in and both observers of the human scene, Professor Taylor chooses to write primarily as a disinterested observer, I rather as a concerned participant. From this latter perspective, it seems to me that his attempt at objective analysis of societal change is inadequate-not because he tries to go beyond an evolution/revolution dichotomy in the name of quanta, systems and complementarity, but because, while seeking so meticulously to

legitimate his views on society by an appeal to theoretical physics, he allows himself little time to tell us what possible bearing any of this might have upon the existential, or historical, problematic of deciding between or committing oneself and/or others to evolution or revolution.3 Instead, he almost seems to be saying that if we can just develop the right conceptual tools in time, we might yet be able to avert such obstacles to human progress as "world wars, gas chambers and genocide, etc." as well as "thermonuclear holocaust.”4 In particular, had he chosen to deal more explicitly with the sociological and ecological implications of societal change, he might not have been able to discuss evolution and revolution without acknowledging the worldwide problem of social dualism and marginalization : the almost systematic shunting aside of millions of people whose labor, and hence whose very existence, has been rendered industrially superfluous.5 These lacunae, in turn, point to some overarching methodological questions about scientific objectivity : what it really entails and whether and to what extent it is appropriate in dealing with problems that concern us all as human beings.

I fully appreciate the importance of objectivity as an ideal, but am persuaded that it . . . can . . . [n]ever . . . be any more than this, at least not when human beings are at stake. In particular, . . . questions such as that of evolution and revolution on the level of human society are to a significant degree a function of internal and external power politics and . . ., as a result, they cannot be totally abstracted from those great questions of personal and public responsibility that the events of the twentieth century have taught us to regard as so excruciatingly realistic. Accordingly, . . . when issues such as these are "on the floor," if one strives too strenuously for disinterested objectivity he runs the risk (an occupational hazard among theoreticians) of giving the impression that what is is indeed what ought to be, thereby at times

transmuting the innumerable horrors of man's inhumanity to man into a patient Martian's research report on what is left of earthlings. On the other hand, . . . to become embroiled in the particularities of human events, . . . succumb to making value judgments, [and] . . . take committed stands on controversial issues before, as they say, all the data are in, is to put oneself at the mercy of whatever gods preside over the fickleness of historical inevitability. Admittedly, when faced with what may be called a

micro-problem, it is often better to be safe than sorry; but when it comes to the macro-problem of human survival, no one is safe and few may live to be sorry.6

What is tacitly at issue here is whether anyone can really do anything significant about anything significant that happens. The ancient Stoics had one answer to this, bonzes burning in the streets of Saigon have had another, and revolutionaries of all kinds have had yet others. To be sure, all of them are eventually swept into oblivion by the plodding thoroughness of geological time; yet because of them, in spite of them and regardless of them, changes have occurred in human affairs. Some of these changes have indeed been so significant that, even before the Industrial Revolution had really taken hold in the world, a German philosopher was willing to surmise that the best laid plans of mice and men may well gang awry but are co-opted by "the cunning of Reason" to get it all together anyway.7 Few today would allow that Georg Wilhelm Friedrich Hegel had thereby really succeeded in putting history in a basket. But, then, for all the subsequent efforts of a Darwin, a Marx and a Freud, no one else has succeeded very well either-at least not on the level of ideas.8 On the level of action, on the other hand, there are signs that, in spite of the so-called "population bomb," *homo sapiens* may yet experience the elimination of many and the control of the rest by a very few. These few, these technocratic few, constituting at least the beginnings of an international and supranational power elite, will continue to be in conflict with one another to decide who shall control the controllers.9 But, at least partly on the grounds that might makes right, they will be essentially in agreement with one another that they and they alone are capable of deciding what is good for all.10

Somewhat along these lines lie the differences -- in method if not in motive -- between my approach and . . . Taylor’s. To spell out these differences I will consider the question of societal change from three different, but interrelated, points of view. First, from the viewpoint of *social theoretics, I* recognize advantages to thinking about social change in terms of systems, levels, and complementary modes of transition, but also certain disadvantages that derive from the predominantly Western elitism that enables one to see "modernization" while remaining blind to "marginalization" (Part I : Thought and Reality). Secondly, from the viewpoint of *societal cybernetics,* I acknowledge the technological potential for regulating social change (especially through applications of systems

theory, cybernetics and real time science), but am wary of the inherent dangers of technocracy (Part II: Science and Society). Thirdly, from the viewpoint of *inter-societal dialectics,* I contend that when societal cybernetics is allowed to proceed without criticism, goal orientation and even periodical redirection, there inevitably results a system imbalance which in its turn engenders frustration, desperation and rebellion on the part of those left out as "unfit" (Part III: Evolution and Revolution). Whence, in my judgment, the exceptional urgency in our times of restoring to theoretics its once vital function as societal critique.11

I. THOUGHT AND REALITY

Lest this be misunderstood as representing some sort of anti-intellectualist manifesto, let it be noted at the outset that action, if it is to be truly human, must be goal-directed, and goal-directedness presupposes thought.12 Accordingly, every society that seeks to survive as a society into the future must face the task of developing appropriate and adequate ways of thinking about and dealing with social change. This task is not always described or carried out in the same way from one age to another, from one society to

another, or from one sub-society to another. But generally speaking, it calls for devising symbols or myths whereby the members of a society might learn to evaluate all social change against the primordial value of societal stability.13

It is quite widely assumed that one may characterize a given society as primitive or modern according to its commonly held attitudes toward social change. The primitive society, on this view, thrives on ideological justifications of the status quo, whereas the modern society is continually changing and hence is in need of justifying such change to itself.14 These extremes of a continuum of attitudes toward social change might be thought of dichotomously as emphasizing either synchrony or diachrony; but they cannot be handily equated with such modern political tags as those of conservative or progressive (or radical). For as the common myth has it, all moderns of whatever political stripe accept and favor social change, disagreements being rather over the means, the rate and the scope of such change. As is implicit in Alvin Toffler's recent study of what he calls "future shock," there may not be as many moderns around as one is sometimes led to believe; or, to put it somewhat differently, there may well

be something of the primitive in all of us.15

This element of primitivism in modern thought about social change is manifest in a form of theoretical bias that derives from attributing fully human significance to sub-human systems and that, accordingly, results in totemism. Interpreting totemism as a primitive form of objectivism the modern exacerbation of which is scientism, I shall contend that scientistic totemism, like any other, is metaphysically void if taken dogmatically, methodologically suspect even if taken only hypothetically, and notoriously ambiguous and indecisive if taken programmatically. Especially is this the case when it comes to theories of social change; for no matter how stable a social system, so-called, may appear to be at any given moment in history, it is a very delicate balance when considered from the perspective of geological time. Classical (in essence, Aristotelian) analysis of society tended to emphasize the stability of a society, and hence in its more contemporary dress tends to find some sort of systems theory to be quite congenial.16 This static approach translates a substantialist bias into the assertion that there must be *something constant* that changes when there is social change. Hence *ex hypothesi* society is essentially stable: what change does occur is usually change *within* society, rarely change from one society to another. Some recent approaches to social change, being more dynamic or, perhaps better, dialectical in their bias, discredit stability as an arbitrary and a-historical claim, take conflict as a constant dimension of human interaction, and hence see their chief problem not as one of accounting for "deviance" and "disruption" but rather of accounting for social stability as such. A position . . . intermediate between these theoretical or at least methodological extremes is stage-theory, which seeks in the notion of stages (or levels, as in Taylor's theory) a way to account for radical transformations through time without sacrificing formal or even organic continuity.17

Given these major differences in theoretical posture, there is perhaps no notion in contemporary thought about social change that is more theory-laden than that of society. Often viewed as having developed out of and even as standing in opposition to more primitive, personal or organic sets of human relationships each of which is identified as a community *(Gemeinschaft* as opposed to *Gesellschaft),* a society (often considered to be co-extensive with a nation if not with a government or state) is thought of as a sophisticated, complex, impersonal, bureaucratic and industrially

oriented set of positions or roles that persons happen to fill. Thus conceived, a society might be defined as a supra-communitarian, hierarchically differentiated set of positions or roles controlled by a government or state that corresponds at least approximately to the consensus demands of technological power.18 This particular way of defining society is not in itself biased in favor of "modernization," or technological development, but writers who would subscribe to it seem generally persuaded that such modernization, however brought about, is at least inevitable if not intrinsically progressive.19

What is here suggested is that a theory, in its broadest (and etymological) sense is a way of *looking at* a certain set of recurrent events, data, phenomena, or whatever. In this vein, "evolution" and "revolution," especially as applied to social change, refer only indirectly to social change as such and directly to a theory about or interpretation of events, data, phenomena that give content to the concept of social change. As alternatives, one might, for example, prefer to conceptualize social change cyclically, dialectically, millenaristically, fatalistically, or in any number of other ways. If, however, one does choose to theorize about social change either in terms of "evolution" or in terms of "revolution," he is bound in by long-established usages that ascribe social continuity to the former, discontinuity to the latter.20 Moreover, as a result of a long history of ideas about events and of events attributed to ideas, both "evolution" and "revolution" contain built-in evaluations that make them almost irremediably normative and even prescriptive with regard to what is good or evil for human society in general or, as is more often the case, for some concrete human society in particular.

Now, to go one step farther, what leads some people to appeal to evolution as the mechanism of social change while others appeal to revolution? Moreover, so as not to overlook the normative dimension of this question, why do some favor and support "evolution" while others favor and support "revolution"? Surely one of the relevant factors here, and perhaps the most decisive of all, is that of power differential, i.e., the extent to which one does in fact control or at least share in control over the social system in question, and hence over one's destiny insofar as this latter is dependent upon that social system.

On the contrary, it might be objected, if the factor of power be given so central a role in one's theory of social change, the society that changes becomes little more than an ad hoc ("temporary" or

"transitional") set of rules, roles and relations that obtain among a group of people who are forced by circumstances to live together and hence somehow to make the best of it.21 But who are thought to be "living together" depends in part upon how narrowly one associates "together" with physical as opposed to psychological boundaries, geographical as opposed to sociological contiguity. As . . . Taylor has so graphically suggested, people's physical contiguity extends beyond "impleted" space in virtue of means of communication (including transportation) to include "expleted" space.[22] But human (as compared, say, to ant) society can also be analyzed in terms of psycho-social contiguity; and from this point of view the problem of societal boundaries (so important for a systems approach) becomes quite as difficult to solve in theory as it often is in practice. In either case, not infrequently, truth is but the offspring of power.

