

STEPHEN TONSOR

Science, Technology and the Cultural Revolution

IF we are to believe the electronically amplified clucking of certain Luddite intellectuals and the out-pouring of printed materials which dwarfs even the annual production of Bibles, America and indeed, the whole Western world, is in the midst of a great cultural revolution. The invention of bell bottom trousers and rock music are happy inspirations on a level with Newton's formulation of the laws of universal gravitation and Gregor Mendel's inspired pea sorting; and hair, with which women have perennially been unable to do a thing, has suddenly become the visible sign of life renewed and spirit infused. America has "greened" we are told and Consciousness III has abolished, repealed and repudiated not only war, alienation, hatred and envy, but even the basic factum which makes economic science possible, that old devil, scarcity. The Puritan ethic, it is said, has vanished and the work ethic has disappeared, to be replaced by a non-competitive era of indulgence in which the only pollution will be the healthy sort: the mountains of fecund literary manure which will fertilize the "greening."

America, whether spelled with a "c" or a

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"k," if we are to take certain of our intellectuals and many of our students seriously, has moved in the brief period of twenty-five years from the position of the "arsenal of democracy" to the "cesspool of plutocracy." One is tempted to say the "cesspool of technology," for in the thinking of these neo-primitives it is difficult to discern just which elements they believe to be chiefly responsible for our current fall from grace: wealth and affluence or science and effluence.

Closer examination of the rhetoric of this ecological and cultural apocalypse reveals, however, that this movement of ideas and imagination has taken far less than a quarter of a century to occupy the dominant place in the house of horror many intellectuals assert is contemporary American society. Indeed, it would seem, the preoccupation with pollution and the revulsion shown toward science, technology and rationality is of very recent origin. Only a decade ago science and technology stood at the apogee of their power, and although, as C. P. Snow recognized in his essay of 1959, *The Two Cultures*, literary intellectuals were mounting a determined counterattack, science still carried the day and dominated the intellectual and cultural scene. Now, if one is to believe the slick and middle-brow literary monthlies and the soap opera intellectuality of "in depth" television analysts, scientists are in nearly as desperate a shape as generals, parents, university presidents, policemen, Richard Nixon and even good old God.

The apologists of the "counter-culture," the "youth culture" or the apostles of "greening" have basically a simple position. It is that the "adversary culture" (to use another of these clever Madison Avenue-like terms which Left intellectuals are fond of

inventing for themselves) seeks to transform American society through a retreat from the world of science, technology, bureaucracy, rationality and organization. The position of the counter-culture represents what one of them has described as "the great denial," a revolutionary act which will by transforming consciousness take us back to the age before the wheel, the atomic bomb and the urban crisis. Writing in the February, 1971 issue of *Fortune Magazine*, Lawrence Lessing described this intellectual syndrome in the following terms:

The most visible embodiment of these philosophies is in the new youth culture, or counter culture, which turns away from hard science to the softer, still forming social sciences, the arts and handicrafts, the primitive and a return-to-nature à la Rousseau—and ravel out in astrology, drugs, and those Eastern mysticisms that for centuries have held whole continents impoverished . . . Avowedly anti-science, its culture rests squarely on those electrical sciences that power its amplifiers, electric guitars, and stereo rigs and on the pharmacopeia of chemical agents that give it instant visions. Its communes are never far from the supermarket, that base of modern food technology, and it does not eschew motorcycles or motorcars. It accepts in other words, the science and technology that pleases it, and would destroy those that do not.

But science is indivisible, a seamless web of accumulated knowledge, and to destroy a part would rip the whole fabric.

The leaders and followers of the movement which describes itself as a "counter-culture" say that it is new, that it is revolutionary and that the impact of the changes it would introduce are and would be wholly beneficial. It is the assertion of this essay that each of these claims is false. The position of the counter-culture is not new, indeed it is as old as technology itself, and a similar position was probably elaborated by hunters when, in the course of the Neolithic



Charles Reich

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revolution, the domestication of plants and animals took place. It is not revolutionary in any sense and especially in a Marxian sense, and if we were to follow systematically the advice of Charles Reich, the author of *The Greening of America*, the United States would, within a year's time, be the scene of pandemic disease, famine and complete social dislocation. Let us examine each of these claims in turn and analyze the available evidence.

