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THE ENVIRONMENTAL MOVEMENT: WHAT MIGHT IT BE?

DANIEL H. KOHL*

The environmental movement stands accused in several circles of being a diversion from the real issues of our times, the handmaiden of the status quo, a movement based on a self-serving desire of the middle class to preserve its playgrounds, a movement with genocidal tendencies directed at Third World peoples as well as minority populations at home, and a block to economic development in the Third World. This is a laundry list of sins which, while it could be made longer, cannot easily be made more damning.

Perhaps there are environmentalists who live so securely within their own world that it is necessary to document the fact that such accusations are seriously made. Three, almost random examples follow. According to press reports, the conflict between the needs of social justice and the social vision of at least some environmentalists was a major issue at the 1972 Stockholm meetings on the environment. For example a UPI report¹ stated the following: " 'On the one hand,' [Prime Minister Indira Gandhi] said, '[the developed countries] look askance at our poverty. On the other they warn us against their own methods. Poverty and greed are the worst pollution. How can we urge the preservation of animals to the hungry, speak to them of clean air and clean oceans when their own lives are dirty.' " *Time's* account² included the observation that:

On the other hand, pollution controls on factories in the industrial countries will inevitably raise the cost that the poor nations must pay for finished goods.

The only answer, according to the underdeveloped nations, is the familiar one: more aid from the rich to the poor. Most of the Western powers indorsed that idea in Stockholm and promised to increase financial assistance. The United States did not follow suit. . . .

As another example, Mary McCarthy, writing of the 1972 elections, offers her view that to "propose that environmental measures be enacted into law is to identify yourself as a rich man's candidate. . . ." ³ Jake McCarthy has written:

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1. St. Louis Post-Dispatch, June 14, 1972.

2. *Time*, June 19, 1972, at 55.

3. *Newsweek*, July 10, 1972, at 102.

Ecology is a convenient way to make the young people feel that they have a social conscience without worrying too much about some of the human misery going on around them. . . . I don't doubt for a minute that we are destroying our environment. But the great ecology caper, like so many things we do, is aimed in the wrong direction. . . . whatever happened to our concerns over poverty and disease and bombs in Vietnam, and the decay of our cities and racial unrest? You can hardly get a school kid to talk about those things, but he knows he shouldn't litter.⁴

Perhaps the most thoroughgoing and persuasive critique of the environmental movement is Richard Neuhaus' *In Defense of People*,⁵ which will serve for the most part as a counterpoint to this essay. It is an important book which should be read, indeed studied, by all who are interested in environmental problems. This is true despite the fact that this book, unlike *Silent Spring*⁶ and *The Closing Circle*,⁷ will by itself probably not have tremendous impact. A careful and respected reading of Neuhaus' book should force any environmentalist to reexamine seriously his position. If one is charitably inclined toward the environmental movement, Neuhaus' indictment may be read as a challenge to fashion a movement in which environmental concerns arise out of a broader commitment to social justice and feed back into the public arena as part of a more broadly based movement for social justice.

The criticisms noted above tend to treat those with environmental concerns as part of a homogeneous movement. Neuhaus chooses as his targets the components of this movement, as he perceives it. Against the population control crusaders he mounts a vigorous polemical attack, punctuated with a sense of righteousness; he also attacks conservationists, more in sorrow than in anger. A third target are the young who are choosing a "nature ethic." I would like to examine his attack on the first two groupings while insisting that these groups are by no means the whole of the environmental movement. An examination of the activities and ideas of another loose grouping with environmental concerns, which I will call the science information movement, will allow us to ask, and suggest answers to, an important question: What analysis and action in the arena of environmental concerns would serve to enhance the broader movement for social justice?

4. McCarthy, *View From the City*, St. Louis Post-Dispatch, Nov. 8, 1971, at A-3, col. 1.

5. R. Neuhaus, *In Defense of People: Ecology and the Seduction of Radicalism* (1971) [hereinafter cited as Neuhaus].

6. R. Carson, *Silent Spring* (1962).

7. B. Commoner, *The Closing Circle* (1971).

POPULATION CONTROLLERS AND CONSERVATIONISTS

Neuhaus dubs the population control crusaders "the children of Draco." His attack on them is a useful critique, well taken for the most part. In a most telling comparison, Neuhaus juxtaposes the introductory paragraphs of Ehrlich's *Population Bomb*⁸ and Dickens' *Tale of Two Cities*.⁹ Ehrlich views the people of Delhi, India as ants in an anthill; Dickens views the Parisians from the perspective of the "ants." Ehrlich records his impressions of Delhi, India:

The temperature was well over 100, and the air was a haze of dust and smoke. The streets seemed alive with people. People eating, people washing, people sleeping. People visiting, arguing, and screaming. People thrusting their hands through the taxi window, begging. People defecating and urinating. People clinging to buses. People herding animals. People, people, people, people. . . . All three of us were, frankly, frightened. It seems that anything could happen—but, of course, nothing did.¹⁰

And Dickens writes of the people of Paris before the Revolution:

The mill which had worked them down was the mill that grinds young people old; the children had ancient faces and grave voices; and upon them, and upon the grown faces, and ploughed into every furrow of age and coming up afresh, was the sign, Hunger. . . . Hunger was pushed out of the tall houses, in the wretched cloth that hung upon poles and lines; Hunger was patched into them with straw and rag and wood and paper; Hunger was repeated in every fragment of the small modicum of firewood that the man sawed off; Hunger stared down from the smokeless chimneys and started up from the filthy street that had no offal, among its refuse, of anything to eat. Hunger was the inscription on the baker's shelves, written in every small loaf of his scanty stock of bad bread; at the sausage-shop, in every dead dog preparation that was offered for sale . . . but, the time had not come yet; and every wind that blew over France shook the rags of the scarecrows in vain, for the birds, fine of song and feather, took no warning.¹¹

An enormous chasm of empathy exists between Ehrlich's description of the poor and that of Dickens. Many population control crusaders would mistake Dickens' Paris for some part of today's hungry world and conclude that life would be better for those poor people if only there were not so many of them. Yet what early industrial

8. P. Ehrlich, *The Population Bomb* (1968).

9. C. Dickens, *A Tale of Two Cities* (Modern Library ed. 1950).

10. Ehrlich, *supra* note 8, at 1.

11. Dickens, *supra* note 9, at 3.

France needed was not fewer people, but child labor laws, trade unions, and social legislation which enable the poor to defend themselves from the assaults of the powerful!

