

In defense of Dubos and Ellul

Samuel Florman's article "Anti-Technology: The New Myth", in the January 1972 issue of *Civil Engineering*, continues to generate comment. In a rebuttal, a fellow engineer defends the ideas of Dubos and Ellul and raises the question of whether technology addresses itself to human need.

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So *Human an Animal* by Rene Dubos and *The Technological Society* by Jacques Ellul are books eminently suited for reading by the engineer, indeed by anyone concerned with his personal and professional role in the technological world of today and tomorrow.

Samuel Florman, writing in the January 1972 issue (p. 68) of *CIVIL ENGINEERING*, has condemned both books as "misleading and dangerous".

Florman's distress may be traced to his contention that technology is available to promote rational solutions to a host of problems but is prevented from so doing by high interest rates, high wages, and the "desires of the masses of people". Both Dubos and Ellul maintain that the lack of rational solutions stems not from the desires of the people but rather from the inability of technology to address itself to human needs.

Of particular interest to debate is Florman's statement that people drive cars and own lots of convenient electrical appliances because they want to—in his opinion, a case of human motivation and shifting class structure. Both Dubos and Ellul clearly state the case for the demise of *homo sapiens* and the creation of *homo economicus* as a result of the development of technology. "All too often, science is now being used for technological applications that have nothing to do with human needs and aim only at creating new artificial wants", says Dubos (p. 190). Ellul (p. 221) carries the argument a step further and cites the reason behind such applications:

If man does not already have certain needs, they must be created. The important concern is not the psychic and mental structure of the human being but the uninterrupted flow of any and all goods which invention allows the economy to produce. . . . For the pro-

letariat, as for the bourgeoisie, man is only a machine for production and consumption. He is under obligation to produce. He is under the same obligation to consume. He must absorb what the economy offers him.

Consumer no longer king

There is a considerable body of agreement with Ellul and Dubos in this case. Viewed from the receiving end, it can be said that the consumer no longer is king. He does not effectively control what is produced for his consumption. John Kenneth Galbraith in *Economics, Peace and Laughter* (p. 82), states the argument effectively in his observation of the waxing of producer sovereignty and the waning of consumer sovereignty: *The level of consumption is seen to be a derivative of producer goals, including the commitment of the producing firm to continuous expansion of output. Consumer attitudes are substantially formed by producer persuasion. This emphasizes the satisfaction from continuing increases in consumption. The question immediately arises as to whether General Motors is the proper agency to decide the proper level of consumption for its products. And since the matter is not decided by the collective inner will of the public, the question also arises as to the optimal upper level of production and consumption in general.*

A critical appraisal of our own private inventories of material goods (electric can openers, automatic pencil sharpeners, and the lot) might show a superfluity beyond our needs. Our need to consume may be served by these "things", but we might examine the origin of that need.

Preaching totalitarianism?

Florman invites further debate with

his statement that Dubos and Ellul "are insidiously preaching a new form of totalitarianism." In reading both books one cannot escape the conclusion that Florman's conclusion is wrong. Dubos (p. 7) argues for a new social ethic, a collective reassessment of goals: *Rumblings against the present state of things remain amorphous and ineffective largely because existing trends, customs, and policies cannot be changed merely by negative acts. Positive beliefs are required. Alternatives will not emerge through piecemeal evolution; their development demands an intellectual and emotional revolution. We cannot transform the world until we eliminate from our collective mind the concept that man's goals are the conquest of nature and the subjection of the human mind.*

Ellul decries the coming of technological perfection and its companion totalitarianism in this paragraph from *The Technological Society*.

If we take a hard, unromantic look at the golden age itself, we are struck with the incredible naivete of these scientists. They say, for example, that they will be able to shape and reshape at will human emotions, desires, and thoughts and arrive scientifically at certain efficient, pre-established collective decisions. They claim they will be in a position to develop certain collective desires, to constitute certain homogeneous social units out of aggregates of individuals, to forbid men to raise children, and even to persuade them to renounce having any. At the same time, they speak of assuring freedom and of the necessity of avoiding dictatorship at any price. They seem incapable of grasping the contradiction involved, or of understanding that what they are proposing, even after the intermediary period, is in fact the harshest of dic-

tatorships (p. 434).

The goal of the books by Dubos and Ellul is to frustrate a trend toward the concentration of power. It may be argued that both men have overreacted to the course of technology. And so it may be.

Overreaction to Technology

In seeking to resolve the point, what can we reasonably infer on the basis of our own experience? Consider a few of several predictions of the Rand Corporation for future technological breakthroughs and the predicted me-

dian dates of accomplishment as mentioned in N. Leonard Jarvis's *A Woman's Guide to Wall Street*.

