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**Stalking the Wild Taboo**

**Third Edition**

*The Social Contract Press · Petoskey, Michigan*

*Population Skeletons in the  
Environmental Closet*<sup>1</sup>

(1972)

First, Barry Commoner wrote a book, *The Closing Circle* (Knopf, 1971). Then Paul R. Ehrlich and John P. Holdren criticized the book; and then Commoner criticized their criticism (*Bulletin of the Atomic Scientists*, May 1972). The result: a sizable body of controversial literature. How is one to deal with it?

One might go through the antagonists' arguments point by point, carefully comparing and evaluating them. If a lawsuit were involved, with a million dollars at stake, this would be appropriate. But there is no such suit. Consideration for the reader dictates a much simpler approach.

I will try to plunge directly to the heart of the matter, bypassing some of the fascinating interplay of antagonistic rhetoric. I don't want this essay to swell to the length of Adam Sedgwick's scathing review of one of the controversial books of the Victorian age, Robert Chambers' "*Vestiges of Creation*." Sedgwick's review was 85

pages long! By comparison, Commoner's and Ehrlich and Holdren's contributions are mercifully short—but only by comparison.

The deep question at issue is the importance of the population component in pollution and other forms of environmental disruption (E.D.). In both his book and his critique Commoner goes to great lengths to prove that the population component is minor. Two elements of his argument merit separate treatment: (a) the empirical data and (b) the algebraic procedure.

It is both a weakness and a strength that the data are empirical. On the one hand, they are true; but on the other, one may well ask how general is their significance? Many measures can be determined, but which are the most significant in accounting for E.D.? Beer bottles? Water heaters? Clothes dryers? Automobiles? When one presents some of the percentage increases over a span of years, bias enters in, as is apparent in the Commoner data brought together in Ehrlich and Holdren's Table 2. Nonreturnable soda bottles increased 53,000 percent in the postwar years for the simple reason that the initial production base used for the calculation was nearly zero. Even the most rabid "econut" would not claim that overall pollution increased by such a large percentage.

How should one weight the items assembled in such a table? What would a complete table look like? (Impossibly long, no doubt.) And how would the E.D. produced by each of the items compare with that produced by each of its many alternative materials or ways of meeting the same demand? (Environmentally minded activists all too easily forget to ask this critical question; they forget the basic rule of ethics and ecology that "We can never do nothing.")

Furthermore, neither the increase in use nor the increase in the resultant pollution over a particular time span can be assumed to be part of a universal law applicable forever into the indefinite future. But it is the future we are primarily concerned about. When first introduced into a wealthy country, a desirable product enjoys a population growth that is exponential by a factor many times greater than the exponent for human population growth. Ulti-

mately the market is saturated with the product; thereafter production drops to some constant factor times the human population size.

As for the E.D. caused in the manufacture, use and ultimate disposal of the product, this clearly depends on the state of technology. On the whole, we may assume that technology will improve (particularly if we take care that it does), though at what rate there is no *a priori* way of knowing. A conservative view would be that E.D.-control approaches an asymptotic value, generally an unknown one.

From the past we get only empirical values, and little theory. We have little success in predicting the future of environmental disruption.

As for the algebra of determining what percentage of today's pollution is "caused" by technological growth and change in the recent past, and what percentage should be charged against population growth, this depends on what is to be compared with what. My own reading of the arguments gives the edge to Ehrlich and Holdren, but I will not linger to justify that opinion, for there are, I think, more important matters to take up.

### Population Asymptote

At a fixed level of population, the amount of environmental disruption is a function of the state and use of technology. For the sake of argument we may grant that the E.D. function could be caused to decrease in time, provided we face this question: Is the asymptote of the E.D. function zero, or something greater than zero? I suspect the latter; true believers in technology may believe in the former.

On the other hand, if we take the level of technology as fixed, then the amount of environmental disruption is a function of population size. Population growth, as Benjamin Franklin, Robert Wallace and T. R. Malthus emphasized, is a potentially limitless

function—but only in a limitless world. In the real world, the maximum population achievable approaches an asymptote. What asymptote depends on many factors including (most importantly) the “amount of environment” allocated to, or taken by, each unit of population. This defines the “level of living.” Escape from all asymptotes is not one of man’s options; he can merely choose his asymptote.