What all this means from the viewpoint of the powerless can for the moment be illustrated by a comparison between today's Third World and the North American Indians of the nineteenth century. Much was demanded of an Indian tribesman who was forced by events to think beyond intra-tribal or even intertribal struggles for power in such wise as to take into account white expansionism and "manifest destiny." Even under comparatively stable circumstances, societal maintenance requires a delicate balance between centripetal and centrifugal forces: the latter increases with pressure from within; the former with pressure from without. But as that external pressure becomes so great as to render societal maintenance from within impossible, outsiders who were heretofore peripheral to the old society now become the center of the new.23

This, in greatly expanded fashion, is what is happening on a massive scale all over the world today. Numerous pockets of these "decentralized" rejects are found in the unenviable role of desperate rebels struggling often quite literally for bare survival. Their so-called and self-styled revolutionary responses to being first discarded and then directly oppressed are, to be sure, occasionally from strength, but usually (at least under present conditions) from weakness and frustration. Hence the many and varied attempts on the part of various leaders of the Third World to unite scattered forces of opposition in order somehow to hold their own if not to catch up with the Great Powers. Whatever may come of all this in, say, the century ahead, it seems clear that neither for the supranational power elite nor for the devolutionary outcasts that it indirectly creates are present

social systems considered sacred or even insurmountably stable. On this point, the history of the world just since 1945 provides enough instances of major social transformations to warrant some like expectations for the future.

On the assumption, then, that the dynamic view of society is verifiable, though not to the exclusion of the static view, I should now like to draw some corollaries from my general thesis that a society is a delicate balance.

First, it is impossible to establish a pattern for societal change that would be so definitively declarative of what is necessarily the case ("valid," perhaps, in . . . Taylor's terminology) as to transcend entirely the bias of one's own position in some historical society.24 [For, whatever pattern one seeks to apply] . . . , one is inevitably, inescapably and insurmountably drawing upon metaphor--however sophisticated its origin--quite literally to "make sense" out of the human drama in which each of us manages to have at least a walk-on part.

Secondly, when one does appeal to some such metaphor as revelatory of the pattern of social change, he may do so in any number of ways, most if not all of which can be co-present (whether manifest or latent) at the same time. Even assuming that the mode of making such appeal is verbal, i.e., linguistic in a narrow sense, this verbal appeal occurs in what might be called concentric circles of context. . . . There is no one method that could handle all [imaginable] . . . concentric circles well, but anything from psychoanalysis to systems analysis to language analysis can be relevant or applicable.

Thirdly, the critic or analyst of such an appeal, who could, of course, be identical with the appealer, might want to explicate the latter's hierarchy of values, his set of practical priorities, his views about how best to justify--or rationalize--what he believes or wills

to believe, and, finally, his opinion as to how well he has succeeded or can succeed at developing such a justification. With regard to views about social changes, one's view may be described as absolutist if . . . it is considered to be beyond doubt or correction; hypothetical, relative or pragmatic if . . . [deemed] tentative, heuristic, exploratory, or the like.25

Fourthly, any such appeal, with or without justification and critique, is a social action, a performative, inasmuch as it is intended to have an influence upon the present and future behavior of others.26 Thus, . . . Taylor . . . [wants] . . . us [to] conceptualize . . . social change complementarity after the fashion of general systems theory; and he goes an extra mile, so to speak, to provide us with suggestions about how we might in fact do this. But he does not tell us explicitly what concrete actions we might carry out on the basis of such complementarity-thinking. One might like to say that on this level we are dealing with a "middle-of-the-road" approach to social change; but the message is not clear-not because of coding or static, but because the metaphor utilized becomes highly ambiguous when searched for clues to action. The subatomic world can be handled in terms of equations that allow for either a wave or a particle interpretation of matter. However valuable all of this might be to the nuclear physicist, what does it have to do with societal change? Does it encourage evolution or revolution in society? If both, as Taylor would apparently have it, then what are the practical consequences of such a position? Should one push for evolution today, revolution tomorrow-or vice versa? Does it permit one to say, let others revolt, evolution is good enough for us; or, on the other hand, let others wait for evolution; as for us, we revolt? In fact, it says nothing about any of these burning questions. Rather it seems to be saying that the important thing about social change is to have an adequate theory in terms of which to conceptualize it without falling back on mere analogies.27 Further implied, it seems, is the not uncommon belief that for at least one segment of society-the theoretician-impartial and objective observation is the only appropriate kind of action to take with regard to social change. But this, in turn, is precisely to propose that one should do nothing, at least not if one has a similar station or role in society. Others, however, do take such observations and use them as they will.28 So if the "observer" is not opposed to such third-party

utilization of his observations, then he tacitly approves or at least tolerates it-in which case he is not entirely as impartial as his image would lead one to suppose. *Fifthly*, it is important to know for which society or societies one's theory of change is a model. Some theories-especially those that appeal to evolution and/or revolution (including . . . Taylor's)--are presented as being universal, that is, as applying to all societies of all times and places. Others are limited both spatially and temporally, e.g., to Western Europe during the nineteenth century or to Peru in 1969, and still others pertain only to a limited segment (or class or caste) of a given society over a limited period of time.29 *Sixthly*, the very notion of a society becomes fraught with ambiguity once it is asserted that a society can and does change levels. . . . Taylor has graphically shown us that the "impleted" and the "expleted" spaces of today's societies are far greater than were those of primitive societies. But in what sense does this imply that something identifiable as "society" has changed? What is the constant through time? It is not clear from Taylor's analysis why the supposed continuity from one level of organization to another level should be thought of as anything more than a useful literary device to provide a vastly oversimplified "over-view" of extremely complex and generally unpredictable interactions between different groups of people over space and time. *Seventhly*, . . . can [one] . . . talk meaningfully and even facilely about an isolated "society." This, in my opinion, is debatable. Taking the notion as referring to an organization of people geographically separated from other people who are organized among themselves, it is certainly not difficult to view one society as being distinctly different from and largely independent of another society. But once these societies enter representationally into contact with one another, the assumption that there are two societies rather than one begins to be something of an abstraction. And once their *interrelationship* becomes formalized and stabilized, the "twoness" borders on pure fiction.30 This, however, is just what does happen as better means of communication, transportation and domination are developed. As *eighth and final point*, one risks a rather immense distortion of the real state of affairs in the world today if he telescopes modern society into the narrow confines of today's technocrats and their toys.

It may indeed be the case, for example, that a sub-group of Americans has become supportive of or actively engaged in space exploration. But there is another, and much larger, sub-group of Americans who suffer from chronic malnutrition; and it is not easy to prove that the former sub-group does not owe something of its success to the ability of these others to endure deprivation. Moreover, there are large sub-groups of people in what we still call "other countries" who are starving while the particular technocratic masters who happen to control their fate capitalize on the natural resources (including cheap labor) available in their land.31

It is perhaps edifying to know that a power elite from various countries-shall we think of them as the "fittest" or simply as the "beautiful people"?-are moving on, perhaps "taking off," towards L.[32] But many human beings in the world today not only are not advancing to a higher level but are in fact retrogressing to a lower one. . . . They may be found by the thousands, sometimes by the tens of thousands, clinging helplessly and hopelessly to one another, sometimes on the outskirts, sometimes in the decaying center of that megalopolis that appears so prominently on . . . Taylor's itinerary to the world ahead.33 Not unlike the slaves who died while building the Pharaoh's pyramids, these lost millions are like the fecal matter left

along the road on which the great evolving beast is passing on its way to "progress." Disorganized and disinherited from the wealth of their own lands, they are quite at the mercy of an imperialist power elite, be it, say, the Communist Party in Czechoslovakia, or American oilmen in Saudi Arabia or Venezuela.

Such exploitative arrangements, resulting in multinational and supranational centralization of control, have come to be a predominant characteristic of this century. It would seem, therefore, that an adequate assessment of societal change would at least make mention of it.

II. SCIENCE AND SOCIETY

Be not misled by the note of gloom, if not of doom, that hangs over these remarks about societal control in the world today. Societal control is not necessarily in and of itself oppressive. That it has taken and continues to take this form is due, among other things, to the fact that only in recent times have science and technology begun developing the technical means to handle global (not to mention galactic) problems on a truly global scale. Thus, with the help of ever more subtle and sophisticated tools, once seemingly impossible projects are now being seriously planned and one day will undoubtedly be carried out: for example, to irrigate the desert regions of the earth with water from polar ice; to eliminate many if not all physical and mental disorders through genetic and chemical control; to provide precise, thorough and instant information on any subject to anyone who needs it anywhere in the world through television, video and microwave, lasers and ever more "ingenious" computers.34

With particular regard to computers, it now seems that we are even moving beyond the age of cybernetics (preprogrammed control or guidance systems) to an age of real-time control. Born out of the challenge to detect and destroy the multiple warheads of approaching ICBM's, real time science has grown up solving "on the scene" a great variety of problems that develop without warning under the ocean, out in space, or wherever. The new systems-both hardware and software-that are being utilized for continual ad' hoc problem-solving may be viewed as the technological implementation of a pragmatist philosophy of action as well as the basis for a post-positivist philosophy of science. Science, on this view, can no longer be totally identified with the pre-established harmonies that are built into theoretical systems, since it also includes the highly complex, and now computer-assisted, search for answers at the very moment when the question arises.35

This problem-oriented conceptualization of science does not lend itself well to definitive formulations of what science says and still less of what science itself is all about. A discussion of the old distinctions between pure and applied science or between science and technology would be relevant, to be sure, but inconclusive. For what is at issue goes quite beyond the reach not only of verbal gymnastics but also

of all classical philosophy of science.36 This is due to (1) a new appreciation of the primacy of practice or, better, the continuity between theory and practice and (2) a new appreciation of the independence of the social sciences both from physicalist and from formalist pontificating.