One may fairly deduce from much of the popular population control literature that the main product they are selling is the simplistic notion which promotes population control to the top of the list of man's priorities. Indeed, one wonders if there is a second on their list. The harshness and the totalitarian resonances of the futuristic proposals of the committed population control crusader are some of the signs that the original purpose—that mankind should have a better life—has long since been lost. It is as if breeding patterns were the whole of the human experience. A most revealing example is Ann and Paul Ehrlich's endorsement of the triage system¹² proposed by William and Paul Paddock as a basis for the relationship between the affluent and the poor countries of the world. Those countries which will "make it" without help and those who cannot "make it" even with help will be denied aid. Those which will survive if aided but would perish otherwise are to become the focus of attention and concern. Which countries in the Paddocks' (and the Ehrlichs') view fit in the latter category? In a recently revised version, the Ehrlichs wrote: "Pakistan, at least West Pakistan, may have been such a country,"¹³ largely because of the "tough-minded leadership of President Ayub Khan."¹⁴ That he was a bloody military dictator enters not at all. The fact is that social justice was not the likely result of Ayub Khan's stewardship, even if that stewardship were exercised over a country with one-half the present population density.¹⁵ As in many crusades where the means are allowed to justify the ends, the supposed original goal is lost in the struggle.

The evidence for a crisis of overpopulation, at least in the United States, is not as clear cut as the population controllers would have us believe. For example, Neuhaus records challenges to that view using the testimony of many well-known demographers and social commentators, among them George A. Brown, director of the United State Census Bureau, Confrad F. Tauber, the chief demographer of that bureau and Jane Jacobs, the widely known proponent of the virtues of the modern city.¹⁶ But in some important sense there is no way to refute Ehrlich.

12. P. Ehrlich & A. Ehrlich, *Population, Resources and Environment* 310 (1970).

13. *Id.* at 424.

14. W. Paddock & P. Paddock, *Famine—1975! America's Decision: Who Will Survive?* 219 (1967).

15. *See, e.g.*, *Newsweek*, Apr. 7, 1969, at 38.

16. *See, e.g.*, J. Jacobs, *The Death and Life of American Cities* (1969).

Neuhaus states the reason for this: "Population control advocates conventionally equate, or at least seriously confuse, possibility and probability with a fervor that transforms, in turn, the probable into the inevitable. In personal behavior this is called paranoia; in the public sphere it is alarmism."¹⁷

There is little question that the influence of the population controllers has been widespread. Consider as one typical example this report on an international conference held in preparation for the United Nations Conference on the Human Environment by Marshall Goldman, an economics professor at Wellesley College:

In response to warnings about the pending extinction of American bald eagles and peregrine falcons and the likelihood that DDT has a carcinogenic effect on human beings, spokesmen for the developing countries warned that banning the production of DDT—the chemical choice for combating malaria—was viewed as genocide in their countries. *Nor did it quiet the debate to point out that the curbing of malaria may be good for the individual, but it has also caused the population explosion in much of the world.*¹⁸

Should it be any surprise that this "only invited charges of racism and raised perplexing moral issues which this conference was not equipped to solve?"¹⁹ It is incredible that our senses could have become so numbed that the anti-human argument italicized above can be reported in measured tones which suggest that it is simply another idea whose intrinsic value required it to be seriously considered. At another time it would have been dismissed as the ravings of barbarian eugenicists.

Neuhaus' attack on the population controllers will not sit well with some environmentalists. But Neuhaus is not easy to dismiss. The service he performs is to force his reader to wade through the entire argument of the population control crusaders in such a way that the essential political and social content of their arguments cannot be ignored. The reader who is an active environmentalist is forced to see the arguments of the population controller through the eyes of others. For example, Neuhaus identifies an ugly, totalitarian strain among the population controllers. He points out, as noted earlier, that the commitment to population control leads the Ehrlichs to choose the former military director of Pakistan as an instrument for implementing the required population policy. Many environmentalists have read these particular words, but not all of us have been

17. Neuhaus, at 203.

18. Goldman, *Has the Environment a Future?*, 213 *Nation* at 359-360 (1971) (emphasis added).

19. *Id.* at 363.

willing to assign the obvious meaning to the words. In the living rooms of environmentalists, I have often heard it said: "Ehrlich (or Hardin or . . .) really doesn't mean exactly what the words say. . . ." It is necessary for many of us to read again the words of the central works of this school and evaluate what is said, as opposed to what the reader knows is "really meant." If this is done, we will read, as Neuhaus read in *How to be a Survivor*,²⁰ a list of policy recommendations with a harsh ring. Anticipating the objection of some readers, the authors ask rhetorically: "Coercion?" and answer: "Perhaps, but coercion in a good cause." Neuhaus' comment would be: "Of course." I would add: Authoritarian regimes are always instituted in a good cause.

Or if you prefer, read a more recent essay by Garrett Hardin entitled "On the Immorality of Being Soft-Hearted":

So much for the domestic situation. What about the foreign problem—How can we help a foreign country to escape overpopulation? Clearly, the worst thing we can do is send food. The child who is saved today becomes a breeder tomorrow. We send food out of compassion; but if we desired to increase the misery in an overpopulated nation, could we find a more effective way for doing so? Atomic bombs would be kinder. For a few moments the misery would be acute, but it would soon come to an end for most of the people, leaving a very few survivors to suffer thereafter. Food-bombs increase the number of survivors to suffer from chronic malnutrition.²¹

Neuhaus notes that Hardin ". . . is not Alfred Rosenberg developing the ideology for the Holocaust, but a distinguished professor of biology at the University of California, Santa Barbara, and a leading theoretician of the ecology movement."²² Hardin's other writings make it clear that he means exactly what he says—that he is not overstating his position merely to drive home a point. For example, in an editorial in *Science*, the very prestigious organ of the largest organized body of American scientists, Hardin wrote:

If the world is one great commons, in which all food is shared equally, then we (United States citizens) are lost. . . . Sharing the food from national territories is operationally equivalent to sharing territories: in both cases a commons is established, and tragedy is the ultimate result. . . . It is unlikely that civilization and dignity can

