

DIFFERING VIEWS: THE ENVIRONMENT AND POLLUTION PROBLEMS

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ABSTRACT

Attitudes towards many environmental problems often have little to do with rational analyses and are thus not susceptible to scientific evaluation. A person's view towards the environment may be based on subconscious and irrational fears that have been shaped by where and how he lives (city lover vs. ex-urbanite); his training and position (biologist vs. engineer); his economic status (rich vs. poor) and his philosophic cast of mind (optimist vs. pessimist).

Nature appears different to different viewers. As with any work of art, the appreciation of the natural environment and its complexity depends to a large extent on the attitudes, the economic status, the education and the cast of the viewer's mind.

Consider the city environment, which is probably the most desirable ecological niche for the human species in this last quarter of the 20th century. A recent poll indicated that only 13 per cent of U.S. citizens would live in cities if they had a choice. The National Wild-Life Federation, with one-and-a-half million members, opined in 1974 that: "Most cities remain overcrowded with three fourths of the population living on less than 2 per cent of the land." I submit that American cities are by no means overcrowded, and further, that concentrating people in cities rather than allowing sprawled growth in suburbs would be most beneficial to the overall environment of man. Cities, compared with suburbs, decrease pollution and decrease waste of resources. But note that my view is tempered by the fact that I live quite contentedly in an apartment in Manhattan, the smallest county in the U.S.A. with one-and-a-half million residents. I feel towards cities as did Samuel Johnson about London, "When a man has grown tired of London, he has grown tired of life."

In considering the reactions of various groups and persons towards the

environment, we must always bear in mind from whence the groups and persons come, and where they're at. Otherwise confusion and bitterness will arise, as it has already. We see "environmentalists" calling other environmentalists "crackpots, lackeys of business, ecofreaks, rapers of the environment, tools of industry, old ladies in tennis shoes . . ."

Consider the diverse attitudes of engineers and biologists towards the environment.

I wrote a book called *Ecological Fantasies: Death from Falling Watermelons*,¹ which was turned down by many publishers because, they said, it did not fit into any simple publishing niche, and because, they said, the interest in ecology books had waned. (The first two printings have sold out.) I wish to discuss here the differing reactions of environmental engineers and environmental biologists to the book and to the environment.

Reviews of the book in engineering journals were quite favorable, even laudatory; but reactions in biological journals, if they appeared at all, slighted the book. The book has been adopted by half a dozen professors of environmental engineering courses, but it has been studiously avoided by biologists who teach most of the so-called environmental-ecology courses in the U.S.A.

I was puzzled: Why this difference in attitude? I tried to find out. I examined introductory biology texts and inquired about biology courses. I had taught physics and mathematics to engineering students at The City College of New York, Cooper Union and the State University of New York and therefore I was somewhat familiar with engineering courses. Physics and chemistry courses require the solution of mathematical problems while biology courses primarily require students to describe nature. Engineering students must analyze natural laws and solve equations which govern motion, energy, the electromagnetic spectrum and other basic physical phenomena. Each chapter in a physics text is followed by mathematically solvable problems. On the other hand, biology texts are replete with colored pictures and descriptions of living systems that can be followed by almost any intelligent lay person. Biology books have few if any problems that lend themselves to numerical analysis.

Ecological Fantasies is not a mathematically abstruse book, but it calls for a rational approach to environmental problems and a continuation of innovation. These attitudes, apparently, run counter to the grain of most biologists who seem to prefer to observe rather than attempt to use and improve their physical environment. A main theme of the book is that technologists working with a willing society have improved, and can further improve, our physical environment.

Paul Ehrlich is a good example of a biologist who blames technology for

¹ C. A. Adler, *Ecological Fantasies*, 350 pp., Green Eagle Press, 99 Nassau Street, New York, 10038, \$9.95.

many natural conditions. "You see Lake Erie has died. . . . No one in his right mind would eat a Lake Erie fish today," he wrote in his book, *The Population Bomb*. But, in fact, Lake Erie is the most productive lake in America. Carp and buffalo fish from Lake Erie swim in fish stores on Broadway and in New York Chinese restaurants. About 100,000 pounds of edible fish are taken from Lake Erie annually.