I find the claim of novelty among the most interesting. A defective sense of history and little or no knowledge of the historic past enables the so-called "youth culture" to assert that their position, their values and indeed their cultural morphology are wholly new and radically different from anything that has happened before, that they are in fact "cultural mutants." Historically this claim, especially with respect to the specifically youthful aspects of the movement we are discussing, is simply false and betrays an

appalling lack of historical information. Lewis Feuer, Walter Z. Laqueur and Fritz Stern have all recently pointed out in detail the remarkable similarity between the contemporary "youth culture" and that other youth movement, the pre-Hitlerite youth movement of Wilhelmian Germany which ended in anguish and catastrophe in 1933. From my own very extensive investigations I can categorically assert that there is not one value, not a single slogan, not a posture or costume, not a technique or political or cultural position which was not manifested in that earlier movement. The only difference lies in the increased silliness of the American version.

But let us consider the anti-technological, anti-scientific and anti-rational aspects of the movement more closely. Far from these being novel, they represent the commonest grist of the anti-intellectual mill for the past two centuries. From the middle of the 18th century onward there has been a steady procession of movements and ideas whose aim is the restoration of what certain elements in Western culture have mistakenly believed to be the lost paradise of pre-industrial society. Their recommendations have been various: the abandonment of the plow for the spade, the abandonment of refined and processed foods (witness, for example, the enthusiasm for graham flour which characterized the reformers of Thoreau, Hawthorne and Emerson's generation), the abandonment of clothing or the substitution of a uniform nondescript garment (witness the effort to popularize the bloomer in the 1840's), the campaign against the railroad as a polluter and poisoner of the countryside, the campaign against immunization, and finally the pervasive distrust of and hostility to urbanization and industrialization. Any historian who has read more than a few pages in the sources of 19th century social history can tell you the same story.

However, the element which makes this derailment of the Western spirit all the more poignant is the assertion on the part of its missionaries that it is boldly revolutionary, and that it is the most important contribution the intellectual and political

Left has to make to the contemporary world. In fact this view is starkly reactionary, has always been associated with satiated classes and societies and in the recent past has been advocated more frequently by the extreme Right than the Left.

Whittaker Chambers, the 20th century's greatest convert from Communism, a man who refused to describe himself as being a conservative and who preferred to call himself "a man of the Right", wrote, "For, of course, our fight, as I think we said, is only incidentally with Socialists or other heroes of the kidney. *Wesentlich*, it is with machines." Chambers described Senator Robert Taft as a liberal rather than a conservative because he did not say to farmers: "Farmers, back to horses and the hand plough; smash your tractors and buy no more." What Chambers intended, what he meant was that technology is an essentially revolutionary instrument and that it transforms not only the mode of production but society and politics as well.

Chambers, of course, was not alone in this perception. One of the first books published by Henry Regnery, the distinguished and erudite Chicago publisher who has contributed so much to the revival of conservative thought in the United States, was *The Failure of Technology* by Friedrich Georg Juenger, (1949). Friedrich Georg Juenger is the brother of Ernst Juenger, the German poet, essayist, and man of the Right. Friedrich Georg no less than his brother subscribes to an aristocratic, conservative humanism and *The Failure of Technology* must be seen as a most persuasive document in the revolt against modernity. One is tempted to say that the New Left might have learned a great deal from the Old Right had their literary and historical education been a bit more thorough. Juenger's work is a long and systematic denunciation of the evils and the anti-humane character of technology. I quote him at random: "No human invention could possibly abolish the reciprocity between mechanical progression and elemental regression." Or, "The Gods manifestly do not love man the maker; they oppose him violently at times, while at other



Whittaker Chambers

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times they suffer him as a half-burlesque figure by their side, like Hephaistos. They beat down the revolt and presumption of the Titans." Or still again, "What will spell the end is rather the total character of those losses which include the human beings within the technological organizations. It becomes constantly more evident that the sum total of the technological efforts and investments overtakes human capacities, that the sheer weight of the mechanical burden is getting too heavy, that once technology has reached perfection, it will not be long before modern man collapses."

In an introduction written for *The Failure of Technology* in 1956, Frederick D. Wilhelmsen, whose ideology is romantic Spanish integralism, lapses into a tone which might easily be confused with that of the New Left. Wilhelmsen writes: "Juenger insists that as technology approaches [perfection], it purges nature of life and man of humanity. It perverts the state by turning politics into an order of technical problems rather than an exercise

of moral judgment. It destroys the profit motive by subordinating the good of both the capitalist and laborer to the good of the machine: thus the technician, writes Juenger, 'drove the craftsman from his hand loom and forced him to become an operator in a mill, a proletarian. In this act his intent was not to enrich the capitalist at the expense of the factory worker, but he accepted this consequence without compunction. He was interested above all in developing the technical mechanism, and not at all in who profited by it.' And we can hear Orwell's O'Brien," Wilhelmsen adds, "admitting casually that the vision of constantly increasing power has its own consolations, even if they bring with them the victory of the robot. 'If you want a picture of the future, imagine a boot stamping on a human face—forever.'"