With regard, first, to a theory/practice continuum, it is especially important to note that the new technology extends not merely man's arms, legs and senses but his brain, not just his capacity to do work but his capacity to think. There is, accordingly, ample reason to draw new models of thinking from the realm of the computer, as many have already done.[37] Secondly, the declaration of independence on the part of the social sciences is perhaps not yet strong enough to be called a movement but it is advanced enough to be taken quite seriously. The sometimes unduly anti-scientific stance of the existentialists has been drawn into a wider perspective of humanistic psychology.38 The sociology of knowledge has provided us with at least the beginnings of a sociology of sciences loosely associated with studies of the relationship between science and society.39 The ecological approach to environmental control has led a significant minority of scientists and engineers to move beyond narrow technical proficiency to a socially conscious awareness of their skills and of how they use them.40

In short, in these days of growing concern over such problems as environmental pollution, population explosion and thermonuclear annihilation, it is no longer considered quite so bizarre to maintain, as did

one writer a few years back, that science is a sacred cow.41 Nor is the progress of science any longer taken to be an obvious and unqualified blessing. From the vantage point of the social implications of science and of the corresponding social responsibility of scientists, all science, and perhaps especially physical science, has begun to be more widely recognized as a thoroughly human cooperative enterprise that introduces into the world changes that are often as threatening as they are profound and fundamental.42 Adherents of the rigorous but narrow philosophy that science is just a consistent set of law-like statements contend mightily that man's role in science is, if more than incidental, then largely obstructive .43 But men with a broader and inestimably more realistic outlook are now insisting that to be at all fruitful our analysis of science must see it as a system of interlocking components all aimed at preselected research goals, hence must relinquish uni-dimensional models in

favor of a meticulous reconstruction of all the components that enter into that system as well as the links between them. This reconstruction, in turn, would show that the most important component of all is the prosthesis/cyborg: man-interfaced-with-machine.44

As a result of this modern transformation of science into a largely institutional enterprise, the individual who "goes into science" generally finds that he is little more than a functionary in a complex system of roles that are closely tied to the great engines of industry. His own personality and need for responsibility having thus been reduced to largely irrelevant appendages, it is even more of a shock for "the working scientist" to be told that his role in society at large is no longer looked upon as either obviously or necessarily valuable. Writers of science fiction, especially in the United States, continue to tell him what he wants and perhaps needs to believe about himself as scientist, namely, that he as an individual is or at least can be of crucial importance to the well-being of his people. But negative feedback from the world that Big Science has built is increasing so rapidly that many are now ready to presume the scientist guilty until proven innocent.45

In a context such as this, one might think it somewhat insensitive of . . . Taylor to have drawn up a theory of social change that dances to the tune of subatomic particles. But like most academicians today (here I must no doubt include myself), he has been conditioned to try to say something that will be of lasting and permanent value, what is called a "contribution" to a given discipline. And since, apparently, he does not find any bedrock of certitude in the social sciences,46 he turns to what the high priests of the Age of Science have revealed to us from out of their holy of holies. That their formulas have literally nothing to do with human beings as such is of little moment; what matters is that their formulas are *sacred.* Thus, just as institutional theologians of every faith are constrained to show that their own reasoned opinions can somehow be traced to the appropriate holy writings, so we find . . . Taylor legitimizing his views about social change by a quasi-magical appeal to the inner sanctum of the physics laboratory.47

Like all other primitives, many moderns tend, sometimes in spite of themselves, to return to Mother Earth for foundations. Having thus involved themselves in a highly sophisticated form of totemism, they rely on this "concrete science" (as Claude Lévi-Strauss might interpret it) to structuralize the "too-confusing-for-words" details of

everyday life in human society. But, as Lévi-Strauss has argued, this kind of thinking is not primitive in the sense of original but is in fact decadent. For instead of facing directly the socio-cultural conflicts out of which the delicate balance of a given societal "arrangement" has come into being, one instead traces that arrangement to sub-human-usually animal or vegetable-beings and then in time comes to think of the latter as somehow causally responsible for such arrangements.48 In this way, one comes to regard a circumstantial structure as an inevitable consequence of natural laws; and, like the citizens of Bouville in J.-P. Sartre's *Nausea,* can hardly imagine that one might be directly, even if only partially, responsible for the maintenance of that system.49

To be sure, the totems of our day are no longer as simple as trees, or streams, or animals. Man's

interests and needs have led him in the past few hundred years to concentrate his attention on the innards of inanimate objects. Much has been learned and much has thereupon been applied both for weal and for woe. With regard especially to the latter, we have found ourselves becoming more and more ingenious in our ability to destroy one another, with men doing the dirty work and women doing the cheering. As we move from catastrophe to catastrophe, we continue to bemoan the low yield of the so-called social sciences, make a plea for them to catch up with the natural sciences, and then burn another candle at the shrine of our favorite up-to-date totem, be it atom-smasher, television, computer, laser beam or whatever, thereby inducing in ourselves a false consciousness more elaborate than anything ever created out of primitive lore. And thus do we make ourselves oblivious of inhuman forces that are directly responsible either for establishing or for maintaining the delicate balance that we call a society.50

In short, on the level of theoretics, appeals to theories from physics are of limited value in dealing with the complexities of any human society. But on the level of *societal cybernetics,* unceasing development of man's experimental and technological capabilities constitutes an indispensable condition for human well-being on this planet. Setbacks along this line have been numerous; and disasters, including even total annihilation of all living species, are always possible as a result of misdirection or exploitation of this very technology. But setbacks and disasters just as staggering would inevitably result from somehow preventing any and every scientific discovery from having any effect upon society.

In effect, then, the very dangers we fear complement the benefits we anticipate to provide a kind of projection of the present-day parameters of global freedom.51 For by virtue of knowledge attained and utilized, men steadily become ever more capable of controlling their own environment and one another as well; and in our own day it even becomes meaningful to envision an electronic elite controlling a worldwide society of the whole human race. Such a notion, perhaps, smacks of science fiction; but it is far closer to becoming a feasible option than the uninformed might dare to imagine. In this context evolution is now not only a process to observe and conceptualize but also, and in a far more immanent sense, a product of human ingenuity. In the language of Julian Huxley, evolution has become conscious of itself in and through men who know; even more than that, such men have become the principal engine of evolution on this planet. With the help of those marvelous machines -everything from the wheel to the electronic computer-that extend their organic information systems literally in all directions, they are planetizing Bacon's claim that knowledge is power, thereby bringing into being what Teilhard de Chardin called a "mega-synthesis" and what Marshall McLuhan thinks of as an electronic "global village."52

From this point of view, it becomes clear that, in spite of the lack of political power of the average "working scientist," the leading intellectuals, especially scientists and technologists, can have a great impact upon a society. Precisely to the extent that they assume their research findings to be disinterested, they are subject to being "co-opted" for anything but disinterested purposes, most of which have to do with bringing still more wealth and power to those who already have more of both than most.53 But just because it is to the intellectuals that power-brokers turn and they whom they reward so handsomely for their efforts, there is established in society a symbiotic relationship that saves the truth of Bacon's power-theory of knowledge: knowledge in and of itself is societally powerless; but between two otherwise balanced societal forces, superior knowledge will tip the balance in favor of its possessor.54

Until as recently as World War II, the knowledge that was most in demand tended, in general, to be knowledge that makes possible increased control over making things, so as to make them more efficiently, precisely, rapidly, economically, etc. Since World War II, however, the knowledge that is most in demand is nothing less than knowledge that makes possible increased control over the very process

of knowing-gathering, interpreting and controlling the dissemination of knowledge, now understood as information-so as to know more efficiently, precisely, rapidly, economically, etc.55

Ideally speaking, control of media here means so regulating their use that one learns through them

whatever one wants to know and keeps others from learning through them whatever one does not want them to know. The importance of thus controlling the media of communication has no doubt been recognized by power elites at least since the invention of language.56 Thus, the same Plato who bemoaned the ignorance of those in the cave was also careful to indicate the need for strong censorship in that "ideal" society that could be governed only by a philosopher-king *(Republic)*. On a broader scale, by means of everything from taboos to weapons of war, in-groups of whatever size and functions have sought to safeguard the secrecy of their arcane lore; and, inversely, by means of everything from fast runners to orbiting satellites they have sought to penetrate the secrecy of the out-group(s).57 It has even been argued, and rendered at least plausible, that control over printing after the fifteenth century was a *sine qua non* condition for the establishment and maintenance of the modern nation-states of western Europe.58 Be that as it may, few doubt that control of the press has long represented an important factor in societal maintenance. But all the rules of this game have been changing now that print communication is being superseded by such electronic media as radio, television, communication satellites, micro-waves, and the computer.

The so-called "underground" press still allows an alienated Left some means of expressing and to some extent of constituting a group identity; and the "overground" press, in general, helps the establishmentarian elements of society to maintain their posture as guardians of the public weal. But even politicians have come to realize that he who controls visual images on television can jolly well forget about symbolic images on the printed page.59 Similarly, the industry that built a sizable empire out of the auditory inventions of Alexander Graham Bell now finds itself threatened by obsolescence unless it can muster up enough forces to prove its right to control over micro-wave communications--a right in itself as defensible as the right of carriage-makers to have controlled the automotive industry that threatened to end much of their usefulness.60 But nowhere is the struggle for control more intense than in the area of that revolutionary extension of the brain itself, the computer. For by means of ever

more sophisticated computers, men can not only process data with incredible ease and rapidity; they can also organize data into information and establish realtime control over as many systems or processes as imagination, ingenuity and the state of the art can simulate with model and machine. Whence the awesome impact of computer sciences, cybernetics and realtime science upon the whole process of transmitting information and, consequently, upon alignments of power insofar as these depend upon rapid access to reliable and appropriate information.61

As the restricted but highly significant example of the ongoing struggle for control of media suggests, it is well recognized by the power elites of today that now more than ever before societal control for the future depends upon control of technology. How the latter will work itself out in the years ahead can be only inadequately anticipated, as even futurists admit. But to the extent that the seeds of the future are indeed contained in the present, there is reason for believing that the human race is heading towards vast and unprecedented social upheaval. Why this seems likely remains to be discussed; but the discussion may be anticipated by two interconnected sets of observations about science and society.

In the first place, narrowly technical knowledge and skills do not of themselves qualify anyone to give advice on the social uses of science; yet on such matters almost no other qualifications have been sought by governmental decision-makers.62 Some members of the technical community doubt that their advice carries any political weight, especially when they appeal to values or ask for priorities other than efficiency or profit.63 Others feel that the impact of technology upon developed societies is already so great as to make traditional political structures and parties obsolete.64 In either case, technicians are consulted about technology consistently enough to lead some writers to identify the resulting modus *operandi* as a technocracy.65 However, due in large measure to a belated but growing realization that our technology may be leading us into social and ecological disaster, it may become somewhat more acceptable in high places to look to the social sciences and perhaps even the humanities for recommendations about life in a post-industrial if not leisure-oriented society.66 This new willingness to search beyond the machine-men

for clues to societal guidance is further precipitated by a somewhat startled realization that the old values that have held our society together are being discarded and that the hard sciences

have little to offer by way of a replacement.67

However traumatic all this may seem from inside a technological society such as ours, finally, it is in many respects a phenomenon arising within and limited to a highly technologized society. For, as Herman Kahn has noted almost casually:

> It seems quite likely that outside of the 20% of the world that is expected to live in postindustrial societies by the year 2000, the other 80% of humanity is likely to be deeply preoccupied with various kinds of reactions that resulted from the process of more or less forced Westernization and then withdrawal.68

Poor grammatical tensing and matter-of-factness aside, this statement cannot be adequately handled within the limited confines of societal cybernetics, but calls for the broader context of intersocietal dialectics. And it is on this level that there appears, in its most dramatic form, the realtime drama of evolution and revolution.

