Robert L. Heilbroner: Portrait of a World without Science

At a time when ecological doomsaying is no longer in fashion, it takes a brave man, or a rather confident one, to assert that Western civilization is headed for a new dark age in which, among other deprivations, there will be no place for organized science. Yet this is the all but inexorable outcome envisaged by the noted economist and social philosopher Robert L. Heilbroner in his recent essay *An Inquiry into the Human Prospect.**

Heilbroner, at present chairman of economics at the New School of Social Research in New York, is a writer of Galbraithian breadth and limpidity, though without the same pungency of prose style. Taking a fix on the shape of things to come has been a recurrent interest since his *The Future as History* in 1959. His latest essay, published this June, is of particular interest to scientists because one of the four horsemen of his apocalypse, indeed the rider who urges on the other three, in science and technology. Yet Heilbroner is no antiscientist. In an earlier essay in horoscopy, *The Limits of American Capitalism*, he argued that the spiritual vacuum of present day materialism would be filled by the "majestic driving force" of science as the postcapitalist society dedicated itself to a new raison d'être, the accumulation of scientific knowledge and power.

Since this foretaste of the future, written in 1965, Heilbroner has not in any way turned against science; rather, the future that he now foresees happens to be of a structure probably incapable of accommodating the driving force of science. The broad lineaments of this future are sketched out in the *Human Prospect*, a pamphlet of Malthusian starkness and simplicity. Its message can be summarized as follows.

There are three aspects of the current human predicament, any one of which, if not controlled—and there is not much hope of controlling any—will lead the world to catastrophe. Population growth, the spread of nuclear weapons, and environmental stresses occasioned by economic growth are the three members of the Pandoran triad. World population, projected to leap from 3.6 billion at present to some 40 billion a century hence, will force a choice between massive starvation, leading to steadily worse social disorder, or, more likely, to the rise of revolutionary authoritarian governments, which alone will have the determination to ram through the vast social changes needed to reduce family size.

Even if the new Draconian governments manage to check population, that will not erase the intolerable gap between rich countries and poor. Nuclear weapons might. Some nuclear capability will be in the hands of the major underdeveloped nations "certainly within the next few decades and perhaps much sooner." † The leaders of these countries may resort to nuclear blackmail to force the developed nations to transfer some of their wealth to the world's have-nots. "Wars of redistribution" may be the only way by which the poor nations can hope to remedy their condition. Thus even if hostilities between the superpowers are permanently averted, the world will still not be free of the threat of nuclear war.

A Limit to Industrial Growth

The third danger, and the least escapable, is the environmental deterioration brought about by continued economic growth. The ultimate limit on industrial activity is determined by the amount of heat that can be absorbed by the ecosphere. Industrially generated heat at present amounts to 1/15,000 of the heat reaching the atmosphere from the sun and from the earth's interior.‡ If the rate of increase in energy use were to continue at 4 percent per year, the atmosphere would begin to warm up appreciably, by some 3 degrees in 150 years, and serious climatic problems would probably be encountered long before this dangerous threshold is reached. The problem here is not one of imminent disaster, but rather of the unavoidable need to limit industrial growth. But neither rich nations nor poor are likely to consent to such an unparalleled act of self-abnegation.

A fourth element in this cohort of destructive forces is science and technology, without which the other three would not exist. Science and technology are not inherently malign, but their development in a lopsided manner has engendered the threats of runaway populations, obliterative war, and potential environmental collapse without compensating benign technologies or control mechanisms. Such threats constitute "an extended and growing crisis induced by the advent of a command over natural processes and forces that far exceeds the reach of our present mechanisms of social control." This unequal balance between power and control provides the underlying basis for the "civilizational malaise that enters our current frame of mind."

Is there hope for man? If by this question we mean whether it is possible "to meet the challenges of the future without the payment of a fearful price, the answer must be: No, there is no such hope." Doomsday, however, is not inevitable, although the risk of enormous catastrophes exists. The human prospect is better viewed as a "formidable range of challenges that must be overcome before . . . we can move beyond doomsday." The challenges include the "abandonment of lethal techniques, the uncongenial lifeways, and the dangerous mentality of industrial civilization itself." The modes of production and consumption must be changed so as to stress parsimony, not prodigality—processes that consume resources or generate heat must be regarded as necessary evils, not social triumphs. It is hard to know what values and ways of thought will accompany so radical a reordering of things, but "it is likely that the ethos of 'science,' so intimately linked with industrial application, would play a much reduced role."