A low population asymptote permits a high level of living as an option. Those who are ascetically minded need not choose this option; but only if a low population asymptote is adopted and enforced can men be free to enjoy, if they wish, Cadillacs, symphony orchestras, wooded wilderness—and meat with their meals. The highest possible population asymptote permits only one kind of life, namely the ascetic, which is then no longer an option but an inescapable fate.

It should be noted also that the highest possible asymptote can be achieved only by accepting a great deal of environmental disruption. Pollution control always bears a cost, which can be paid for only out of affluence. Even those who care nothing about Cadillacs and symphonies may resent emphysema.

Of course if technology can improve forever without limit, so that the E.D. curve has zero as its asymptote, the above argument is specious. But surely the burden of proof lies on those who assert so remarkable a theorem?

Barry Commoner is not entirely unaware of the relevance of population growth, but he acknowledges it grudgingly. Consider these sentences from page 113 of his book:

It is easy to demonstrate that the changes in pollution level in the United States since World War II cannot be accounted for simply by the increased population, which in that period rose by only 42 percent. Of course this is but a simplistic response to a simplistic proposal. It is conceivable that even a 40 or 50 percent increase in population

size *might* be the real cause of a much larger increase in pollution intensity.

The qualifications put Commoner on safe ground no matter what facts later turn up; but the thrust of the rhetoric is another matter. “Simplistic,” “conceivable” and “might”—these are surely ways of denigrating the importance of population.

Like the theologian Richard J. Neuhaus, author of *In Defense of People* (Macmillan, 1972), Commoner is very much pro-people in the sense of “the more the merrier.” On page 114 Commoner says:

The earth has experienced not only a “population explosion,” but also, and more meaningfully, a “civilization explosion.” People, and indeed their growth in number, are the source of the vastly elaborated network of events that comprises the civilization of man: the new knowledge of nature generated by science, the power of technology to guide natural forces, the huge increase in material wealth, the rich elaboration of economic, cultural, social, and political processes.

### Forever Upward?

There is much truth in this. Looking backward, it is difficult to believe that the same growth in technology (et cetera) could have taken place if the human population had never increased beyond the limit of a single tribe of two thousand people. But what if we look forward? Is it certain that the quality of life graphed against population is a curve that slopes forever upward? Is it not even possible that quality has already passed through a peak and is heading downward? Possible, at least?

I have previously discussed this question in a somewhat different context (S. Fred Singer, ed., *Is There an Optimum Level of Population?* [New York: McGraw-Hill, 1971], p. 263):

Not even the merits of urbanization require a large population—only local concentrations of the artists, artisans, philosophers, and scientists who are capable, under peculiar political and social circumstances that are poorly understood, of creating a distinctive “civilization.” Athens, in its Golden Age, consisted of only a quarter of a million people, of whom almost half were slaves and only 40,000 were full citizens. The substitution of machine slaves for human slaves has surely reduced the critical size required for a great center of culture (given the right attendant circumstances) to considerably less than a quarter of a million.

### New York and Athens

Let me pose a related question. The “standard metropolitan statistical area” called New York had a population as of 1970 of 11,529,000 people. That’s 46 times the total population of classical Athens, or 288 times the population of Athenians of full citizenship status. In civilization, in urbanity, or in the production of art, new intellectual discoveries, or what have you—is modern New York 288 times as great as classical Athens? Or even 46 times as great? No one, to my knowledge, has attempted to quantify an answer to this question. It hardly seems worth the effort. The answer is surely obvious, and lends no support to the conclusion implied by Commoner that more is always better. Beyond some undetermined, but not large, number the stimulation people give each other becomes more irritating and inhibiting than mind-expanding.

Commoner does not worry about population growth because he believes, with most demographers, that (p. 237): “tendencies for self-regulation are characteristic of human population systems”—a belief that can be comforting if one does not inquire closely into the meaning of the word “tendencies,” or the level of living at which ZPG (zero population growth) might be effortlessly achieved. Commoner is confident that the “demographic transition” makes unnecessary any serious consideration of deliberate population control. So we had better look critically at the concept of the demographic transition.