III. EVOLUTION AND REVOLUTION

On the level of societal cybernetics, men have begun to assume control over the evolutionary process, especially by means of technology. But it is not all men who exercise such control. Indeed, an increasingly large segment of the human race has little or nothing to say about or even to do with this advanced edge of the evolutionary process. Quite the contrary, for every advance that gives some human beings still greater societal control, other human beings are disengaged, alienated, exploited and sometimes just brutally eliminated. Should they prove unwilling to play the externally imposed role of dregs along the evolutionary way, they thereby would actualize a polarity latent in any social system that is not responsive to the needs and claims of all affected human beings.

This being said, we are at once faced with an immense problem that has already been anticipated just by referring to a society as a delicate balance. As Hobbes, Machiavelli and other analysts of societal power relationships saw, a society tends to be what some are powerful enough to make others accept, and it remains that only so long as and to the extent that such acceptance, for whatever

reasons, perdures. From this point of view, a given society might need to be viewed first, say, as a vector sum, then perhaps as a component of a vector. As internal forces shift, as new force is introduced either from within or from without, so does a given society change." Something of this sort occurs where there is a transfer of the so-called seat of power from one political party to another, as a result of an election, a coup, or whatever. But a far more profound vectorial transformation results from the "taking over" of a given society by outsiders. For, in such a case, whatever may have been the internal organization of the newly subordinated society, the set of all roles and relationships within that society tends to become a function of the set of those of the now dominant society. A tribe that has been colonized is no longer the tribe that existed before colonization; neither is a business. taken over by a corporation nor is a corporation merged into a conglomerate the same; nor, finally, is a conquered nation the same as it was prior to having been conquered. Titles and perquisites may remain unchanged; but, in terms of available power; yesterday's rulers become today's errand boys."

More generally, all those disenfranchised by the power-brokers of societal control and unable to accept "natural selection" as a sufficient explanation for their degradation have no alternative but to leave the territory now under the control of others or to regain control of that territory themselves." Thus might those deemed or treated as "unfit" and hence "inferior" disturb or even prevent the expected survival of the

purportedly fittest; and, to the degree that they are successful, the so-called unfit might well reactivate societal values that lay dormant so long as they merely endured oppression." From the viewpoint of *inter-societal dialectics,* then, evolution takes the form of a gradualism that appeals to those with a vested interest in the *status quo,* whereas revolution takes the form of an action-oriented program of liberation deemed necessary precisely because of the power-brokers' quasi-theological insistence upon their own historical inevitability.

It is, of course, customary to use the word "reactionary" to describe the attitudes and actions of those who defend an established social system against attempts to change that system in any of its essentials (however defined). This usage, though understandable enough, owes its meaning to a very narrow conception of the dynamics of a society through time. Within this limited and ahistorical context, those in

control of a society may indeed do little more than "react" to an attempt by others (be they described as "revolutionary" or whatever) to alter or even overthrow that society. But if such dialectical confrontation is viewed within a wider historical context, one comes to see, I think, that it is often the revolt or rebellion against the established system that is "reactionary."

Taken superficially, it is a truism that one who rebels does so in reaction against powerful agents whose influence upon him he interprets as oppressive. More profoundly, rebellion is reaction in the sense that it proceeds from weakness rather than from strength, from frustration and even despair rather than from hubris and love of innovation." When viewed synchronically or ahistorically, such reaction to oppression tends to be interpreted acontextually as an unwarranted and unprovoked attack upon a system that others have found to be advantageous in their own regard. But when viewed diachronically, in the light of historical context and origins, such an uprising can appear to have been not only inevitable but even remarkably belated in view of grievances previously endured without openly belligerent protest.

To restate the matter somewhat differently, once a given set of human relationships is taken for granted, any attempt to deviate from these relationships or, more traumatically still, to change them, tends to be viewed as "radical"-not in the etymological sense of "getting to the roots of the matter" (radix=root in Latin) but in the polemical sense of extreme and irresponsible. If, on the other hand, this set of human relationships is not taken for granted but is seen to be (as, in fact, it is) a contingent product of historical events, then any corresponding attitude or action will be radical precisely in the sense that at least in intention it uproots the system from comparatively shortsighted claims to historical inevitability.

In political terms, such radicalism has often been identified with the Left, and there are good reasons for so doing. But here one must be on guard against that facile labeling that would explain everything but understands nothing. People in the so-called free world have been taught to associate the Left with Communism. But among so-called Communist nations there is a growing spirit of reaction against any institutional rigidity, however ideologically orthodox, that is inappropriate to new conditions. In this setting, it is precisely the Establishment that identifies itself with a revolution -- not a present and continuing revolution, to be sure, but a once-upon-a-time

revolution that is for all practical purposes over and done. Many states, of course, still trace their origins to some revolution of the past two hundred years, especially France and the United States. States thus established as recently as the twentieth century are likely to be closely identified with and even to derive their mythology from a revolution. This is obviously the case, for example, in Russia and even more so in Cuba. In both instances, however, the younger generation, which has not itself lived through the revolution eulogized in its elders' mythology, tends to reject that revolution as but another excuse for unbending authoritarianism."

The point here, quite simply, is that revolution as an ideology and revolution as a deliberately engineered process of radical change must be carefully distinguished. Protagonist control may be legitimated in any terms, and those terms associated with revolution are no exception. This is not to say, of

course, that the notion of revolution has no utopian function among the oppressed antagonists of an established societal order. They both can be and at times are the agents of revolutionary societal change, just to the extent that they are successful in their efforts to achieve power for some group or groups heretofore at least partially excluded.

The function of societal antagonists differs according to the type of social system against which they are reacting. The most obvious form of opposition to oppression is that which arises among one group (a clan, a tribe, a race, a caste, a nation) that has been forcibly subdued and brought under control by an alien group which superimposes itself from without Whether the interface of superimposition is an occupation army, a puppet government, a colonial administration or a more subtle control of the internal economy through international monetary controls and various trade restrictions, the effect is essentially the same: a group of people who once determined their own destiny within a narrower world-context now find therr~ selves to have become exploited has-beens in a world that outreaches their learned ability to cope.

If a revolution is a radical change in form of government, then for a society once relatively independent suddenly to become subservient to more powerful others from outside is most assuredly a revolution. Nor can those subdued be expected to react favorably to such a major deterioration in their status. They may (1) despise themselves and strive to make themselves as inconspicuous as possible; (2) adulate and seek to imitate and be accepted by those who control

their lives; or (3) despair of ever being fully accepted into the ranks of the controllers and in their despair turn to active antagonism against their societal protagonists."

This reaction pattern on the part of the oppressed is perhaps most clearly exemplified in the response of underdeveloped or even primitive indigenous peoples to their being continually exploited at the hands of more powerful people who have come to conquer and control. Less easily seen in this light, because more assiduously glamorized and romanticized in the West, is colonization against which many peoples have in recent years rebelled. Still less obvious is the fact that some subgroup(s) of people within one and the same group might truly be oppressed and impoverished, at least in comparison to others in that same group. This is perhaps less true of primitive tribes than of modern nation-states." But in either instance the reactions of the oppressed can range from at least overt acquiescence to militant rebellion, the latter extreme being more likely to occur (though less likely to succeed) in a modern nation-state. Between the extremes one notes such "movements" as the student movement, the black movement, the women's liberation movement.

In all these instances what is important to note is that rebellion constitutes an antagonist's reaction to a consistent pattern of actions on the part of a protagonist who, in turn, responds to the reaction by counter-reaction. It is accordingly inaccurate and mystifying, as the Marxists would say, to claim that a protagonist group "does nothing" until the antagonist group rises up against it. The rebellion would not-probably could not-have occurred without a considerable amount of "doing" that has already proven detrimental (if not virtually genocidal) with regard to the antagonists. Whether such actions on the part of the antagonists are detrimental to themselves or to the human race as a whole is, of course, another though by no means unrelated question. But however that question is answered, there is good reason for saying, on the level of inter-societal dialectics, (1) that the evolution of protagonists may be a direct cause of the devolution and even extinction of others and (2) that a revolution by antagonists may be a direct cause of devolution on the part of erstwhile protagonists. This societal version of Newton's third law has been operative as far back in time as our information can take us, and differs today only in the magnitude of its scope and possible consequences.

With regard to the scope of inter-societal dialectics today, it is

becoming more and more realistic to talk in terms of global confrontations. The so-called world wars that blighted the first half of this century were truly worldwide in the sense that they affected every continent to one degree or another. Since 1945, some formerly hostile power elites have been learning to compete and even cooperate with one another as privileged peers across international boundaries, usually to their

mutual advantage but not necessarily to the advantage of the masses of people in the countries thus represented." There does not seem to be any one pattern that may be said to characterize all these contemporary inter-societal situations except that they are precisely that, inasmuch as they spill over the boundaries of a host country or countries and involve one or more supranational interests that are powerful enough to control others for profit."

What shall we say, secondly, about the possible consequences of inter-societal dialectics today? It seems in general that the thrust of evolution is, as ever, a two-edged sword that cuts a clear path to "progress" for the few who are powerful enough to wield it, while dismembering the others who happen to be -- or, what is perhaps more regressive yet, choose to place themselves -- in their way. It is of no particular benefit to species now in danger of extinction . . . that simians begat anthropoids or that anthropoids begat homo sapiens or that homo sapiens begat the industrialist or the industrialist is now begetting the technocrat or that the technocrat may one day beget instruments of worldwide or even galactic control. Nor is such convergent evolution (quite different, to be sure, from that envisioned by Teilhard de Chardin!) of much benefit to those innumerable branches of the human species-almost all non-whites and a growing number of superfluous whites-that have simply been in the way. For the protagonists of evolution have been no more mindful of bison hunters than of bison, no more mindful of fishermen than they were of the streams and lakes and oceans upon which those fishermen have depended. In other words, what is often thought of as pollution of the earth is inevitably a pollution of man as well." Problems once confined to ghettos finally attract the attention of "the public" once they have spilled over into the suburbs. So also on a global scale, the narrowly conceived and stupidly executed technologization of this planet has now come to endanger not only all subhuman flora and

fauna and all less developed or at least unscrupulous humans but even the protagonists whose will to power has in recent centuries functioned as a real but ambivalent agent of evolutionary advancement. In the span of a single generation it has come to be almost humanly impossible to live and work in New York City. In a finite number of generations-and for some experts the number is quickly counted-the same may well be said of every once habitable metropolis on this planet."

The obverse side of this coin is that in sharpening the action edge of the sword of evolution, protagonists have in spite of themselves sharpened the reaction edge as well. The colonialism that was so much a part of the industrialization of Western Europe came crashing down after Europe's colonial empires reached their paroxysm of futility in two world wars. Now the neo-colonialism of the superstates, flying the banner of "modernization," is moving steadily towards heretofore undreamed-of levels of control. But that very control is breeding dissent and opposition and open rebellion of many kinds and in many parts of the world.'" The basic question of proprietorship and its legitimation is written small when students anywhere in the world ask aloud to whom the university belongs. On a global scale, men in all parts of the world are being compelled by the multiplying hints of impending doom to ask: to whom does the world belong? It is a mark of our heritage that this question is framed in a context of ownership; but the very asking of the question can perhaps lead men out beyond proprietary abuse towards a shared responsibility for recuperation, maintenance and ecologically balanced development of the limited resources available to us on this planet. And chief of all these resources, as even economists are being challenged to take seriously, are human beings."