One might lengthen the list of men of the Right who have seen in technology the most revolutionary and dehumanizing force in the modern period. Certainly both D. H. Lawrence and Henry David Thoreau belong in this company of bourgeois radicals who have seen the machine as mankind's chief enemy. How are we to account for this attack from the Right which seems to have so much in common with the New Left? Is it simply another instance of the congruence of the extremes, the tendency of the extreme Right and the extreme Left to come to the same conclusions and to employ the same tactics? I do not believe this to be a satisfactory explanation.

It is not a satisfactory explanation because the Old Left, genuinely revolutionary, clearly recognized, and recognizes today the essentially revolutionary dynamic of science and technology and is at least theoretically more completely committed to science and technology than is the free world. Marx saw clearly the relationship of capital to technology and science, forces destined to transform the world in a revolutionary fashion. He wrote:

Pursuing this tendency, capital has pushed beyond national boundaries and prejudices, beyond deification of

nature and the inherited, self-sufficient satisfaction of existing needs confined within well-defined bounds, and the reproduction of the traditional way of life.

It [capital] is destructive of all this, and permanently revolutionary, tearing down all obstacles that impede the development of productive forces, the expansion of needs, the diversity of production and the exploitation and exchange of natural and intellectual forces.

What strikes one immediately in the anti-rationalism, the anti-science, the anti-technology and anti-productionism of the New Left is its non-Marxian and non-revolutionary character. Both capitalism and Marxism are dedicated to the revolutionary transformation of society through a changing productive technique. Pre-capitalistic aristocratic ideologies, on the contrary, because they are the expression of a satiated and threatened class, seek to check technological transformation or to turn it from the production of consumer goods to the production of amusement and illusion. Moreover, it should not strike us as odd that the New Left is ideologically so closely allied with the Old Right. They are both satiated groups. The revolutions such groups make are revolutions of satiety rather than revolutions of deprivation. They seek to change without transforming and their aspiration is to secure for all time a status and a condition which they sense to be, at best, transitory.

Peter and Brigitte Berger, distinguished Rutgers University sociologists, sensed the fact I have observed above when they wrote recently:

The "greening" revolution is not taking place in a sociological vacuum, but has a specific location in a society that is organized in social classes. There are enough data now to pinpoint this location. The cadres of the revolution are, in overwhelming proportions, the college-educated children of the upper middle class. Ethnically, they tend to be

Wasps and Jews. Ideologically, they are in revolt against the values of this class—which is precisely the class that has been running technological society so far. But the essentially bucolic rhetoric of this rebellion goes far beyond a radical (in a leftist sense) rejection of American class society and its allegedly evil ways. The rhetoric intends a dropping out of technological society as such.

What the Bergers suggest is the point I have just made. The anti-science and anti-technology of the New Left is not revolutionary; it is, indeed, a retreat to traditional society from which for more than a thousand years Western man has been struggling to free himself through the employment of reason, science and invention.

Richard L. Rubenstein, professor at Florida State University, probably put the whole matter most succinctly when he said recently, "Technological civilization has made it possible for millions of European and American young people to enjoy a moratorium from the adult world of conflict, competition and power. We call that moratorium the youth culture; Charles Reich has recently called it 'Consciousness III'."

What makes the "youth culture" even more fascinating as a social phenomenon is its attempt to turn a moratorium into a permanent condition by biting the robot hand that feeds them. Far from being members of the revolutionary Left, these "greened" scions of the upper middle class are very close to the attitudes and values of the old aristocratic Right, and their orientation is to a society not too unlike the traditional society which our ancestors struggled to transform in the early Medieval period.

Robert Scalapino, professor of political science at the University of California at Berkeley, recognized this when he distinguished and commented on the different meaning the word "revolution" has in Western society and in the non-Western world at the present time. In the Western world the revolutionary attack is an attack on production, on science and technology, on ra-



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tionality and affluence. The ideal which the revolutionaries hold out to us is the ideal of traditional society: ill-organized, ill-fed and clothed, sick and uneducated, but pure in motive and rejoiced by the mystical inward vision. The revolutionaries of the non-Western world seek just the opposite. For the most part they live in traditional societies which they are seeking to transform. They value political order, good schools and universities and the benefits of modern sanitation and medical science. Their proudest achievements are increases in industrial and agricultural production. Their heroes are engineers and industrial managers. This is the case because they know real poverty and genuine ignorance. They cannot afford the luxury of a pseudo-primitive existence made possible by a governmental food stamp plan.