For most of man’s existence ZPG prevailed, on the average. (Diseases caused wide fluctuations.) Graphing birth rate and death rate against time for this long period gives two interlaced lines, both fluctuating about a single mean value. The average rate of growth for hundreds of thousands of years was only 0.001 percent per year. About 300 years ago, in Europe, the death rate curve began to fall below the birth rate curve. This produced a gap between the two lines which is called the “demographic gap.” The greater this gap, the greater the rate of population growth.

Somewhat later the birth rate started to drop, approaching the falling death rate curve. Ultimately, of course, the two curves must once more interweave about a single mean value. At that point, ZPG will be reestablished. If we are lucky, both birth and death rates will be lower than they were among primitive men, and the length of life correspondingly greater. The entire time during which there is a gap between the two curves is called the “demographic transition.”

A mystique common among demographers holds that there is something automatic and benevolent about this process, that we need not lift a finger to alter the “natural” course of events. Against this comforting thought several cogent observations can be advanced.

1. The demographic transition has not proceeded to completion in even one country in the world. (Commoner erroneously

states on page 118 that the transition “has occurred” already in most of the industrialized nations.) At one time we thought Ireland had safely passed through the transition, with the ambiguous help of the devastating Potato Famine. But we were wrong. Ireland is now off and running again, with a current growth rate of 0.5 percent. The doubling time for her population is now a mere 140 years; and the demographic gap is widening.

2. There is absolutely no theory to indicate that the demographic gap will close automatically at a level of population consonant with a quality of life that anybody would call good; and much experience and theory supports the contrary expectation.

3. There is no reason to think that the poor countries of the world will duplicate the population history of the rich. The still incomplete transition of the European countries took several centuries. Today’s poor countries may have only a few decades to complete their transition, *without catastrophe*; and they are starting with a demographic gap three times as wide as the one that afflicted Europe.

The superstitious aspects of demographic transition doctrine were beautifully exposed by the sociologist Kingsley Davis in his article, “Population” (*Scientific American*, September 1963). The tragedy of basing foreign aid on a belief in natural “development” (a metaphor that leans dangerously on embryology) has been amply documented by the economist John M. Culbertson in his *Economic Development: An Ecological Approach* (Knopf, 1971).

## Population Control

Commoner is apparently unaware of the shaky foundations of the benevolent demographic transition. In addition I suspect he has a genuine, and understandable, fear of the possible consequences of acknowledging the fictional character of the benevolent transition. If we must eschew this pleasant superstition, and if we are unwilling to settle for the most wretched equilibrium conditions conceivable, then we will have to think about controlling population deliberately.

But who is “we”? Who is controlled? And by what means? It is quite understandable that Commoner (and many others) are so frightened by half-glimpsed answers that they do not seriously investigate the possibilities. “Population control,” says Commoner near the end of his article, “. . . no matter how disguised, involves some measure of political repression . . .” and is, therefore, in his opinion, unthinkable.

Population control (as opposed to personal birth control), by whatever means, must involve either the law or informal (nonstatutory) communal mechanisms that possess the repressive force and universality of statutory law. Recognizing that population control within a sovereign country will be possible only when a large majority of its population can agree on both the aim and the methods, I once stated that such control—if it is ever achieved—will be achieved by “mutual coercion, mutually agreed upon.” Commoner, like many others, bristles at this expression, not recognizing that it is, in fact, merely an operational definition of any law in a democracy. A community that rejects all such coercion is, in the strict and literal sense, a lawless community. A village of a hundred souls, insulated from all other peoples, can live happily in a lawless condition. But a nation of 205 million people ain’t no village.

It is ironic that biologist Commoner’s analysis fails most notably when the logic of the situation is most distinctively biological. On page 214 of his book he says (and the italics are his):

If a majority of the United States population voluntarily practiced birth control adequate to population stabilization, there would be no need for coercion. The corollary is that *coercion is necessary only if a majority of the population refuses voluntarily to practice adequate birth control*. This means that the majority would need to be coerced by the minority. This is, indeed, political repression.