As Erich Fromm recently put it, a "revolution of hope" is possible only in and through a humanization of technology." But neither past nor present policies with regard to "modernization" lend much support to the notion that a humanization of technology might come about by way of some sort of historical inevitability. If it is to come at all, it will somehow be the result of a deliberate and concerted effort on the part of all who have recognized other alternatives as intolerable and have somehow translated this recognition into political-or, perhaps better, supra-political-power. It is indeed conceivable that present-day socio-political relations can be transformed

into what Amitai Etzioni calls "the active society." But, as this socio-political analyst intimates, the structure within which each power group must operate is rapidly becoming international and to some extent already global in scope. Accordingly, so long as the efforts of social outcasts in South Africa to control their own destiny are not effectively combined with those of others in the same region or continent, if not beyond, the supranational power elite who contend primarily only among themselves for control of knowledge, communications and technology will continue to confuse the weakness of the politically disorganized as a mandate to continue ruling as in the past."

It would seem, then, that the very survival-to say nothing of the prosperity-of the great majority of human beings on this planet is to a great extent a function of utility as defined by the powerful few." But as machines continue to substitute for and supersede not only the physical but even the intellectual labor of human beings, the latter will, in terms of work, be of no further use save to provide "services" for one another." At this point, their continued existence may be tolerated only so long as they are willing to stay out of the way and not try to gain what some call "a piece of the action." "Short-run" unemployment is still so identified in developed societies with "long-run" economic growth that its presumably temporary victims are afforded at least minimal compensation. But extended unemployment of the kind that is often the lot of people in the "developing" societies leads inevitably to widespread hunger and despair, and the latter tend to find expression in rebellion. But a despair born of hunger (spiritual as well as physical) and reared on oppression may seek its maturity in violence."

The long-range consequences of this increasingly dangerous world situation might well be a century not of genocide as such but of paupercide: the indirect elimination of the non-productive and the direct elimination of the counter-productive in many if not all parts of the world. If this be a kind of paranoia, then let it be said in defense of paranoia that it is supported by a large body of substantive data whose implications become clearer with each passing decade. In spite of such ultimately insignificant interferences as those brought about by kidnapping, airplane hijacking, rooftop sniping or the bombing of buildings, the opposition of outsiders against insiders seems inherently futile; and, if pursued in any given area to the point of major confrontation, could well lead to reprisals so effective

and encompassing as to put the ovens of Auschwitz back into the Middle Ages of Population Control." For, while one-half of the world's population is centered in East, South and Southeast Asia and another one-fifteenth each inhabit Latin America and Africa, control over and development of the world's resources is centered predominantly in North America, Europe and the USSR." Moreover, the power-gap here suggested is widening steadily rather than narrowing."

As is well known, living conditions in the United States and in India were closer together 150 years ago than they are now, partly because the latter country's economic growth has been absorbed by its increasing population. What is yet more sobering, however, is that India is not likely to "catch up." Given its present per capita annual income ($50 as compared with $2,000 in the U.S.A. in 1960), if both were to double over a decade or so, India's per capita income would then be $100, that of the United States, $4,000. In the meantime, the United States produces enough food to provide each of its inhabitants with 3,200 calories per day, twice that of India, which however has more than twice as many people and less than half as much land, not to mention its incomparably fewer roads, automobiles, and other modern conveniences. To mention just a few key indicators of technological development, in the United States per capita consumption of energy in 1959 was almost 8,000 kilograms of coal equivalent, in India it was 150 kilograms; in the United States, 89 million long tons of steel were produced in 1960 (27 percent of the world total for that year), and 3'73 million metric tons of oil were produced in 1963 (29 percent of the world total for that year), whereas in India production of both of these sources of energy was then and still is negligible." As these sample figures indicate, the United States and India are almost literally worlds apart; yet it is unlikely that the former will prove very helpful in the latter's efforts towards economic development, since its economic policies respond primarily if not exclusively to internal demands for protection against competitive imports. 12

Yet another aspect of the growing international power-gap is the tendency of highly developed

countries to exploit the mineral resources of under-developed nations not yet in a position to take advantage of such resources themselves. A good example is that of oil. The currently prominent area of northern Africa called "the Middle East" would be a case in point, as would be the now

somewhat quieter area of Indonesia." But it will be easier for our purposes to consider only the example of Venezuela.

About 13 percent of the world total of oil is produced in Venezuela: 149 metric tons in 1960, representing three-fourths of the total production of oil in all of Latin America." Venezuelan oil accounted for 23 percent of all exports from Latin America between 1953 and 1957 and close to 28 percent in 1957, as well as almost one-fourth of the annual average per capita rate of growth of the Latin American GNP during the years 1950-1957.[95] As a result of this signal contribution to modern productivity, the per capita consumption of energy in Venezuela in 1959 was about 2,500 kilograms of coal equivalent-twice as much as Argentina, a little over half as much as the United Kingdom and about one-third that of the United States." Yet, however superficially impressive, these economic ratings are deceptive. For at least one-third of the GNP in Venezuela is due directly and far more indirectly to oil production, and this is entirely in the control of Dutch and American companies whose official welcome depends on little more than the payment of royalties to the local government. Out of a total population of over 7 million people, only 2 percent (about 60,000) of the active labor force are directly employed by the oil industry, compared to at least 30 times that many in agriculture, which, however, accounts for only 7 percent of the GNP." Declared unemployment in 1960 stood at 13.7 percent, without even counting the many who were underemployed-figures which represent demographically a growing class of superfluous outcasts referred to elsewhere (in Peru) as the marginal unemployed." In other words, behind the impressive facade of Caracas, poverty is rampant: one-fourth of the people receive two-thirds of the national income, and over 200,000 immigrants from the countryside wait in makeshift hovels called "ranchos" for their hopeless lives to ebb away. [99]

In view, then, of all the foregoing, it is the case in Venezuela that-as the stock colonialist movie would have it "the natives are restless." And how this all came about makes yet another inglorious chapter in the story of technocracy's indifference to human misery for which it is at least in part responsible. Until 1960 there was no organized guerrilla movement in Venezuela. Then in October of that year the Betancourt government arrested three leaders of the MIR (Movement of the Revolutionary Left), in whose weekly newspaper *Izquierda* on October 14 there had appeared a controversial

editorial. Whereupon some 2,000 students of the Central University protested the government action as being unconstitutional. Violently suppressed by government forces, some of them then fled to the hills, and thus began the guerrilla movement that since February 20, 1963, has been known as the FALN (Armed Forces of National Liberation) and has since become predominantly agrarian in its membership."'

The editorial in question insisted that a popular insurrection could not succeed; and a week after its appearance a spokesman for MIR was still insisting on his organization's non-subversive intention to work toward elections scheduled for 1963. The Betancourt government, however, rationalized its violent behavior on the grounds that the editorial had advocated violent overthrow of the government, and it is the latter interpretation, quite without foundation, that has found its way into a United States military manual prepared by SORO (Special Operations Research Office) and entitled *Venezuela: U.S. Army Area Handbook for Venezuela."'* Thus indoctrinated, some 200 American military advisers have since made it possible for the Venezuelan guerrillas to share with Peruvians and Vietnamese the dubious distinction of having experienced the heat if not the light of napalm."'

On occasion, of course, the outcasts of this earth learn to articulate not only their misery, as in the American Negro spiritual or "blues," but also their anger. This is, for example, the extraordinary significance of the writings of Frantz Fanon, best known for a work entitled *The Wretched o f the Earth."'* A position such as that of Fanon, however, is utterly unintelligible to those who pride themselves on proclaiming the secular heaven which at least the fittest will survive to see. Thus Zbigniew Brzezinski, a

Polish exile now devoted to the Pax Americana, can say: [10]

> . . . today the differences between the two worlds are so pronounced that it is difficult to conceive a new ideological wave originating from the developed world, where the tradition of utopian thinking is generally declining.
>
> With the widening gap dooming any hope of imitation, the more likely development is an ideology of rejection of the developed world. Racial hatred could provide the necessary emotional force, exploited by xenophobic and romantic leaders. The writings of Frantz Fanon--violent and racist--are a good example. Such ideologies of

> rejection, combining racialism with nationalism, would further reduce the chance of meaningful regional cooperation, so essential if technology and science are to be effectively applied. They would certainly widen the existing psychological and emotional gaps. Indeed, one might ask at this point : who is the truer repository of that indefinable quality we call human? The technologically dominant and conditioned technetron, increasingly trained to adjust to leisure, or the more "natural" and backward agrarian, more and more dominated by racial passions and continuously exhorted to work harder, even as his goal of the good life becomes more elusive?

The incredible hubris manifested in this statement by yet another apologist for the ancient ideology of might-makes-right constitutes in itself a neo-primitive artifact of great anthropological significance. For, in its barely hominoid grunts of superiority are recorded for any surviving intelligent beings (if not from the planet earth then perchance from beyond) the evolutionary dialectics that, *ex hypothesi,* shall have brought an end to *homo sapiens* at that very moment in geological time when members of the species were beginning to discover in many ways and from many sources that people are more important than prestige, more important than power, and even more important than progress. But to end on an only slightly more optimistic note, some future ecologist exploring the planet earth might possibly be able to date the establishment of a homeostatic system from the disappearance of man.

Notes and References

1. By speaking here of "societal" rather than "social" change I deviate from the usage of those for whom the theory of social change is a major branch of sociology; but at the same time I thereby acknowledge a strong sympathy for Amitai Etzioni's arguments in favor of what he calls macro-sociology. Although highly dubious about the ontological status of what Etzioni calls the "emergent properties" of a macro-system, I nonetheless find the adjective "societal" methodologically useful as shorthand for the conceptualization of a society as made up not only of micro-individuals or even roles but of micro-societies which act either collectively or representationally upon other micro-societies and/or upon the macro-society and are themselves so acted upon. I shall use "social" to refer generically to any society or societies without regard to internal complexity, "societal" precisely to specify such internal complexity.

Finally, to speak of the confrontation and interaction of societies each of which is itself internally complex, I shall use the word "inter-societal." See Amitai Etzioni, *The Active Society: A Theory of Societal and Political Processes* (New York: The Free Press, 1968), pp. 41-59.