Such is the picture sketched out in the *Human Prospect.* As any view of the future must be, it is painted in broad brushstrokes, but Heilbroner was willing in a recent interview to fill in some of the details. What lies ahead,

* W. W. Norton, New York, 1974. $1.95.

† This was written several months before the explosion by India of a nuclear device. On the day of the explosion Heilbroner arrived at a meeting of the Council on Foreign Relations, to be greeted with a chorus of "You did it!"

‡ Heilbroner's main source is *Economic and Ecological Effects of a Stationary State* by R. U. Ayres and A. V. Kneese (Reprint No. 99, Resources for the Future, Washington, D.C., 1972).

he believes, in a new dark age called down by the three dangers he has described. The species of society best able to run this gantlet will be organized like a monastic barracks—monastic because some kind of religiosity must replace the spiritual emptiness of industrial civilization, barrack-like because only a highly disciplined society will have the will to make the necessary changes for survival. The society that at present seems best equipped for these troubled times is that of China.

"The things I see in the future," says Heilbroner, "are all personally abhorrent to me. I am against religion, for science, a liberal social democrat or whatever. I find myself very much like the king's messenger." Why will the dark ages turn against science? "Because given the present degree of social organization it will be impossible to keep. You either have science and it works its way in ways we have to control, or you don't have science. I think that if the situation gets worse, as it will, the choice will have to be no science, the dethroning of the whole of science and technology."

Asked just how this dethronement will take place, Heilbroner notes that it is the absence of religion that is the sapping force of Western industrial civilization. He suspects that there will be an effort to find some new religious basis for the civilization to come. The free inquiry on which science is based would have a hard time making its peace with the tradition and ritual that will come to pass. Unfettered intellectual expression, he writes in the *Human Prospect*, may come to be regarded "with much the same mixed feelings as we hold with respect to the ways of a vanished aristocracy—a way of life no doubt agreeable to the few who benefited from it, but of no concern, or even of actual disservice, to the vast majority."

In the *Limits of American Capitalism* Heilbroner compared scientists and technologists to the medieval merchants who worked for rich patrons and never thought of themselves as constituting a ruling class. The merchants never capitalized on their position, but scientists, he thought at the time, might succeed in doing so. "I speculated that power would drift into the hands of the experts, including scientists. But in the last five to ten years I have changed my mind. . . . In this period ahead of general tightening, power will pass to the politicians, not the scientists."

Scientists, in his opinion, were powerless to have prevented any of the adverse consequences of scientific knowledge. The control of such matters lies in financial and industrial circles, not scientific. In any event, the consequences of particular technologies are often unforeseeable as well as unforeseen. Who could have foreseen the effects of television? Or who even now knows what they are?

Heilbroner, in the *Human Prospect*, is not talking about the next election. In the short run he considers that the role of scientists should probably increase. He does not disagree with conventional nostrum that the cure for the adverse effects of science is more science, not less, science. This, after all, is the age of planning. But in the long run, the scientists and technologists who are so much the mainspring of society will somehow go. "Scientists and technologists have a priest-like and very esteemed position; whether this can be maintained in the future I don't know."

What lies beyond the dark ages is as impossible for us to divine as it would have been for a citizen of the 4th century Roman empire to foresee what lay beyond the dark ages that loomed over his civilization. What could such a man do? Heilbroner asks. "Nothing but to go on being a good citizen of Rome and enjoy it while it lasted."

Reactions to the *Human Prospect* have ranged all the way from encomia to blasts, Heilbroner says, but his basic premises have been generally accepted. "I thought at the time that I was walking on thin ice, but I don't now think the conclusion is so thin—you can alter the premises without affecting the conclusions." He completed the manuscript of the book a year ago, at which time his publisher complained that it "seemed a bit abstract." Since then the Arab-Israeli war, the oil crisis, and the Indian nuclear explosion have given the *Human Prospect* an unexpected topicality. Heilbroner is now at work on second thoughts on the human prospect but finds there is little he needs to change. He thinks that exploitation of manganese nodules from the seabed will postpone materials shortages for longer than he had expected, but that food shortages will occur somewhat sooner. As for the prediction of the rise of revolutionary regimes in underdeveloped countries, that is only an obvious conclusion from the evidence. The weakness of so much social science writing, says Heilbroner, "is a failure to draw the political conclusions which are often implicit."

In the delineation of at least two of the three threats to civilization—population growth and nuclear weaponry—Heilbroner is indeed doing no more than drawing the obvious conclusions. He may fail to carry all of his audience with him in the leap from these basic premises to his glimpse of the valley of bones, but imaginative leaps are certainly within a predictor's prerogative. Those who reject his vision of a future without science can make their own haruspications.—NICHOLAS WADE