20. P. Ehrlich & R. Harriman, *How to be a Survivor: A Plan to Save Spaceship Earth* (1971).

21. Hardin, *On the Immorality of Being Soft-Hearted*, 1 *The Relevant Scientist* 17-18 (1971).

22. Neuhaus, at 111.

survive everywhere; but better in a few places than in none. Fortunate minorities must act as the trustees of a civilization that is threatened by uniformed good intentions.²³

Given the consent of the schemes promoted by the population control crusaders, it is hard to quarrel with Neuhaus' estimate: "Understandably the world's poor have a dramatically different view of the problem."²⁴ And so do many others. For example, Pope Paul has written: "You must strive to multiply the bread so that it suffices for the tables of mankind [rather than] diminish the number of guests at the banquet of life."²⁵

But the bread cannot be multiplied indefinitely. The Ehrlichs have written: "Whatever your cause, it is a lost cause without population control."²⁶ Many find this slogan irresistible since it is clearly true that there is a finite limit to the population which the world can support. Ultimately Atlas or The Turtle or . . . or whoever supports the earth in one's own mythology will collapse under the sheer weight of the human inhabitants of the globe. If instead you are addicted to arithmetic, it is easy to calculate the date at which the next newborn would have less than one square yard to stand if the population were to continue to grow at the present rate, or at any positive rate. The "hardheaded realists," or if you prefer C. Wright Mills' term, the "crackpot realists,"²⁷ insist that multiplying the bread will not work. Having chosen pragmatic grounds as the basis for their policy recommendations, surely they must be willing to submit their proposals to pragmatic scrutiny. What then can one expect if food is denied to the hungry, if the affluent countries dedicate themselves to the survival of civilization within their boundaries while allowing the rest of the world to starve, if a variant of the triage system is adopted, if we ally ourselves with the likes of Ayub Khan because such people are tough enough to impose a population control policy, if we adopt coercive policies in the name of a good cause? It is entirely predictable that adopting these proposals, which leading population control advocates have offered, would make the affluent countries the enemy of mankind. And I believe that that role designation would be justified. Recent history makes it abundantly clear that the poor countries would not suffer such abuse silently. Adopting such policies would inevitably touch off reprisals

23. Hardin, *The Survival of Nations and Civilization*, 172 *Science* 1297 (1971); see also, Hardin, *The Tragedy of the Commons*, 162 *Science* 1243-1248 (1968).

24. Neuhaus, at 210.

25. N.Y. Times, Oct. 6, 1965, at 6, col. 6.

26. Ehrlich & Ehrlich, *supra* note 12, at 442.

27. C. Mills, *Power, Politics and People* (1963).

against persons and property, which would almost certainly result in a state of perpetual war.

If war and hatred seem the most probable result of the proposals of the "hardheaded realists," where might more traditionally humane responses lead? Are our only choices that we shall all perish from famine or be condemned to be the enemy of mankind? I think not. Nothing emerges more clearly from browsing in the demographic literature than the fact that the dynamics of populations is not a simple one-variable matter. Population increase (or decrease) is responsive to the interaction of complex social, economic, and political factors which express themselves as the times in which one lives. The response of mortality rates, fertility rates, and population numbers in the Western countries to the Industrial Revolution provides the clearest example of this. Death rates decreased rapidly with the onset of industrialization and this decrease was followed approximately 100 years later by a sharp decrease in the birth rate. Thus, there was a rapid population growth associated with industrialization (death rates fell first while birth rates remained high) followed by an era of slow (1.0-1.5% per year) population growth as birth rates fell.²⁸ Clearly, the profound impact which the Industrial Revolution had on population dynamics was mediated by a complex interaction of social, political, and economic events rather than by direct intervention at the point of conception.

Other identifiable currents of our times seem likely to have a significant effect as well. The changing status of women, a stated goal of most movements for modernization and social justice, will surely affect fertility patterns. Consider the impact on birth rates which would result from women having the opportunity to participate more fully in the world, or as some may prefer to characterize it, from incorporating women into the work force. Not the least important anticipated effect on population growth would be an increase in the generation time, that is, an increase in the average age at which the first child is born. Furthermore, who is prepared to quantify the impact on family life, and in particular on fertility rates, of the increased probability that each child born will grow to adulthood? Could the emergence of a social system which provides for the well being of the elderly do other than influence the attitudes of people toward the number of children they prefer to have? It also seems reasonable to expect the availability of contraceptives within the framework of improved medical care and general social change to affect the fertility rate.

28. J. Brock & W. Webb, *A Geography of Mankind* 430 (1968).

There is another way to evaluate the population issue and the place which one wants to accord it in one's personal priorities. Ask the question: Are huge numbers of people in the world poor because there are too many of them or because the rich and powerful exploit them? Posed differently: If, suddenly, population numbers were stabilized but no other changes were made, would the poor of the world be substantially better off? I suggest that the answer is no. Again social justice emerges as the crucial issue.²⁹

The important point to note is that action on each of these issues will result in a better life for the people, independent of its influence on population numbers. Thus, when population dynamics are viewed in the context of complex societal interactions, social justice emerges as the priority item accompanied by the hope that each people will evolve into a stable population of "reasonable" numbers. The phrase "reasonable numbers" is deliberately vague since we have really very little information on which to base dogmatic assertions of optimum population size. The word "hope" is also deliberately chosen, and I acknowledge the inference that it might not work that way. But better a policy for which one has hope and which commits us to working for social justice than a policy which makes us the enemies of mankind and inevitably must fail.

None of the above arguments, of course, means that the population can continue to increase at any positive rate indefinitely nor does it speak to the enormously complicated problem of the degree to which rapid population increases act as a brake on providing a better life for the masses of the world's poor. Just as clearly, not all of those who feel that population pressures contribute to the difficulty of achieving a better life endorse the sorts of authoritarian and repressive solutions discussed above.