To improve the environment, biologists such as Ehrlich have urged that the U.S. reduce its population to 50 million. Most engineers would consider such a policy to be a form of national suicide. The U.S. could well support a population of one billion at the living standard of present day France. How one lives and the density of population is a matter of taste and as I said before, I like cities filled with people.

Particularly revealing is biologist Ehrlich's credo—"There is no, I repeat, no conceivable technological solution to the problems we face." I submit that Ehrlich is simply ignorant of the technological possibilities available to mankind.

Optimists vs. Pessimists: A basic division of attitudes towards the environment and pollution is exhibited by optimists and pessimists. The pessimists tend to be Malthusians who look forward with a certain glum anticipation to the starvation of millions of humans; while the more optimistic non-Malthusians anticipate a world of generally rising well-being. Consider the following pessimistic evaluation of the air quality of Denmark:

I have of late, but wherefore I know not, lost all my mirth, foregone all custome of exercise; and indeed it goes so heavily with my disposition, that this goodly frame, the Earth, seems to me a sterile Promontory; this most excellent canopy the Ayre, look you, this brave ore-hanging Firmament, this Majesticall Roofe, fretted with golden fire: why it appears no other to mee, than a foule and pestilent Congregation of vapours.

This opinion of air quality was given by the melancholy Prince of Denmark as quoted by William Shakespeare. Many melancholy people alive today view the environment in a similarly despairing way.

A prime example of more general doomophilic pessimism is the study, *Limits To Growth*, a concoction of Malthus multiplied by IBM.

The major conclusion of *Limits to Growth* (LTG) is glum indeed.

If the present growth trends in world population, industrialization, pollution, food production and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity.

This conclusion cannot be reached by reading the slim volume; the book is one continuous *non sequitor*. Data supplied by the earnest and well-intentioned authors are insufficient to buttress their case, and are in places misleading. There is no possible way for a reader to verify assumptions, equations and calculations.

We are asked to accept their conclusions on faith and many doomophiles apparently are only too eager to do so.

LTG quickly became a reflecting pool for those who through ignorance and consequent fear of technology are disposed to visions of future doom. Mankind has often been beset by visions of apocalypse, millenia, and California sliding into the sea. Beliefs in catastrophe have always been matters of taste, usually with religious undertones. Our society is rich enough to support astrologers, organic food faddists, English majors and other special “minorities” only because science-based technology has been able to produce surplus food and other necessities of life. It is therefore ironic to hear society’s articulate mystics castigate technology and accuse it of creating most of man’s ills. Without modern science the world would support only a relatively meagre population, most of it living in sickness and misery.

Looked at purely as a mathematical exercise for a computer the collapse of LTG’s system of equations was inevitable. The MIT savants made pessimistic assumptions about rates of population and pollution growth and decline of resources, assumptions that preordained the collapse of their model world. About 150 years ago Malthus made simpler but somewhat similar assumptions about rates of population and good growth and arrived at similar conclusions of disaster and collapse. We know now that Malthus was wrong in his assumption that population growth would be everywhere exponential—it has stabilized and even declined in many countries—and he was wrong in his assumption that food production would increase arithmetically and could not keep up with population growth. Today more people live and eat well than at any time in the history of man. One has only to check the increase in life expectancy throughout the world to verify the truth of this statement. In the U.S.A. a child born in 1900 had a life expectancy of some 50 years. Today a U.S. child can expect to live over 70 years. We appear to be thriving despite industrial growth and pollution.

A basic assumption of LTG is that pollution is killing people, and that the rate at which it is killing people will increase drastically as industrialization increases. But in fact water and air quality have improved during the past five years in most industrialized areas of the world. New York’s Hudson River is cleaner than it was 10 years ago and the crabs and the bluefish are coming back. In most American cities sulphur dioxide particulates and carbon monoxide concentrations in city air are down from what they were a few years ago. There is little justification for assuming that pollution *must* grow with technology. Replacing cars with modern electric-powered trains will certainly decrease air pollution and solid waste; generating electricity by power plants anchored in the ocean will decrease both air pollution, solid waste and thermal deterioration of rivers and estuaries.