2. Etzioni's observations on the various meanings of "system," especially as referring sometimes to a supra-unit (sociologists and anthropologists) and sometimes to an inter-unit ("general system" theorists), is especially instructive in this regard *(ibid., pp.* 65, 123-5, 129 fn. 41). See also David S. Landes, *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from* 1750 *to the Present* (Cambridge: Cambridge University Press, 1969), pp. 229-30.

3. He does suggest in his "Concluding Observations" that one might distinguish "societal attitudes and forms of behaviour" in terms of positive and negative feedback [p. 53] and adds that "both forms of feedback are required" of the United Nations in its efforts to build a better world [p. 54]; but such observations point only to a methodological conculsion : "General systems theory provides both a fresh conceptual framework and new analytical tools for the

study of societal attitudes and behavioral patterns in the international political environment" [p. 54].

4. Taylor, [pp. 49, 55]. See also [p. 22], where he calls attention to "the population explosion, diminution of non-renewable resources, and environmental pollution."

5. See, however, Taylor, [p. 22], fn. 40. Robert Redfield, whom Taylor quotes [pp. 30-31], seems to deny that any such thing is happening; but Taylor himself seems prepared to allow the contrary when he notes that a sociocultural system might "quantize from a more complex to simpler level of organization" [p. 35]. These matters will be dealt with in some detail further on.

6. A good example of the sort of concerned analysis to which I here refer is Karl Jaspers, *The Future of Mankind,* trans. E. B. Ashton, Chicago and London: Phoenix Books, 1963. See also Gunnar Myrdal, *Objectivity in Social Research,* New York: Random House Pantheon Books, 1969; Ernest Becker, *The Structure of Evil: An Essay on the Unification of the Science of Man,* New York: Braziller, 1968; Philip Slater, *The Pursuit of Loneliness: American Culture at the Breaking Point,* Boston: Beacon Press, 1970.

7. See J. N. Findlay, *Hegel: A Re-Examination* (New York: Collier Books, 1962), pp. 252-4, 334-5; Sidney Hook, *From Hegel to Marx: Studies in the Intellectual Development of Karl Marx* (New York: Humanities Press, 1958), pp. 36-41; Herbert Marcuse, *Reason and Revolution: Hegel and the Rise of Social Theory* (Boston: Beacon Press, 1960), pp. 232-4.

8. Successful or no, however, there have been many attempts. See in this regard W. Warren Wagar, *The City of Man: Prophecies of a World Civilization in Twentieth-Century Thought,* Baltimore: Penguin, 1967.

9. This problem, to be dealt with at length below, is well stated by S. N. Eisenstadt, *Modernization: Protest and Change* (Englewood Cliffs, N.J.: Prentice-Hall, 1966), p. 20; Amitai Etzioni, op. *cit., pp.* 549-613; Ruth C. Lawson (ed.), *International Regional Organizations: Constitutional Foundations,* New York: Praeger, 1962: *Factors Affecting the International Transfer of Technology among Developed Countries,* Washington: U.S.

Government Printing Office, 1970; George Thayer, *The War Business: The International Trade in Armaments,* New York: Avon Discus Books, 1970. 10. This undoubtedly pessimistic view is perhaps most strongly stated by Herbert Marcuse, especially in *Soviet Marxism: A Critical Analysis* (New York: Random House Vintage, 1961) and *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society* (Boston: Beacon Press, 1964). See also Lionel Rubinoff, *The Pornography of Power*, Chicago: Quadrangle, 1967; Mary Warnock, *Ethics Since 1900,* 2nd ed., London: Oxford, 1966.

11. "Critique," as here used, is not unrelated to the usage of Herbert Marcuse and the tradition of the sociology of knowledge as reviewed in Gunter W. Remmling's *Road to Suspicion: A Study of Modern Mentality and the Sociology o f Knowledge* (New York: Appleton-Century-Crofts, 1967); but its methodological implications are better expressed by Gerard Radnitzky, *Contemporary Schools of Metascience,* 2nd rev. ed., 2 vols. in one (New York: Humanities, 1970), especially Vol. II, pp. 126-85; its pragmatist overtones by Harold Sackman, *Computers, System Science, and Evolving Society: The Challenge of Man-Machine Digital Systems,* New York: Wiley, 1967; and its tactical optimism by Etzioni's *The Active Society.*

12. This tenet is articulated in psychology by Charlotte Biihler and Fred Massaryk (eds.), *The Course o f Human Life: A Study o f Goals in the Humanistic Perspective* (New York: Springer, 1968) and in sociology by Alvin TofHer, *Future Shock* (New York: Random House, 1970). The related Weberian notion of social action, reformulated by Talcott Parsons and others, has been thoroughly expostulated by Alfred Schutz, *The Phenomenology of the Social World,* trans. George Walsh and Frederick Lehnert, Evanston: Northwestern, 1967.

13. See Florian Znaniecki, *The Social Role of the Man of Knowledge,* New York and Evanston: Harper Torchbooks, 1968; E. O. James, *The Nature and Function of Priesthood; A Comparative and Anthropological Study,* New York: Barnes & Noble, 1955; Claude Levi-Strauss, *The Savage Mind,* Chicago: University of Chicago, 1966.

14. Whether any people, primitive or otherwise, are particularly open to social change surely depends in part upon their evaluation of the consequences of such change. Accordingly, Wilbert E. Moore's analyses in *Social Change* (Englewood Cliffs, N.J.: Prentice-Hall, 1963) and in *Man, Time and Society* (New York and London: Wiley, 1963) are undoubtedly more balanced than Eric Hoffer's claim in *The Ordeal of Change* (New York: Harper & Row, 1963) that people tend to resist all change. The history of technology, for example, provides innumerable examples of different responses to the same call for change, e.g. that of Citroen as compared to Renault in France: Landes, op. *cit., pp.* 446-51; see also pp. 122_3, 352-3.

15. Toffler, *op. cit., pp.* 289-326. See also David W. Ewing. *The Human Side of Planning: Tool or Tyrant?* New York: Macmillan, 1969; Ronald Lippitt, Jeanne Watson, and Bruce Westley, *Planned Change: A Comparative Study of Principles and Techniques,* New York: Harcourt, Brace & World, 1958.

16. See Alex Inkeles, *What is Sociology? An Introduction to the Discipline and Profession* (Englewood Cliffs, N.J.: Prentice-Hall, 1964), pp. 18-46;

Talcott Parsons, *The Social System,* Chicago: Free Press, 1951; Joseph H. Monane, *A Sociology o f Human Systems,* New York: Appleton-CenturyCrofts, 1967.

17. The concept of power, long a valuable tool for political analysts (e.g Bertrand de Jouvenel, *On Power: Its Nature and the History of Its Growth,* New York: Viking, 1949), is now finding its way into sociological literature, e.g. Richard A. Schermerhorn, *Society and Power,* New York: Random House, 1961; Amitai Etzioni, op. *cit.,* pp. 313-86. Related to the latter are the favorable evaluations of conflict by such sociologists as Lewis Coser (The *Functions o f Social Conflict,* New York: Free Press, 1956) and Thomas Schelling *(The Strategy of Conflict,* New York: Oxford Galaxy, 1963). Stage theories are considered outmoded by Inkeles (op. *cit.,* pp. 30-33); of somewhat limited applicability by Landes (op. *cit.,* pp. 229-30), by Wilbert E. Moore *(Social Change,* pp. 33-44, 113-7), and by Joseph Spengler, "Social Evolution and the Theory of Economic Development," *Social Change in Developing Areas: A Reinterpretation of Evolutionary Theory* (eds. Herbert R. Barringer et al.; Cambridge, Mass.: Schenkman Publishing Co., 1965), pp. 256-62.

18. This view of society suggests, among other things, that any major change in the industrial-technological power base of a given society would result in a corresponding change in the social control and hence in the structure of that society. See the works of Sackman and Landes, cited above, as well as J.-J. Servan-Schreiber, *The American Challenge,* trans. Ronald Steel, New York: Avon, 1969; Victor C. Ferkiss, *Technological Man: The Myth and the Reality,* New York: Mentor, 1970.

19. As Wilbert E. Moore points out *(Social Change,* pp. 40-2, 89-112), modernization and progress are by no means interchangeable concepts. Human values, in particular, tend to be undermined by merely technological advancement. See Eric and Mary Josephson (eds.), *Man Alone: Alienation in Modern Society,* New York: Dell Laurel, 1962; Erich Fromm (ed.), *Socialist Humanism: An International Symposium,* Garden City, New York: Double. day Anchor, 1966; Landes, op. *cit.,* p. 6.

20. Taylor, it will be noted, takes these usages as the starting point for his appeal to complementarity [pp. 4, 11, 23, 58].

21. The relativism here suggested is perhaps positivist in flavor, but would be accepted, for example, by a Sartre (see, for example, his *No Exit)* as well as by Amitai Etzioni : "The confines of social life are frequently composed of other people in the same predicament" (op. *cit.,* p. 3).

22. [p. 35 and fig. 3.]

23. See Peter L. Berger and Thomas Luckmann, *The Social Construction o f Reality: A Treatise in the Sociology o f Knowledge* (Garden City, New York: Doubleday Anchor, 1967), pp. 92-128; Vittorio Lanternari, *The Religions of the Oppressed: A Study of Modern Messianic Cults,* New York: Mentor, 1965; James Mooney, *The Ghost-Dance Religion and the Sioux Outbreak o f* 1890, Chicago and London: Phoenix, 1965; Schermerhorn, *op. cit.,* pp. 53-69.

24. Although Taylor twice speaks of general systems theory as being "valid" [pp. 29 and 52], he does not show that such validity excludes either "analogy" or "Western ethnocentricity," both of which he clearly wishes to surmount

[pp. 28 and 55]. Nor is it likely that he could show this, if we may believe Ernest Becker, *op. cit., pp.* 364 and 366.

25. In lieu of entering here into the much disputed question of "objectivity" in the social sciences I refer the reader to Ernest Nagel, *The Structure ot Science* (New York and Burlingame: Harcourt, Brace & World, 1961), pp. 447-546; Richard S. Rudner, *Philosophy of Social Science* (Englewood Cliffs, N.J.: Prentice-Hall, 1966), pp. 68-83; Lucien Goldmann, *The Human Sciences £3 Philosophy,* trans. Hayden V. White and Robert Anchor (London: Cape, 1969), pp. 35-84; and, finally, I make my own Alex Inkeles' observation that "the critical question is not so much what is a man's ideology of research but rather what is the extent of his contribution to knowledge" *(op. cit., p.* 105).

26. J. L. Austin, "Performative-Constative," *Philosophy and Ordinary Language* (ed. Charles E. Caton; Urbana: University of Illinois Press, 1963), pp. 22-54.