Neuhaus' attack and this limited endorsement of it will make some environmentalists uneasy for yet another reason. Many of us are not comfortable with washing our dirty linens in public. Don't split the movement! In order for that injunction to make sense, it must be true that the differences involved are small compared to the shared principles and point of view. Each of us must, of course, decide that issue for himself. For my part, I am not on the same side as those population controllers who propose repressive solutions. I believe

29. A poster which a friend brought home from the U.N. World Population Conference (Budapest, Hungary, Aug., 1974) makes the point succinctly:

Population is only a problem
 If the world's wealth cannot support the world's people.
 But that is not only a matter of birth control
 But also of wealth control.

that it is important for those whose central commitment to humane values leads them to environmental concerns to differentiate their position from those whose central commitment to population control leads them to repressive solutions. (It is the latter whom I wish to identify with the words, "population controllers.") It is long past time to reject the presumed alliance with the population controllers and escape the crippling embrace in which they have held us. By not vigorously pursuing this differentiation, we have allowed those with environmental concerns to become the enemy of others who demand social justice for the whole of mankind. By not vigorously pursuing this differential we have split the movement which should be a movement built upon an alliance of all those to whom social justice is the touchstone of their responses to the problems which beset mankind.

In his attack upon the conservationists, Neuhaus projects a sense of reluctance compared with the righteous zeal which arms his attack upon the population control crusaders. He regrets the necessity of placing them in the camp of the sons of Draco since he finds among them many of decent and humane persuasion. Still, the roots of the conservation movement are deep in elite soil, and whether in sorrow or anger, he insists on characterizing the conservation movement in those terms.

Nonetheless, Neuhaus' analysis is less valid when he attacks the conservationists than it is in his onslaught against the population controllers. While his points are well taken, his examples lend themselves to making a point rather than being representative. For example, he ignores those cases where the conservationist has run afoul of the powerful of society. The struggle to establish, maintain and expand the national parks has for the most part met the angry opposition of the lumbering interests and the minions of the extractive industries. As another example, the initial concern of Vermont conservationists to prevent the building of a nuclear power plant became a suit challenging the constitutionality of the Atomic Energy Commission's right to function as both promoter and regulator of atomic energy.³⁰ The suit charges that a conflict of interest exists between the AEC's responsibility for promoting the use of atomic power and its responsibility for monitoring the industry for safety. A successful outcome of this suit would have widespread ramifications throughout the government and would result in an essential step

30. *Conservation Soc'y v. AEC*, Civ. No. 19-72 (D.D.C., filed Jan. 6, 1972) (three judge court). [The Energy Reorganization Act of 1974 separated the promotional and regulatory functions by creating the Energy Research and Development Administration and the Nuclear Regulatory Commission. See 42 U.S.C.A. § 5801(c), 5841(f) (Feb. 1975 Pamphlet Supp.). Ed.]

being taken toward improving the protection which the regulatory agencies are supposed to provide the people. In Neuhaus' terms there is indeed a class bias in this court action, but on this occasion, the conservationists have taken on the established system on behalf of us all.

THE FAILURE TO MEET THE NEEDS OF THE POOR

Neuhaus has an instinctive sense that the environmentalist has not been responsive to the needs of the poor. And while he focuses on the population controller and the conservationists, I think in truth, the transgressions of the environmental movement are more widespread than Neuhaus knows. It is by now well known that the poor often suffer a larger share of the insult of many environmental problems than do the more affluent Americans. What is less recognized is that many solutions also place a disproportionate burden on the poor. For example, concern for the worldwide distribution of DDT and related chlorinated hydrocarbon pesticides (based on their extreme persistence) has led, in certain places, to their replacement by organophosphates which have an acceptably short half-life in the environment. But this substitution has been made without proper consideration for another factor—DDT is relatively innocuous for those who handle it while many organophosphates are much more hazardous.³¹ Thus, a worldwide pollution problem was alleviated but only at the cost of intensified hazard to the farm worker.

The fight to clean up air pollution in New Jersey provides another type of example.³² Many environmentalists supported the proposal that automobiles be made to pass exhaust emission tests in order to stay on the road just as they are now required to pass safety tests. This support was presumably based on the recognition that automobile exhaust contributes considerably to air pollution. The estimated cost of bringing a car up to standard was in the tens of dollars. Clearly the burden of this approach falls most heavily on the poor, despite the fact that less stringent standards were set for older cars. This proposal requires the poor to pay disproportionately for the solution to a problem which is rooted in Detroit's technological failure. This proposed solution to an air pollution problem has two properties: 1) it is a solution constrained within the context set by the problem, and 2) the solution involves only single, as opposed to multiple, programmatic responses. Singular responses constrained by

31. K. Shea, *Name Your Poison*, 11 *Environment*, no. 7, at 30 (1969).

32. See Sullivan, *Byrne is Opposed to a Further Delay of Feb. 1 Car Exhaust Inspection Plan*, N.Y. Times, Dec. 19, 1973, at 47, col. 6 (late Jersey Ed.).

the context in which the problem arose will often create worse problems than they solve, with those possessing the least political clout being the ones most likely to pay the cost of the solution. Certainly exhaust emissions are unpleasant and unhealthy. But let us not forget the central facts which form the context of the problem. As a society we offer enormous subsidies which encourage the use of the automobile. Despite these huge subsidies we have traditionally left all issues of engine design, size and reuse of materials in private hands. Our public transportation system provides no genuine alternative to most people for getting from one place to another and in general we consider public transportation not sufficiently important to be a priority candidate for public funds. Given these facts, it seems ludicrous to respond to the problem of the automobile's contribution to air pollution by attempting to insist on emission controls as a coda on a symphony whose major movements describe a miserable mass transportation system functioning (or not functioning) in the midst of gigantic subsidies for an automobile whose power plant has been designed without concern for emissions. If action on air pollution cannot wait for the coming of a sane and diversified transportation system, then perhaps we should have the grace to recognize that, since society in general would be the beneficiary of lower exhaust emissions, the public in general should pay for it within the framework of a progressive tax structure rather than taking it out of the hides of those least able to pay.

The above are only two of numerous examples of a class of such proposed solutions. In these cases the deleterious effects of the environmental problem are suffered by large sections of society while the costs of the solutions are focused on a subgroup least able to afford to pay those costs. Even where such solutions serve the environment, they do not serve social justice. I propose that environmentalists adopt a standing rule that the dialectical tension between the needs of the environment and the demands of social justice not be resolved at the expense of the poor. This injunction requires that the problems imposed by solutions also enter into the calculus of policy recommendations aimed at solving environmental problems. Often no single action will ameliorate the environmental problem in a manner which contributes to social justice. The complexity and interrelatedness of our problems will most often require multifaceted programmatic approaches as responses to problems which originally emerged from environmental concerns.