The aware reader will question the basic methodology of LTG in lumping together data from industrialized nations and countries living at a subsistence level; countries with life expectancies of over 75 years and those with life

expectancies of 35 years; countries with annual population increases of 3.5% and those with decreasing populations; those rich in natural resources and those with virtually none—lumping all of these together and creating the mathematical fiction of an average world citizen and an interconnected world community. Our world is not an aggregated community. China with one-quarter of humanity could vanish from the earth with virtually no effect on the lives of the rest of the world; India could sink into the ocean and hardly anyone in America would be the worse off for it—though we would have to import gurus from other countries. The world is not a neat statistic that can be fed into a computer.

Many of the believers in doom project a tone of anti-technology and emotional yearning for a simpler, nongrowing world. But history is strewn with the wreckage of societies that deliberately stopped growing, and then sunk into decay or vanished from the earth.

Rates of change *are* accelerating mainly because scientific findings are being rapidly translated into technological improvements that allow more people to live, and to live better than ever before. Man is distinctly different from any other animal in his ability to accumulate knowledge and to teach it to future generations. Know-how accumulates; men learn to do things better and faster; the old gives way to the new and foresight lags behind innovation. The question many thoughtful men are asking for the first time in recorded history is: *should* innovations be implemented? This question is not answered by Limits to Growth.

A few months after LTG appeared a short study was published in *Science* in which a group of scientists took the very same equations of the LTG group but modified the parameters in the direction of reality. For instance, they assumed that natural resources would not deplete as fast as predicted, and as price went up substitutes would be found for many basic materials. No long range forecast made in the 1940's anticipated the enormous use of plastics. In 1950 production of plastics amounted to only two billion pounds. By 1960 production had tripled to 6 billion pounds; in 1971, it had zoomed to 21 billion pounds. Synthetic fibers now being spun at some 7 billion pounds annually exceed natural fibre production. In a similar manner science and technology are quite likely to replace other scarce commodities with better substitutes. Using somewhat more realistic assumptions, but the same equations as in Limits To Growth, the optimistic scientists reported results directly counter to those of the Club of Rome.

The Rich vs. the Poor: Nobody likes pollution; nobody I have met wants a dirty environment. But if you ask a poor person, "what would you like right now, a loaf of bread or a cleaner river?" he will invariably take the loaf of bread. If you ask Lawrence Rockefeller the same question, he will invariably prefer the cleaner river even if it costs him a few hundred thousand dollars. The same differing attitudes toward pollution and the environment have become apparent

between poorer less-developed countries (LDC's) and richer, industrialized countries. The poorer countries want industry, even if it means pollution; they want to mine and sell their resources, as fast as possible in order to expand their economies and live fuller lives. They consider it hypocritical for a rich country like the United States to preach limitation of growth and suggest enormous expenditures on pollution control. The U.S. with its great wealth and industry and adequate resources can afford to spend billions of dollars to clean up its environment. Such economic reserves are non-existent in most of the LDC's in the world. It is obvious that the wealth of individuals, or of nations, will color their view towards the environment and pollution.

Nature is a complex and capricious mother. To depend entirely on her beneficence and not on our own innovativeness and ingenuity would very likely prove fatal, as it has to non-technological societies throughout history.

Civilization has resulted in world-wide conglomerations of large cities and increasingly efficient farms linked together by ships, trains, cars and planes. This is the ecosystem of man in the last third of the twentieth century, and it appears stable except for international war or devastating eruptions of nature.

The prospect of catastrophe is nothing new to human societies: the Black Plague killed 75 million people and obliterated entire inhabited areas during the fourteenth century; the famine of 1878 killed 22 million peasants in China; the atom bomb dropped on Hiroshima wiped out 200,000 lives in a few hours; destruction of topsoil and forests by overgrazing and overfarming and overcutting have caused thousands of societies to wither and hundreds of millions of people to starve or migrate.

Man will continue to live in a rapidly changing world in which technology brings comforts and longer life to more and more people. But it will be a world always under the cloud of great potential accidents such as nuclear holocausts, new virulent epidemics, and unpredictable global weather changes. It will be a tolerable world, in many ways more pleasant than the world lived in by our fathers. In the world of the next 200 years, governments will have to work together to manage social institutions and natural resources. And those few persons given to thought will continue thinking while the vast majority of mankind will continue to live intuitively—as has always been the case. But it should be a world worth living in.