27. I do not suggest that Taylor is immune from analogies, but rather that he turns not to the biological but to the physical sciences for his own favored analogy, viz., that of complementarity. Nor do I suggest that the latter notion has no relevance to problems on the human level, but only that what is thereby gained in prestige is lost in specificity. Ultimately at issue, however, is Ludwig von Bertalanffy's claim that "in sciences that are not within the framework of physico-chemical laws, such as demography and sociology ... exact laws can be stated if suitable model-conceptions are chosen"-Problems *o f Life: An Evaluation of Modern Biological and Scientific Thought* (New York: Harper

Torchbooks, 1960), p. 200.

28. This well-known thesis of Eric Hoffer *(The True Believer; Thoughts on the Nature o f Mass Movements,* New York: Perennial, 1966) is well exemplified by the way in which evolutionary theory has been used to rationalize racist policies and procedures-once, even, as Taylor reminds us [p. 8], by Charles Darwin himself. See Donald T. Campbell, "Variation and Selective Retention in Socio-Cultural Evolution," *Social Change in Developing Areas, op. cit.,* pp. 20-5.

29. That proponents of general system theory hope to surmount such limitations is in itself no guarantee that they have or in fact can succeed. See Levi-Strauss's critique of Sartre, *The Savage Mind, pp.* 245-69.

30. See Claude Levi-Strauss, *Tristes Tropiques: An Anthropological Study of Primitive Societies in Brazil,* trans. John Russell, New York: Atheneum, 1964.

31. Anibal Quijano Obregon, "Tendencies in Peruvian Development and in the Class Structure," *Latin America: Reform or Revolution?* (eds. James Petras and Maurice Zeitlin; Greenwich, Conn.: Fawcett Premier, 1968), p. 327; Landes, op. *cit., pp.* 34-5; Ronald Segal, *The Americans: A Conflict of Creed and Reality,* New York: Bantam, 1970; *Hard Times,* March 30-April 6, 1970.

32. I refer here, of course, to what I take to be Taylor's designation for the ultimate integrative level [p. 34].

33. Oscar Lewis, *The Children of Sanchez: Autobiography of a Mexican Family* (New York: Vintage, 1961), pp. xxiv-xxv; Petras and Zeitlin (eds.), op. cit., pp. 58, 196, 313-14, 319, 326-9, 367; Jagdish Bhagwati, *The Economics*

of Underdeveloped Countries (New York and Toronto: World University Library, 1966), pp. 18-19; Landes, op. *cit.,* pp. 499-503; *Christian Science Monitor,* Oct. 3, 1970. The former U.S. Secretary of Labor Willard Wirtz once spoke of "a separate nation of the poor, the unskilled, the jobless" as "a human slag heap." See Erich Fromm (ed.), *Socialist Humanism, op cit.,* p. 452. See also Etzioni, op. *cit., p. 11.*

34. Nigel Calder, op. *cit., pp.* 207 ff., 246-9; Edward A. Feigenbaum and Julian Feldman (eds.), *Computers and Thought.* New York: McGraw-Hill, 1963; *Indianapolis Star,* Jan. 4, 1970; *Christian Science Monitor,* Feb. 16, May 1, June 6-8, 18, and 19, 1970; To *Improve Learning.* Washington: U.S. Government Printing Office, March, 1970; Mary Elizabeth Stevens, *Automatic Indexing: A State-of-the-Art Report,* National Bureau of Standards Monograph 91, Washington: U.S. Government Printing Office, March 30, 1965.

35. Sackman, *op. cit., pp.* 206-300; see also definitions of "real time," "realtime processing," and "real time science." p. 617.

36. *Ibid., pp.* 505-50; John E. Smith, *The Spirit of American Philosophy,* New York: Oxford University Press, 1963; Radnitzky, op. *cit., pp. iii-xl.*

37. See, for example, Donald G. Fink, *Computers and the Human Mind: An Introduction to Artificial Intelligence,* Garden City, New York: Doubleday Anchor. 1966; Kenneth M. Sayre and Frederick J. Crosson (eds.) *The Modeling of Mind: Computers and Intelligence,* New York: Simon and Schuster Clarion, 1968; Alan Ross Anderson (ed.) *Minds and Machines.* Englewood Cliffs, N.J.: Prentice-Hall, 1964.

38. See Rollo May (ed.), *Existential Psychology,* New York: Random House, 1961; Hendrik M. Ruitenbeek (ed.), *Psychoanalysis and Existential Philosophy,* New York: Dutton, 1962; James F. T. Bugental 'ed.) *Challenges o f Humanistic Psychology,* New York: McGraw-Hill, 1967.

39. A useful bibliography will be found in Gerard DeGre, *Science as a Social Institution: An Introduction to the Sociology of Science,* New York: Random House, 1955. More recent works include Don K. Price, *The Scientific Estate,* Cambridge, Mass.: Harvard University Press, 1965; Bernard Barber and Walter Hirsch (eds.), *The Sociology of Science,* New York: Free Press, 1962.

40.Rene Dubos, So *Human an Animal,* New York: Scribners, 1968.

41. A. Standen, *Science Is a Sacred* Cow, New York: Dutton, 1950.

42. Abraham H. Maslow, *The Psychology of Science: A Reconnaissance,* Chicago: Regnery Gateway, 1969 (including relevant bibliography).

43. This view, treated at some length in Vol. I of Radnitzky, *op cit., is* defended in various ways by Israel Schef$er, *Science and Subjectivity,* Indianapolis: Bobbs-Merrill, 1967; Mario Bunge, *Intuition and Science.* Englewood Cliffs, N.J.: Prentice-Hall Spectrum, 1962; C. C. Gillispie, *The Edge of Objectivity: An Essay in the History of Scientific Ideas,* Princeton, N.J.: Princeton University Press, 1960. See also Nagel, *op. cit.*

44. The man-machine system, variously thought of as "prosthesis" or "cyborg," is discussed by Alvin Toffler, op. *cit. pp.* 186-91. See also Sackman, *op. cit.,* and Ferkiss, *op. cit., pp.* 209-10.

45. This view is exemplified by such dramatic treatments as Friedrich Durrenmatt, *The Physicists,* trans. James Kirkup, New York: Grove, 1964;

Bertolt Brecht, *Galileo,* trans. Charles Laughton, New York: Grove, 1966 (see especially p. 16 ff.). See also Lois and Stephen Rose, *The Shattered Ring: Science Fiction and the Quest for Meaning,* Galesburg, Ill.: John Knox, 1970.

46. Taylor, [pp. 19, 48-9, 52, and fn. 60].

47. The point here is not that such notions as complementarity are inappropriate to social analysis, but that (1) their legitimation is in no way dependent upon the authority of the physicist and (2) might well derive from other sources. Floyd W. Matson seems to suspect the first point: *The Broken Image: Man, Science and Society* (New York: Braziller, 1964), p. 150; Philipp Frank spells it out in detail: *Philosophy of Science: The Link Between Science and Philosophy* (Englewood Cliffs, N.J.: Prentice-Hall, 1957), pp. 163-88, 207-59. For the second poin tsee Peter L. Berger, *The Sacred Canopy: Elements of a Sociological Theory of Religion,* Garden City, New York.: Anchor, 1969; Alan W. Watts, *The Two Hands of God: The Myths of Polarity,* New York: Collier, 1969.

48. Claude Levi-Strauss, *The Savage Mind, op. cit.; Totemism,* trans. Rodney Needham, Boston: Beacon, 1963; Rene Dubos, A *Theology of the Earth,* Washington, D.C.: U.S. Government Printing Office, 1969.

49. Jean-Paul Sartre, *Nausea,* trans. Lloyd Alexander, New York: New Directions, 1949.

50. Norbert Wiener, *God & Golem, Inc.: A Comment on Certain Points Where Cybernetics Impinges on Religion,* Cambridge, Mass.: M.LT., 1964; Everett Knight, *The Objective Society,* New York: Braziller, 1960; Roszak, *op. cit., pp.* 205-89.

51. Referring not to what all men can do, but to what our species can do in virtue of the capabilities of some. See Edmund F. Byrne and Edward A. Maziarz, *Human Being and Being Human: Man's Philosophies o f Man* (New York: Appleton-Century-Crofts, 1969), pp. 327-33.

52. Remmling, op. *cit., pp.* 118-27; Gillispie, op. cit., 74-82; Sackman, *op. cit.,* 583-94; Calder, op. *cit., pp.* 271-353.

53. Lewis A. Coser, *Men of Ideas: A Sociologist's View,* New York: Free Press Paperback, 1970. This conflict-theory work should be compared to Bernard Barber's *Science and the Social Order* (New York: Collier, 1962) and to two works written under wartime conditions: Hans J. Morgenthau, *Scientific Man versus Power Politics,* Chicago and London: Unversity of Chicago, 1946, Phoenix, 1965; Noam Chomsky, *American Power and the New Mandarins,* New York: Random House Pantheon, 1969.

54. Whence the growing interest in avoiding what is called "technological surprise": *Science and Technology: Tools for Progress,* Report of the President's Task Force on Science Policy (Washington, D.C.: U.S. Government Printing Office, 1970), p. 38; *Christian Science Monitor,* April 25-7, 1970. See also Etzioni, op. *cit.,* Part Two, pp. 132-309, p. 77.

55. Marshall McLuhan, *Understanding Media: The Extensions of Man,* New York: Signet, 1966; Henry Jacobowitz, *Electronic Computers* (Garden City, New York: Doubleday Made Simple Books, 1963), pp. 4-16, 93-8; Norbert Wiener, *Cybernetics,* 2nd ed. (Cambridge, Mass.: M.LT., 1961), pp. 1-29.

56. E. O. James, op. *cit., pp.* 38-39.

57. See, for example, David Wise and Thomas B. Ross, *The Espionage Establishment,* New York: Random House, 1967; Stafford Beer, "Managing Modern Complexity," *The Management of Information and Knowledge* (Washington, D.C.: U.S. Government Printing Office, 1970), pp. 41-62.

58. Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man,* New York: Signet, 1969.

59. Jesse Kornbluth (ed.), *Notes from the New Underground: An Anthology,* New York: Ace, 1968; Ronald Segal, op. *cit., pp.* 139-40; Dale Minor, *The Information War,* New York: Hawthorn, 1969.

60. "The Supersonic Seventies," *Business Automation, XVII* (1970), 55-60; Joseph Goulden and Marshall Singer, "Dial-A-Bomb : AT&T and the ABM," *Ramparts, VIII* (1969), 29-37; *Christian Science Monitor,* Jan. 29-30, 1970.

61. In addition to observations in Calder, op. *cit., passim,* one might consult the *Inventory of Automatic Data Processing Equipment in the United States Government,* now being published annually by GSA through the U.S. Government Printing Office.