The challenge to the environmental movement is clear: Either elevate social justice to an essential criterion for the solution of

environmental problems or earn the enmity of the poor for being a movement of narrow social vision.

THE SCIENCE INFORMATION MOVEMENT

In Neuhaus' conception the environmental movement is a marriage, albeit a somewhat uneasy union, of the population controllers and the traditional wilderness conservationists. Thus, for example, he writes:

The patrician lovers of virgin lands and the planners of the final solution of the population problem have made a pact, although the former, being eminently humane souls, may not like to think about the agreement and may want to avert their eyes when the children of Draco implement the measures required for the preservation of their beloved wilderness palace. But the future of the ecology movement rests upon this pact and will be controlled by those who agree to its terms.³³

From Neuhaus' point of view this marriage is conveniently designated, for it sets up precisely the enemy with whom he chooses to do battle. In the process, he has seriously distorted the movement and its origins. Neuhaus ignores a prominent portion of the environmental movement whose roots are quite distinct from those of the population controllers and the wilderness conservationists, which cannot easily be accused of suffering from an exaggerated sense of grievance, and which has since its inception been at sword's point with many of the powers that be. This wing of the movement is typified by *Environment* magazine.

Environment began life as *Nuclear Information*. Barry Commoner in *The Closing Circle* spoke for many of us when he wrote that he "learned about the environment from the United States Atomic Energy Commission."³⁴ The issue at that time was the AEC's insistence that radiation resulting from atom bomb tests was harmless. Commoner and his colleagues insisted that the data on which the statement was based be made available for scrutiny by the independent scientific community. In an early issue of *Nuclear Information* (subsequently named *Scientist Citizen* and finally renamed *Environment*), Bill and Esther Sleator reviewed the available radiation data and concluded that every little bit hurt.³⁵ The end of the story is well known. The AEC was finally forced to release the relevant data,

33. Neuhaus, at 138.

34. Commoner, *supra* note 7, at 49.

35. Sleator & Sleator, *Is There a Threshold?*, 4 *Nuclear Information*, no. 3, at 1-6 (1962).

and it was not long before the independent scientific community virtually unanimously agreed that radiation from bomb tests did indeed have consequences for the public health. This information provided the indispensable foundation of fact without which the Pauling petition calling for outlawing atomic testing might not have had its popular appeal.

Here then was the formula which provided the basis for the science information movement, an important part of the environmental movement which Neuhaus ignores. That formula was and remains a simple one. The underlying philosophy holds that the scientist has a special responsibility in a society increasingly characterized by issues which derive from, or depend upon, scientific advance. The scientist is custodian of the knowledge which is increasingly needed by anyone who wishes to form an opinion or make a decision about a wide range of social and political issues. In a democratic society, this information must be made as widely available as possible. An informed public is the *sine qua non* of the democratic process, and, as the importance of science in political processes grows, the scientist's obligation to inform the public adequately becomes more compelling. While the scientist has particular expertise in the technical areas, he has no special wisdom as to where the balance of costs versus benefits should be struck. Like other citizens he should have only one vote in the determination of social policy. Each citizen's decision will reflect the complex interaction of his preferences, sense of morality and priorities. But he must understand the technical components of the issue in order for his politics to have something to operate upon. In discharging the responsibility for dispensing technical information, the scientist thus enables citizens to enter the decisionmaking arena from which they would otherwise be excluded. In this very important sense, the science information movement performs a profoundly political act. The alternative is increasingly to place the fate of our society in the hands of a technocratic elite. I can think of few prospects which are more chilling.

Prominent examples of the many major political and public policy decisions which rest upon a technical base are the debates over the building of a supersonic airliner and the antiballistic missile system. In addition, consumer protection against both worthless and dangerous products which bilk consumers (mostly poor consumers) of millions of dollars annually requires a technical input. Less publicity has been accorded the enormously important decision of the Nixon administration to bet on the fast breeder (atomic) reactors as the

answer to the nation's future power needs. In this case, the national organization of the science information movement (Scientists' Institute for Public Information, SIPI) represented by the Natural Resources Defense Council won a suit³⁶ which requires a prior consideration of the consequences of this decision, as compared with alternative sources of power, before the die is irretrievably cast.

A summary in mid-essay of the issues which I have raised and a guide to where the essay is going may be useful. To this point, I have considered criticisms directed at population control activists and conservationists made by those outside of the environmental movement and have attempted to evaluate those criticisms. One conclusion reached by the critics is that the concerns of the environmental movement are irrelevant to the poor and are fundamentally biased in favor of the status quo. But the situation may be even worse than the critics realize, for as I have pointed out, there is a class of solutions to environmental problems in which the burden of the solution rests upon those least able to afford it. But the environmental movement includes others who were drawn into concern for environmental problems by issues other than population and conservation, principally by the conviction that the people had a need to know the facts, in the first instance, about fallout from nuclear weapons tests, in order that decisionmaking not fall to technocrats by default. In the remainder of this essay I will claim that environmental concerns do not revolve around the superficial issues which some assign as the domain of the environmentalist, but rather that environmental concerns lead one very quickly to areas of broad social concern, that the well-spring of environmental problems is the manner in which the productive enterprise operates, and that institutional rearrangements will be necessary to solve the problems. If this is true, then the environmental movement clearly has a political bite even if it confines itself to offering information only. In this conception, environmental concerns are not "motherhood issues." The very nature of the problem and its interrelatedness with other problems give it its bite. Four specific examples involving the growing of cotton, the marketing of peaches, the automobile industry and energy generation will be cited. Further, I will consider the apparent conflict between environmental concerns and concern for economic development and will suggest one sphere in which the application of knowledge which environmental scientists have is indispensable to successful economic development.

36. *Scientists' Inst. for Pub. Information v. AEC*, 481 F.2d 1079 (D.C. Cir. 1973).