The truth is quite otherwise. To begin with, let us agree that mutual coercion in a democracy can successfully be brought about by law only if the majority of the population is in agreement. In fact, our experience with the Prohibition Law taught us that sometimes the acceptance of coercion requires an overwhelming majority.

Commoner maintains that if the majority accepts a program of voluntary population control there is no need for coercion. In a special case, he is right. If deviations from the approved number of children occur solely as a matter of chance, and if there is no causal continuity between the high deviants of one generation and the high deviants of the next then coercion is not necessary. All the community has to do is set the approved number low enough to allow for randomly occurring overbreeding, and successful population control by voluntary means will be achieved.

But this special case is not common, and it is not what creates the situation that can lead to coercive population control. Problems arise when there is a causal continuity between the overbreeders of successive generations, when one group of people, as a matter of policy, decides to outbreed another. When that happens, a purely voluntary system of population control is sure to fail.

Is this a purely theoretical example, of no practical importance now or in the future? It is not. During the 1960s the government of Ceylon actively supported "family planning" in the hope that this voluntary method would bring about population control. At the

end of the decade the government withdrew its support from the program. Why?

Because the ruling class, the Sinhalese, had become convinced that a minority group, the politically less powerful Tamils, were not cooperating in the voluntary family limitation program. The Sinhalese, 70 percent of the population, perceived that if the Tamils (11 percent) consistently outbred them, the minority group would someday become the majority and might then seize political control.

Note the effect the new policy can be expected to have on population growth. At present, the population of Ceylon is increasing by 2.4 percent per year. If the new policy of the Sinhalese results in more Sinhalese being born, the overall rate of population increase will increase. On the other hand, even if the call for more Sinhalese babies is ineffective, population still will increase faster as the faster-breeding Tamils come to constitute an ever larger fraction of the total population.

Thus we see that a purely voluntary system of population control can fail even if (contrary to Commoner's supposition) it is only a minority group that refuses to cooperate. Simple mathematical analysis shows that it does not matter how small this minority is, so long as it exists.

### **Tribalism Defined**

We need not go as far as Ceylon to find illuminating examples of the dangers of competition in reproduction. The competitive aspects of reproduction are appreciated also in Northern Ireland and in Belgium. The reader may be able to think of other examples. Dangers arise whenever "tribalism" displaces feelings of loyalty to the larger community. I have defined tribalism in the following way (*Journal of Urban Law*, April 1971):

Any group of people that perceives itself as a distinct group, and which is so perceived by the outside world, may be called a tribe. The group might be a race, as ordinarily defined, but it need not be; it can just as well be a religious sect, a political group, or an occupational group. The essential characteristic of a tribe is that it should follow a double standard of morality—one kind of behavior for in-group relations, another for out-group.

It is one of the unfortunate and inescapable characteristics of tribalism that it eventually evokes counter-tribalism (or, to use a different figure of speech, it “polarizes” society).

When that point has been reached, population control becomes impossible. This may not be the worst of the consequences of tribalism.

The theoretical principle involved in making a shambles of a program of voluntary population control is known as the “competitive exclusion principle.” The idea has figured in biological literature, more or less explicitly, for more than a century. It was the basis of the microbiologist M. W. Beijerinck’s “elective culture method,” with which I am sure botanist Barry Commoner is acquainted. I first discussed its human implications in *Nature and Man’s Fate* (Rinehart, 1959). The total literature on the human implications is miniscule, and for good reason: no one yet sees an acceptable way around some of its more frightening implications (or what appear to be its implications). Certainly I don’t. The subject is, I suspect, under a bit of a taboo. Perhaps it is better so, for the present.

I can sympathize with a biologist who honors the taboo. I am willing to attribute his silence to commendable compassion and caution. Paul and Anne Ehrlich in their “*Population Resources Environment*” (2nd ed.; Freeman, 1972), do not so much as hint at either the problem or the principle. Neither do Ehrlich and Holdren in their critical article. I can only suppose that they are observing the taboo. I do not criticize them for that.

On the other hand, I think Barry Commoner can be justly criticized for entering the tabooed area and giving the wrong answer. Look once more at the quotation given above from page 214 of his book. If Dr. Commoner were called in to advise the Ceylonese government in matters of population control, what advice would he give, if he made it consistent with the passage quoted?