BUT, finally, the counter-culture will not succeed, cannot succeed, because it runs counter to everything we know about human behavior.

The anti-rationalists and anti-technocrats anxious to restore a barter economy, introduce a vegetarian cuisine, give themselves

over to free love and non-competition, or perhaps more modestly simply desirous of destroying capitalism, or the "gold bugs," are doomed to frustration. There has never been, short of an all-encompassing disaster, a voluntary return to a primitive technology once that technology has been replaced by one more sophisticated--one which gives man a better command of his environment and arms him more effectively for the battle against want, disease and discomfort. From the neolithic revolution to the hydrogen bomb, ideas and technology have steadily revolutionized society and mankind has welcomed enthusiastically each change, each social transformation no matter how disrupting its social consequences. And they have done so because each change has brought with it the promise of a more abundant and satisfying life. The quantitative and qualitative quest for life is the story of every religion, every political system, every social order. It is, quite simply, what history is all about. This quest is a quest intrinsic to man and most especially to Western civilization. We are all revolutionaries. We can not, even were we to wish to do so, renounce the course upon which, not ourselves alone, but the whole of mankind has determined.

Let us make no mistake about this important matter. If we Americans renounce our leadership in science and technology and abandon the course upon which we are set, we cannot expect the remainder of the world to follow in our footsteps. While we "green" the remainder of the world will turn red. Even were we simply to follow the pattern in science and technology which we have set during the past few years it is quite possible we shall be within a decade a second rate state displaced by both Japan and the Soviet Union. On March 18th, 1971, Dr. John S. Foster, Jr., Director of Defense Research and Engineering, testified before the Senate Armed Services Committee. He pointed out that one reason for Soviet research success is the growing number of Soviet researchers. The United States had 142,000 graduates in engineering and the natural sciences in 1970, he said, while the

Soviet Union had 247,000. He anticipated that in 1976, (four short years from now), the United States would have 181,000 and the Soviet Union 359,000.

But it would be wrong to define a position and defend a principle solely on the basis of the Soviet challenge, however grave and however important that challenge is. Ultimately, the defense of rationalism, science and technology is one which is rooted in the total predicament of contemporary man. The price of survival is not less reason but more science. It is not less technology but more technology. Long ago Alfred North Whitehead, the great mathematician-philosopher, put it most clearly and succinctly when he said, "In the conditions of modern life, the rule is absolute: the race which does not value trained intelligence is doomed." I believe it may safely be asserted that either we shall drive on to the solution of our problems through rational-technical-scientific means, or mankind, defeated and overcome by the forces of nature and the disorder of his passions, will be forced to relinquish his mastery of the planet and will have to content himself with the very nearly paleolithic existence characteristic of the mountain dwellers of New Guinea.

Speaking before the American Association for the Advancement of Science on December 26, 1970, Dr. Philip Handler, President of the National Academy of Sciences said:

I deny that my life has been made wretched or my freedom reduced by science. Rather do I believe that technology has made the lives of about three-quarters of all Americans richer, more comfortable, more enjoyable, and more healthy, than that of humanity in

any other period of history. The challenge is to extend those boons to the remaining quarter. While recognizing the dangers ahead, I believe that, with judicious use of applied science, these dangers can be averted and humanity freed as never before for what Norbert Wiener called "the human use of human beings." To be sure, we have been dangerously exploiting the planet's natural resources and too rapidly despoiling the environment. But only by much improved technology can we avoid the first danger and prevent the second, far preferable to returning to the "good old days" that never were.

The so called "cultural revolution" is a retreat from reality, a vacation from genuine relevance. But these despairing gestures are not the actions by which a new world is made or even a new consciousness called into existence. They represent, not the future, but the heavy hand of the dead past, the stupidities of status quo contentment and the rigidities of behavior oriented to a thoughtless traditionalism. Certainly we need a science which is cognizant of human ends and purposes. Clearly we need a re-evaluation of much of our technological effort in order to make certain that it serves to enlarge rather than to diminish our humanity. But this can not be achieved by know-nothing Luddites whose only claim to moral superiority is that they belong to the current "smart-set." It can only be achieved by humanists who have a deep understanding of science, and scientists and technologists who have an equally deep understanding of our humanity. Together we shall redress the past and ransom the future.