THE PUBLIC ADVISOR FUNCTION

The critics of the environmental movement do more than criticize the population control activists and conservationists. In all fairness, they often say, "yes, there are real environmental problems" and then cite examples which seem to them to be sensible and successful responses to those problems. In elaborating their views of what environmentalists ought to be doing, the critics often reveal the depth of their misunderstanding of the very nature of environmental problems. For example, Neuhaus recounts the successful cleaning up of Lake Washington. He attributes the success there to the passage of a 150 million bond issue and the improvement in water quality which that made possible. "Altogether a neat piece of housekeeping. Now, to be sure housekeeping is something short of a revolution; . . . but housekeeping is very good *for cleaning things up* and, as I understand it, *that is what the anti-pollution game should be about.*"³⁷ If we were to act on Neuhaus' conception of our role, we would be guilty of gross malfeasance in the performance of our duties. If the housekeeping function circumscribes our role too narrowly, what then are the dimensions of our responsibilities?

It is the job of the professional scientists among us to be science advisors to the public. The concerns of the movement should be an examination of the ways in which science and technology, in either the present or alternative forms, influence the lives of people. The understanding of these issues, fueled by accurate information, should provide the basis for the activities of the movement. It follows that one job of the environmental movement is to examine the ways in which the productive enterprise works, to identify the environmental consequences of operating in that manner and to encourage the development of alternative technologies. If one has a commitment to social justice as a touchstone of his functioning in the public arena, then one must add that the first criterion for evaluating the functioning of the existing productive enterprise and the probable impact of alternative technologies must be their suitability for producing a better life for all mankind.

It can perhaps be argued that concern for social justice is merely tacked on to the tasks which I have outlined for environmentalists. I hope to show that, at the very least, concern for the environment is not incompatible with a commitment to social justice. But I will try to illustrate more than that—that environmental problems are so deeply rooted in the present institutional arrangements and the present organization of the productive system that only fundamental

37. Neuhaus, at 248 (emphasis supplied).

rearrangements have any hope of addressing themselves to the solution of environmental problems. While social change is not necessarily synonymous with social justice, social change is a necessary condition to attain social justice. It is the very fact that environmental concerns lead to the conclusion that fundamental social change is required which leads one to believe that the environmental movement rightly should claim membership in the broad alliance for social justice.

Environmentalists must continue to identify the derelictions of the past in which any insult to the environment was permitted so long as the effects were not immediate and catastrophic—or so long as the immediate and catastrophic effects could be focused exclusively onto the politically impotent, as in the case of urban lead poisoning. But that is not our only job. We must force a consideration not only of current problems but also of the consequences of solutions, and in this respect we must identify both the costs of solutions and who will pay them.

In addition, a very hard look must be taken at an idea which many intuitively believe to be true and which was succinctly stated by Steven Antler, an economist at Memorial University, Newfoundland: "Essentially, pollution is a mechanism which redistributes income from the poor to the rich."³⁸ Not only are the poor most often the main victims of pollution, but, Antler is saying, they are required to pay for the privilege. Surely, if this is supportable, we are not dealing with a trivial or nonpolitical problem. Parts of Commoner's book, *The Closing Circle*, contribute significantly to detailing close links between profits and pollution.³⁹

Those who consider the environmental movement to be objectively apolitical are wrong, whether they consider themselves to be a part of the movement or among its critics. At the most fundamental level they are wrong since providing a wider constituency with accurate technical information without which they are effectively excluded from the political arena is a profoundly political act. However, the critics are certainly correct when they suggest that many environmentalists have bought the line that the problems which they confront transcend politics. Our critics are also correct in their belief that apolitical movements in fact embody the politics of the status quo.

Specific examples of the deep political, social, and economic basis of environmental problems abound. As one case in point, it should

38. Antler, *Selling Us the Brooklyn Bridge*, 213 Nation at 316 (1971).

39. Commoner, *supra* note 7, at 250-292.

be more widely known that applications of organic hydrocarbons (including DDT before its use was restricted) were largely confined to very few crops; one-half of the agricultural use was on cotton.⁴⁰ This enormous pesticide burden was a direct consequence of growing cotton in the Southeast, where the damp climate makes it particularly susceptible to insects. And it is only the specially designed protective farm programs adopted as the consequence of the extraordinary political power of the Southern congressmen which make cotton a profitable crop in the Southeast. If only the forces of the market place were operating, Western cotton, with its superior quality, higher yield per acre and much smaller pesticide use per bale would almost certainly displace Southern cotton, and this would almost certainly be the most important step that could be taken to reduce the pesticide burden in the environment. In keeping with the previously stated requirement that the consequences of solutions be considered, such a drastic step, were it possible, should be synchronized with the implementation of regional diversification and development plans.

In addition to the political character of the problem, the relationship between cotton and the environmental pesticides burden also highlights the important institutional as opposed to individual, aspects of environmental problems. Another example, the mode of operation of the cling peach industry in California, where heavy pesticide use is combined with "green dropping" as much as 40 percent of the crop, may well illustrate that a significant quantity of pesticides is used to produce an unblemished product,⁴¹ a result without perceptible social value, as opposed to the widely acclaimed aim of producing more food and fiber to better feed and clothe mankind.

The current level of analysis suggests that a significant protection of the environment's capacity to serve us well in the future will require some rather fundamental changes. Air pollution and the destruction of our cities by the automobile will not be much ameliorated by car pools. Instead, these tasks will probably require the replacement of the internal combustion engine as the sole means of locomotion by numerous and diverse devices which will allow for the free movement of people. Not the least of these might be urban transit offered to the public on the same basis as police and fire protection. Surely other innovations whose technology is responsive to the needs of the human population will be required. Influencing the decisions of the automobile industry, as it presently functions

40. Pimentel, *Realities of a Pesticide Ban*, 15 *Environment* 18-20, 25-29 (1973).

41. *San Francisco Examiner-Chronicle*, May 30, 1971.

and given its position of prominence in the economic system, will most certainly be a political task in which the opposition will stem from no less than the combined power of the most important section of American industry.