- Scientific Breakthroughs

Feasibility of limited weather control, in the sense of affecting regional weather at acceptable cost (1990)

Feasibility (not necessarily acceptance) of chemical control over some hereditary defects by modification of genes through molecular engineering (1999)

- Automation

Widespread use of automatic decision making at management level for

industry and national planning (1978)

Man-machine symbiosis, enabling man to extend his intelligence by direct electromechanical interaction between brain and a computing machine (2010)

- Weapon Systems

Effective terminal defense by air-launched antimissiles (1989)

Large orbiting satellite weapons for blackmail (1994)

- Space Progress

Manned landing on Mars and return (1985)

Long-duration coma to permit a form of time travel (2050 or never)

In Response to de Rubertis

Mr. de Rubertis chooses to join Dubos and Ellul in declaring that technology is "something" that has gotten out of control, much to the sorrow of the human race. This attempt to give to a characteristic of man an identity completely separate from man does not make sense. If I failed to make this point clearly in my original essay, perhaps the following statement by philosopher Daniel Callahan will be more convincing:

At the very outset we have to do away with a false and misleading dualism, one which abstracts man on the one hand and technology on the other, as if the two were quite separate kinds of realities. I believe that there is no dualism inherent here. Man is by nature a technological animal; to be human is to be technological. If I am correct in that judgment, then there is no room for a dualism at all. Instead, we should recognize that when we speak of technology, this is another way of speaking about man himself in one of his manifestations; a recognition, most critically, that the question is not one of "yes" or "no" towards technology, of affirmation or denial, but the harder questions of "how much" and "when" and "in what circumstances."

I fail to see how de Rubertis supports his contention that man the consumer is helplessly in the grip of artificial wants or created needs. If de Rubertis does not wish to consume cars and can openers, then why does he not consume oboes and oil paints, hiking boots and microscopes, chess sets and sailboats. Or if he has no personal "artificial wants" let him donate to his local hospital a kidney machine that will save his neighbor's life. To blame our vulgarities and foolish choices

on technology—or on General Motors—is the worst sort of copout.

As for totalitarianism, the stage is set for its coming when people lose faith in the workings of their existing society, and believe that a certain person, or group of persons, can show the way to salvation. When Dubos attempts to discredit absolutely our pragmatic efforts, and calls upon us to follow the guidance of those engaged in the "science of humanity," he is (unintentionally, let us grant) leading us down a treacherous path.

It is difficult not to be misunderstood here. I am not *against* research and planning, nor in favor of *laissez faire*, "business as usual," or "more of the same," as some of my critics have averred ("The Readers Write," *Civil Engineering*, April, 1972.) But sociological research and planning must be viewed with appropriate skepticism in light of actual events to date. Again and again the theories and models of the planners have been found unequal to the realities of life. In the fields of housing, education, and welfare, for example, the "experts" are in a state of disarray and confusion, and not through any fault of technology. What is it that people want? Perhaps everything. Perhaps most of all what they do not have today, or what they had yesterday. Perhaps even, in the words of Dostoyevsky, "one may choose what is contrary to one's own interests, and sometimes one *positively ought*."

We must continue to plan, of course. Imperfect plans are better than no plans. But it is clear that no one group of social planners is to be trusted, and all planning must be viewed as tentative, subject to challenge in the political arena.

In contrast to de Rubertis, I am hopeful that our system can cope

with the technological breakthroughs that the Rand Corporation sees around the corner. Also, I think that public opinion, however imperfectly formed and erratically expressed, has a definite impact upon the decisions that are made.

I do not for a moment believe that Dubos or Ellul *want* totalitarianism to come. But it *could* come if their disgust was our present society and their craving for new absolutes are taken seriously and followed to their logical consequences.

Is it possible that advancing technology itself brings us closer to totalitarianism, as de Rubertis claims? Emotional platitudes cannot obscure the facts of history: totalitarianism appears, not when technology improves, but when zealots and false messiahs arise in the midst of a discontented populace.

Finally, de Rubertis speaks rhapsodically about "the quality of life" and "the elevation of the human spirit." Well and good. But when he disparages civil works, and then agrees with Ellul that a great dam is nothing but an electricity-maker, he exhibits a hostility toward his own profession, and an anti-humanism that I find depressing. (I also am saddened to see that he has chosen to quote, out of context, a paragraph from my book, *Engineering and the Liberal Arts*, which is anything but a self-satisfied defense of the engineering profession as it exists).

We all want life to have beauty and meaning. We all want to be in a state of grace. But, except for a few Eastern mystics, we must find what fulfillment we can, not in the vain pursuit of transcendental bliss, but engaged in human activities—not the least satisfying of which is engineering.