62. See, however, Toflier, op. *cit., pp.* 400-5.

63. Compare Sackman, op. *cit., pp.* 530-2, 544-5, 556, with Peter F. Drucker, *The New Society: The Anatomy of Industrial Order* (New York: Harper Torchbooks, 1962), p. 63.

64.Calder, op. *cit., pp.* 273-88.

65. Terminology especially dear to Roszak, op. cit.

66. See *Science and Technology: Tools for Progress,* Report of the President's Task Force on Science Policy (Washington, D.C.: U.S. Government Printing Office, April 1970), pp. ii, vii, 14-23, 47.

67. That non-scientists are little better prepared to fill the gap may be seen from Paul Kurtz, *Decision and the Condition of Man* (New York: Delta, 1968), pp. 282-3; Nicholas Rescher, *Introduction to Value Theory* (Englewood Cliffs, N.J.: Prentice-Hall, 1969), pp. 11-27; Arnold A. Rogow, *The Psychiatrists* (New York: Putnam's, 1970), pp. 9-30.

68. *The Management of Information and Knowledge, op. cit., p.* 27.

69. What follows might also be formulated according to the tensionmanagement approach, provided that macro-dynamics be made an integral part of one's theory, somewhat as Etzioni is doing. See Arnold S. Feldman, "Evolutionary Theory and Social

Change," *Social Change in Developing Areas: A Reinterpretation of Evolutionary Theory* (ed. Herbert R. Barringer et al.; Cambridge, Mass.: Schenkman, 1965), pp. 273-84.

70. The distinction between external and internal elites (Etzioni, op. *cit.,* p. 114) is relevant here, as are Chinua Achebe, *The Arrow o f God* (London: Heinemann, 1964) and *Things Fall Apart* (Greenwich, Conn.: Fawcett Premier, 1969); Toffler, op. *cit.,* ch. 7.

71. I allude here not only to the maxim, "Love it or leave it," but more importantly to the notion of territoriality as reported by Robert Ardrey, *The Territorial Imperative: A Personal Inquiry into the Animal Origins of Property and Nations* (New York: Atheneum, 1966)-but without accepting conclusions drawn from either.

72. Friedrich Nietzsche, "Human, All Too Human," n. 224, *The Portable Nietzsche* (ed. and trans. Walter Kaufman; New York: Viking, 1954), pp.

54-56; *Christian Science Monitor,* Nov. 18, 1970.

73. Compare Eric Hoffer, *The Ordeal of Change* (New York: Perennial, 1967), pp. 3-6.

74. Maurice Zeitlin, "Political Generations in the Cuban Working Class," *Latin America: Reform or Revolution? op. cit., pp.* 264-88; Alex Inkeles and Raymond Bauer, *The Soviet Citizen,* Cambridge, Mass.: Harvard, 1961; Robert C. Tucker, *The Marxian Revolutionary Idea,* New York: Norton, 1969; Daniel and Gabriel Cohn-Bendit, *Obsolete Communism: The Left-Wing Alternative,* New York: McGraw-Hill, 1969.

75. Albert Memmi, *The Colonizer and the Colonized,* trans. Howard Greenfield, Boston: Beacon, 1967.

76. Freud's theory of a primal horde, though given at least symbolic value by Herbert Marcuse and repeated in a way by Jean-Paul Sartre, does not seem borne out in recent studies by Levi-Strauss (cited above) or, among others, Robert Redfield: *The Primitive World and Its Transformations,* Ithaca, New York: Cornell, 1953; *The Little Community and Peasant Society and Culture,* Chicago: University of Chicago Press, 1960.

77. What James Burnham foresaw in 1941 as *The Managerial Revolution* (reprinted, Bloomington and London: Indiana University, 1960) is rapidly leading, for example, to a United States of Europe; and this, in turn, is but another major step towards a stabilized world economy: J.-J. ServanSchreiber, op. *cit; The Indianapolis Star, Nov.* 8, 1970 (Sec. 1, p. 26), Sept. 10, 1970 (p. 31); *Christian Science Monitor,* Sept. 15, 1970, Sept. 25, 1970. But the growth of international investment has as one of its side-effects an internationalization of job instability, for reasons that may be learned either from following business news or, in terms of background, from J. P. Cole, *Geography of World Affairs,* 3rd. ed., Baltimore: Penguin 1964.

78. As Sartre tells Memmi with regard to colonialism, perhaps "system" is already a better word here than "situation": *The Colonizer and the Colonized, op. cit., p. xxv.* See also Etzioni, op. *cit., pp.* 124-5.

79. Kingsland Crowe, *World Wildlife: The Last Stand,* New York: Scribners, 1970; Lila Freilicher, "An Ecology Reading List," *National Catholic Reporter,* Sept. 25, 1970; Landes, op, *cit., pp.* 4, 33-8.

80. William H. Whyte, *The Last Landscape,* Garden City, New York: Doubleday Anchor, 1965; Jacques Ellul, *The Meaning of the City.* Grand Rapids, Mich.: Eerdmans, 1970; Jean Gottman, *Megalopolis.* Cambridge, Mass.: M.LT., 1961; Joseph Dietch, ". . . But Who Wants to Live There?" *Christian Science Monitor,* Dec. 18, 1969. See also *ibid.,* Nov. 24 and 29, 1969.

81. Robert L. Heilbroner, *The Future as History,* New York: Harper & Row, 1960; Ilarper Torchbooks, 1968.

82. Landes, op. cit., pp. 513-1; Kenneth Boulding, "Philosophy, Behavioral Science, and the Nature of Man," *World Politics, XII* (1960), 272-9; Toffier, *op. cit., pp.* 405, 480-2.

83. *The Revolution of Hope: Towards a Humanized Technology,* New York: Harper & Row and Bantam, 1968.

84. Etzioni, *The Active Society, op. cit., pp.* 583-6.

85. Bhagwati, op. *cit., pp.* 205-44; Reginald H. Green and Ann Seidman, *Unity or Poverty? The Economics of Pan-Africanism* (Baltimore: Penguin,

1968), pp. 99-131; Petras and Zeitlin, op. *cit.,* especially pp. 1-144. Also useful in this connection are such United States government publications as: *Minerals in the World Economy,* Washington: U.S. Government Printing Office, 1968; *Essential United States Foreign Trade Routes,* Washington: U.S. Government Printing Office, December 1969.

86. The point here is not to discredit hopes for "post-industrial" leisure, but to note that such hopes are futile within the context of a work ethic that equates individual worth with "productive" work and thus inversely tends to view the "able-bodied" workless as worthless. See Fred Davis, "Why All of Us May Be Flower Children Someday," *Trans-Action V* (1967), 730-9; Petras and Zeitlin, op. *cit., p.* 61, fn. 42.

87. In spite of great variations in method and motivation, most analysts of international affairs anticipate some sort of global catastrophe in the years ahead. For an understanding of this impending crisis, absolutely basic are the works

of Gunnar Myrdal: *An International Economy,* New York: Harper, 1956; *Asian Drama: An Inquiry into the Poverty of Nations,* 3 vols., Baltimore: Penguin, 1968; *The Challenge of World Poverty,* New York: Pantheon, 1970. For typical statements of concern or alarm see Calder, op. *cit., pp.* 261-3; Landes, op. *cit., pp.* 10-2; Bhagwati, op. *cit., pp.* 36-8; Petras and Zeitlin, *op. cit., passim,* e.g. pp. 329, 355; Cole op. *cit., pp.* 43-54; Wilfred Cartey and Martin Kilson (eds.), *The Africa Reader: Independent Africa* (New York: Random House Vintage, 1970), pp. 257-400. See also fn. 90.

88. As Landes notes (op. *cit., p.* 38), there is ample precedent for such paupercide in the history of European expansionism; and this has been perpetuated most recently in southeast Asia and in such resource-rich African lands as Algeria, the Congo, and Nigeria. Detailed accounts would in large measure simply elucidate J. P. Cole's observation that the white man's supremacy in recent centuries has depended upon military superiority (op. *cit.,* p. 54). For an attitudinal response see John A. Williams, *The Man Who Cried I Am* (New York: Signet, 1967), pp. 299-316.

89. Cole, op. *cit., pp.* 74, 127, 140, 66-106.

90. Kenneth Galbraith says resignedly that "there can be no talk of the poor countries catching up with the rich": *The Underdeveloped Country* (Toronto: CBC Publications, 1965), p. 45. Bhagwati, finding recent rate-of-growth statistics ambiguous, questions not the gap but whether it is still increasing. Others are persuaded that rich countries are getting richer, poor countries poorer: Cole, op. *cit., p.* 103; Calder, op. *cit., p.* 259; Landes, op. *cit.,* p. 335; Heilbroner, op. *cit., pp.* 162-3; Sackman, op. *cit., pp.* 583-4; Petras and Zeitlin, op. *cit., pp.* 196, 326; *Christian Science Monitor,* Sept. 25, 1970.

91. Cole, op. *cit., pp.* 99-103.

92. Bhagwati, op. *cit., pp.* 67, 231 ff.; Calder, op. *cit., pp.* 263-9; *Christian Science Monitor,* Aug. 10, 1970.

93. See Cole, op. *cit., pp.* 191, 175-7, 266; *Hard Times,* Nov. 17-24, 1969; *Time,* Oct. 19, 1970, 81.

94. Cole, op. *cit., pp.* 89, 131.

95. Maurice Halperin, "Growth and Crisis in the Latin American Economy," *Latin America: Reform or Revolution? op. cit., pp.* 58-9,

96. Cole, op. *cit., p.* 129.

97. Halperin, op. *cit., pp. 57-8.*

98. Petras and Zeitlin, op. *cit., pp. 195-6, 313-4, 327, 367.*

99. Halperin, op. *cit., p. 58.* See above, fn. *33.*

100. James Petras, "Revolution and Guerrilla Movements in Latin America: Venezuela, Colombia, Guatemala, and Peru," *Latin America: Reform or Revolution? op. cit., pp. 340-3.*

101. Petras, *ibid., pp. 337-10.* See also Merle Kling, "Toward a Theory of Power and Political Instability in Latin America," *Latin America: Reform or Revolution? op. cit., pp. 86-7.*

102. Petras and Zeitlin, op. *cit., pp. 349* and *352;* see also Cole, op. *cit., p. 125; Hard Times,* Aug. *10-17, 1970.*

103. Frantz Fanon, *The Wretched of the Earth,* trans. Constance Farrington, New York: Grove, *1963.*

104. Zbigniew Brzezinski, "American in the Technetronic Age," *Philosophy for a New Generation* (eds. A. K. Bierman and James A. Gould; New York: Macmillan, *1970), p. 429.* For the background and context of Brzezinski's statement, see Chaim I. Waxman (ed.), *The End of Ideology Debate,* New York: Simon and Schuster Clarion, *1969;* Brzezinski, *Between Two Ages,* New York: Viking, *1970.*