As another example of the deep political, social, and economic basis of environmental problems, all observers are agreed that we are either in the throes of an energy crisis or at a minimum approaching such a crisis.⁴² No other conclusion seems warranted by the combination of recurrent brown-outs and a demand for energy which, at its present rate of increase, doubles every 10 years. When this is coupled with the continual delay in putting nuclear generating plans on line and the escalating citizen opposition to any site for either nuclear or conventional plants selected by the power companies, the dimensions of the problem become clear. Much of the attention directed toward energy problems has been focused on finding means to overcome citizen opposition to increasing generating capacity. However, it is clear that such a rapid acceleration of energy production cannot be continued for long. In testimony before the House Committee on Interior and Insular Affairs⁴³ Barry Commoner examined another possible response to increasing the supply of electric power, namely, reducing the demand. As an example, he examined the power used to produce metals for the automobile industry. Based on preliminary calculations by Michael Corr, Commoner stated that the replacement of 90 percent of the aluminum by steel and the return to the 1947 size of the passenger automobile would save about 60 percent of the energy expended in the production of the primary metals used in the automobile. In order to evaluate the importance of this savings, he pointed out that of the total of about 5800 kilowatt-hours (kwh) of power needed to produce the materials and assemble them, about 3700 kwh are consumed by the primary metals production. If cars were made and maintained so that their average lifetime were equal to that of trucks, additional substantial savings of energy would be achieved as well as an average increase of 60 percent in the life of the automobile. What emerges then is the possibility of substantial reductions in energy use without a significant reduction in the social good associated with the automobile.

42. This was true well before the energy problem, *nee* crisis, burst onto the front pages in late fall 1973. The sharp disagreements over the reality of the crisis precipitated by the oil boycott (some arguing, convincingly I believe, that the boycott was seized upon as a convenient excuse which allowed the oil corporations to increase greatly their profits) should not obscure the fact that if we depend solely on fossil fuels while continuing to consume them at the projected rates, then we will certainly induce a severe crisis within several decades.

43. *Hearings on Fuel and Energy Resources Before the House Comm. on Interior & Insular Affairs*, 92d Cong., 2d Sess. (1972).

However, that would require, as a first step, a 180 degree change of course on the part of the decisionmakers of the automobile industry.

Commoner pursues this analysis further and, without derogating the important possibilities for substitutions inherent in the present system, notes that among the most pervasive economic trends of the post World War II decades have been a rising gross national product and a decreased power productivity, where the latter is defined as value added/kwh expended.⁴⁴ The decreased power productivity reflects the general substitution of machine labor for hand labor and use of automated procedures. In the automobile industry this decreased power productivity has added about as much to the total energy costs of production as has the substitution of aluminum for steel. The other side of the coin of decreased power productivity is, of course, increased labor productivity. Thus, Commoner points out, another way for us to reduce energy demand is to reduce either the gross national product or labor productivity. But the growth in the value of these indicators is widely regarded to be absolutely essential for the functioning of our economic system. Commoner's analysis is important even beyond the intrinsic interest of the example itself. Here, as in many cases, penetrating analysis from an environmental point of view leads to an examination of extremely fundamental issues. These are not merely matters of "good housekeeping" and certainly not an example of the "motherhood issues" which some claim to be the content of the environmental movement.

OUTMODED TECHNOLOGY

Neuhaus asserts that technology is the enemy according to environmentalist scripture. While this may reflect the position of some environmentalists, it is by no means true that all of us agree. A corollary, and, I believe, highly superficial view, is that the damage which technology does to the environment is due to the rapid strides of science and the equally rapid application of these results by industry. This cannot be the whole truth. Sheldon Novick, an editor of *Environment*, argues persuasively that the basic technological innovations which form the basis for today's steel, auto and railroad industries were completed by the turn of the century or shortly thereafter.⁴⁵ Any additions have not been new applications of science but rather mass production and forceful marketing. He concludes that much of the trouble we are in is in fact due to outmoded technology rather than runaway technology.

44. *Id.* at 571.

45. S. Novick, *Dinosaur: The Obsolescence of American Industry* (unpublished manuscript).

We are just beginning to develop the sophisticated analyses which are required if we are to deal with environmental problems. What is needed are technologies which are geared to the needs of people, rather than to the needs of the corporate economic structure. Environmentalists and intellectuals have an important role to play in assisting in these developments.

THE RELEVANCE OF ENVIRONMENTAL CONCERNS TO LESS DEVELOPED COUNTRIES

A significant hostility has been visible in recent years between those concerned with development in the Third World and North American environmentalists. The shorthand for this view is the repeated refrain in which the citizen of a developing country says to one who comes from an industrial country: "You can respond as you choose. But I welcome the sight of a belching smokestack in my country because that means people are working." Despite this antipathy, it may be paradoxically true that it is precisely in this arena that environmentalists will make their most valuable contribution.

The world has been repeatedly treated to the spectacle of massive development programs whose unanticipated consequences have been so severe that they have largely nullified the original intentions. Thus, as one example among many, irrigation of the Indus plains on the Indian subcontinent^{4 6} has, as the result of the expenditure of a good deal of effort and scarce development funds, turned a poorly productive agricultural area into, in some cases, totally barren salt flats. Large tropical river development schemes have often significantly reduced the primary protein sources (by reducing the fish catch), halted the annual floods and in so doing halted the deposition of silt on which fertility has depended for centuries, removed significant acreage from agricultural production by promoting the incursion of salt, and created a permanent locale of water to replace the previous wet-dry seasonal variation with extremely serious consequences to the public health, often primarily in the form of schistosomiasis. Each of these unanticipated consequences,^{4 7} which are by now the familiar by-product of major development schemes, has resulted from ignoring environmental imperatives.

The availability of sound environmental information plays a deci-

46. Michel, *The Impact of Modern Irrigation Technology in the Indus and Helmand Basins of Southwest Asia*, in *The Careless Technology: Ecology and International Development* 257-75 (M. Farvar & J. Milton ed. 1972); see also The White House—Department of Interior Panel on Waterlogging and Salinity in West Pakistan, *Report on Land and Water Development in the Indus Plain* (1964).

47. For a collection of case histories, see Farvar & Milton, *supra* note 41.

sive role in enabling developing countries to translate humane social and development policies into results which are congruent with the policy objectives originally adopted. Clearly this is a different environmental movement than the one which Neuhaus and other critics picture. Nonetheless, one wing of the environmental movement presently sees activity of this type as among its tasks. In this conception the environmental movement distinguishes between environmental hypochondria and crucial environmental constraints. The latter must be respected, not out of respect for some abstract notion of an inviolate Mother Nature, but out of the certain knowledge that to ignore those constraints is to doom to failure the project under development.