Samuel C. Florman

The current direction of our technological society renders it unlikely that we, either as individuals or collectively as a profession, shall have any discernable influence in the decisions to bring these developments to reality. No plebiscite will record our yeas and nays to the question of the development of large orbiting weapons for blackmail. Our government-industry complex has no history of enlightening the general public as to the existence or desirability of such developments. Nor is a change of policy in this direction evident. These developments will affect our lives but escape our control, even our grasp. Our only visible involvement appears in the deduction column of our paychecks.

Technology breeds totalitarianism

Technology breeds totalitarianism in the view of Ellul. Dubos (p. 191) cites the reason for the current direction. "Most of the problems posed by the use of technology are primarily social, political, and economic rather than scientific in nature. Furthermore technology cannot theoretically escape from human control, but in practice it is proceeding on an essentially independent course, for the simple reason that our societies have not formulated directives for its control and proper use." Ellul (p. 306) observes the result. "Modern man divines that there is only one reasonable way out: to submit and take what profit he can from what technique otherwise so richly bestows upon him. If he is of a mind to oppose it, he finds himself really alone."

Perhaps we are fortunate in serving a profession which currently receives the undivided attention of so many government agencies and civic action groups. No dearth of interest there! Such interest was not unforeseen. Nathan Cherniack writing for the January 1962 issue of CIVIL ENGINEERING (p. 19) foresaw that: *engineering students who expect to participate actively in the planning of our urban complexes must concentrate their training in the behavioral sciences and the humanities, as well as in the physical sciences and mathematics. . . . If civil engineers who are engaged in city planning are to evoke public confidence and command public respect, they will have to assume social responsibilities both as professionals and as informed citizens, on a scale not even approached in the past.*

A professional consciousness is evident in the contrast between the issue in which Cherniack wrote a decade ago and the issue you hold in your hands. "Engineered construction" has yielded to "environmental design and engineered construction." To the end that we might foster this consciousness, we must transcend the temptation to quan-

tity and seek that which will contribute to the quality of life.

What are the limitations of technology, and in particular of civil engineering? Florman holds that technology is "available to turn our cities into veritable gardens for the human spirit."

Civil works are civil works are civil works.

Engineers' perception

To the extent that the tangible results of our profession are integrated into the context of all other factors conducive to the elevation of the human spirit, then civil works contribute materially to enhancing the quality of life.

There is contention concerning our ability to perceive our work for what it is. Ellul (p. 324) puts it this way. "People simply cannot admit that a great dam produces nothing but electricity. The myth of the dam in France springs from the fact that mass man worships his own massive works and cannot bring himself to attribute to them a merely material value." Dubos extends the argument (p. 214). "Cities, dwellings, and the ways of life in them cannot be designed or imagined merely on the basis of available technology. Each decision concerning them must take into consideration not only human needs in the present but also long-range consequences." And he speculates (p. 216) as to the lack of understanding of human needs. "Scientists shy away from the problems posed by human life because these are not readily amenable to study by the orthodox methods of the natural sciences. For this reason, such problems are not likely to yield clear results and rapid professional advancement."

Justifiably we derive professional pride from our ability to overcome the tangles of design, the unusual foundation condition, the exotic wind load, the critical path of commuter from doorstep to destination. When doubtful, we quantify by assumption to convert gray areas to tangible quantities amenable to design. But what of the true intangibles? How are we to know in applying the lift slab technique to rapid, low-cost construction that we are not creating another Pruitt-Igoe, a veritable cesspool for the human spirit? To be sure, we can treat the symptomatic disorder of urban structural decay, but as a profession we cannot touch the fundamental pathologies of imbalance in distribution of income, racial inequity, public morality, or loss of identity. These are people problems, and we are not in the business of solving people problems.

Establish dialogue

It would seem to serve our self inter-

est to establish some dialogue with those in the business of solving such problems. Given the means of enhancing the quality of life through environmental design and engineered construction, an inter-disciplinary approach directed at the fulfillment of human needs could be construed as the most conservative approach. Conservation of man, if you will. The unique opportunity to preserve both energy and matter.

The mutual prejudices of our profession and those concerned with the human sciences serve to restrict meaningful colloquy. Florman's view of us in *Engineering and the Liberal Arts* (pp. 1-2) brings home this point.

Those of us who are engineers in the last third of the twentieth century are among the most fortunate of men.

In a time of despair our constructive work gives us reason to be sanguine. In an age when most men are confused by the complexity of the scientific revolution, we are uniquely equipped to understand and enjoy the marvelous technological happenings all about us. It is said that the conditions of man in our era is one of increasing alienation. But we engineers are needed by our fellow men; our place in society is secure; we feel at home in the world. Our work brings us comfortably in touch with the real world of "things"; our days are spiced with the tang of novelty and inventiveness. Financially, although we might not always consider ourselves adequately compensated for our efforts, we need never know want.

If we are to mature as a profession, we must overcome the predilection evident in this view. A better understanding of the society which we seek to serve can only enhance the quality of our work. □

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