A 1970 report⁴⁸ on the mammoth Mekong River Development Project provides an excellent example of environmentalists functioning in this vein. That report predicted that the plans formulated by engineers, economists, and political figures uninformed by environmental imperatives would cause serious problems for the people in the basin. While a detailed account of the Mekong Project is beyond the scope of this essay, a few highlights of the initial failure to incorporate a wider view may be useful. The project, which is often compared favorably to the Tennessee Valley Authority, called for a number of tributary projects. The huge components, planning of which involved the United States Army Corps of Engineers among others, seem to have been justified on the basis of their cost-effectiveness and political considerations. The major immediate market for power is in Thailand while the sites for power generation (other than mainstream sites) are constructed in Laos. It was not until 1971, after the appearance of the Smithsonian Institution report, when the Indicative Basin Plan was formulated, that the cost-benefit analysis which included externalities was attempted. Thus, for the 24 years from the establishment of the Economic Commission for Asia and the Far East (ECAFE) within the United Nations in 1947 until the appearance of the Indicative Basin Plan in 1971, the only money costs considered were those which were internal to the project, that is, only the cost of the construction of the dams themselves. Based on such calculations, larger dams apparently can produce electricity more economically per kilowatt-hour than can a series of smaller dams. Obvious costs such as the value of the lost timber had been

48. J. Milton, *Pollution, Public Health and Nutritional Effects of Mekong Basin Hydro Development*; D. Challinor, *Effects of the Mekong Basin Development on the Vegetation of Forests and Lakes of Thailand*; L. Talbot, *Effect of Mekong Development on Biotic Factors, Particularly Wildlife, Parks and Reserves*; R. Van Cleve, *Report on the Mekong River Development* in Smithsonian Inst., Reports (mimeo. 1970).

omitted. The difference year after year between the value of agricultural commodities grown in the comparatively fertile river valley compared with those grown in the less fertile uplands (to which the displaced populations would be forced to move) was also excluded. No costs of the lost fish catch were included, and, more importantly, no plans were included to exploit the potential for establishing a viable fishing industry (organized in such a way that the peasant would get the protein) under the new ecological conditions created by the dams. The most important omission of the planners was so enormous that it boggles the mind: the reservoirs created by two of the larger dams were to displace 200,000 and 500,000 people respectively! The public health problems alone, not to speak of larger social problems, were bound to be very extensive and very expensive, if indeed it would have proven possible to cope with them satisfactorily. What is already known about malaria and schistosomiasis certainly should have led the planners to extensive consideration of these problems. When resettlement was dealt with in reports or policy papers, most commentators (none of whom would permit themselves to be quoted), agreed that its cost and the magnitude of the problems generated by it had been grossly understated. Finally, in 1974 a detailed study of resettlement was undertaken.

Apparently the fears and warnings of environmentalists, expressed most comprehensively in the Smithsonian report, had been heard and, to some extent at least, heeded. But the collection of the necessary data and the broadening of the view to include costs external to the construction—costs no less real in monetary terms than the cost of moving earth or pouring concrete and certainly immensely important in human terms—was years late. The project as conceived in engineering terms had in the meantime generated a momentum which some feel is so strong that the outcome will be hard to influence. But the size of the project and world events have conspired to make its realization a slow process. In the interim, some of the basic biological information has apparently been collected and considerable awareness of ecological problems has developed. If the project had gone ahead without remedying those defects caused largely by ignoring environmental imperatives, the result would almost certainly have been a disaster for the 20 million people of the river basin. One would hope that these warnings were not misinterpreted to mean that all development must stop. In the final paragraph of its summary, the Smithsonian report states:

The major impression of this team is that alternative ways of achieving "development" have not yet been realistically examined in the

light of local living conditions. Large hydroelectric and irrigation projects have generally worked well in the west because capital is available to make them so. However, we are now learning how expensive these projects can be even in the temperate zone. In the tropics the environment is even more complicated, and as we have learned elsewhere in Asia and Africa, what seems to make economic sense to western-trained planners very often bears little relevance to local conditions.⁴⁹

Certainly, if all of the costs are considered, rather than just the internal ones of concrete and steel and moving earth, it is not at all clear that there would have been any economies of scale demonstrated. There could be many important consequences if this type of environmentally based analysis became standard practice and if the public and their representatives required planners to include analysis of the external as well as the internal costs of the proposed project. More generally, and perhaps more importantly, it would be truly significant if this type of environmentally based analysis were to lead to a general raising of the public consciousness about a basic fact of our world: the certainty that the chain of interactive events set off by large scale technological intervention is so complicated that the probability of predicting all of the important consequences is small. One possible response to that awareness would be to trade the siren song of economy of scale for a more pragmatic incremental strategy. An incremental strategy would acknowledge, with appropriate modesty, that mistakes will be made, but it also provides a mechanism which allows the developer to adjust his plans based on what has been learned. At the same time, by reducing the size of the components of a project, it would reduce the external costs of the mistakes which inevitably accompany any large scale development project.

CONCLUSION

What I have proposed here is that it is both an important and proper task of the environmental movement to examine the effects of man's activities on the life of man and his habitat and to contribute to the development of technologies which are responsive to the manifold needs of man. Recent experience strongly indicates that without a significant input of environmental concerns, the dreams of the development planners will be turned into nightmares for the very people who are supposed to be the beneficiaries of progress.

I have also argued that we environmentalists are responsible for ascertaining the consequences of solutions as well as for identifying

49. *Id.* at 4.

problems and that we must force the proponents of economies of scale to justify those supposed economies in an accounting which includes external as well as internal costs. I believe that our own intellectual base will lead us more and more to respond to the social objectives set by the larger society with incremental strategies and diverse, multifarious, and smaller-scale technologies. A properly functioning environmental movement will repeatedly be brought face to face with fundamental questions about the ability of our society, as presently organized, to satisfy our demands for goods while protecting the ability of the biosphere to continue to support us. The brief discussion of transportation problems presents only one example. The need for electric power, the social usefulness of the products which consume it, and the rationality of the corporate decisions which influence its magnitude provide other important examples. Most importantly, the citizen must have access to accurate information if he is to play his proper role in policymaking. I believe that it is the role of the environmental movement to supply this information. Those active in an environmental movement, functioning according to these precepts, can I believe be satisfied that they are contributing their full measure toward achieving a more just social order. In meeting their responsibilities in this way, they will bring an additional and important element to bear in the struggle for social justice.