It would have to be something like this: “You have nothing to worry about. If the majority of the Ceylonese population voluntarily adopts family planning, guided by the ideal of a small enough family, there is no need for coercion. The noncooperating Tamils constitute only 11 percent of the Ceylonese population and are hence no threat to a voluntary population control program.”

In spite of this adverse comment, I regard *The Closing Circle* as a good book, for the present moment in history. (What more can a successful expositor ask?) Bernard de Fontenelle (1657-1757), the first great popularizer of science, wisely said that “Well established beliefs can be successfully attacked only by degrees.” Barry Commoner is also a great popularizer of science, and the science he is explaining—ecology—is, as Paul Sears has said, a subversive one. It is subversive in its implications for human institutions and long established habits of thought. As a practical matter it is not only necessary, it is probably also best, that the full implications of so revolutionary a science as ecology not be fully revealed to the public in an instant. *The Closing Circle*, with its overemphasis on the technological factor and its “protesting too much” about population, may well be all that the general public is ready for at this time. Commoner has advanced a few degrees in attacking well-established beliefs, and his powerful voice has been widely heard. For this he deserves praise. That which he has left undone should be regarded by others as an opportunity to continue with the unending work of public education.

*Nobody Ever Dies of Overpopulation*<sup>1</sup>

(1971)

Those of us who are deeply concerned about population and the environment—"Econuts," we're called—are accused of seeing herbicides in trees, pollution in running brooks, radiation in rocks, and overpopulation everywhere. There is merit in the accusation.

I was in Calcutta when the cyclone struck East Bengal in November, 1970. Early dispatches spoke of 15,000 dead, but the estimates rapidly escalated to 2,000,000 and then dropped back to 500,000. A nice round number; it will do as well as any, for we will never know. The nameless ones who died, "unimportant" people far beyond the fringes of the social power structure, left no trace of their existence. Pakistani parents repaired the population loss in just 40 days, and the world turned its attention to other matters.

What killed those unfortunate people? The cyclone, newspapers said. But one can just as logically say that overpopulation killed them. The Gangetic delta is barely above sea level. Every year several thousand people are killed in quite ordinary storms. If

Pakistan were not overcrowded, no sane man would bring his family to such a place. Ecologically speaking, a delta belongs to the river and the sea; man obtrudes there at his peril.

In the web of life every event has many antecedents. Only by an arbitrary decision can we designate a single antecedent as "cause." Our choice is biased—biased to protect our egos against the onslaught of unwelcome truths. As T. S. Eliot put it in *Burnt Norton*:

Go, go, go, said the bird: human kind  
Cannot bear very much reality.

Were we to identify overpopulation as the cause of a half-million deaths, we would threaten ourselves with a question to which we do not know the answer: *how can we control population without recourse to repugnant measures?* Fearfully we close our minds to an inventory of possibilities. Instead, we say that a cyclone caused the deaths, thus relieving ourselves of responsibility for this and future catastrophes. "Fate" is *so* comforting.

Every year we list tuberculosis, leprosy, enteric diseases, or animal parasites as the "cause of death" of millions of people. It is well known that malnutrition is an important antecedent of death in all these categories; and that malnutrition is connected with overpopulation. But overpopulation is not called the cause of death. We cannot bear the thought.

People are dying now of respiratory diseases in Tokyo, Birmingham, and Gary, because of the "need" for more industry. The "need" for more food justifies overfertilization of the land, leading to eutrophication of the waters, and lessened fish production—which leads to more "need" for food.

What will we say when the power shuts down some fine summer on our eastern seaboard and several thousand people die of heat prostration? Will we blame the weather? Or the power companies for not building enough generators? Or the econuts for insisting on pollution controls?

One thing is certain: we won't blame the deaths on overpopulation. No one ever dies of overpopulation. It is unthinkable.

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## *Gregg's Law*<sup>1</sup>

(1975)

No proposal to attack world population problems should be taken seriously if it does not explicitly deal with Gregg's Law: *You can't cure a cancer by feeding it.* One may either support or attack this law, but one should not ignore it.

Alan Gregg (1890-1957), a wise and kindly physician, was for many years vice president of the Rockefeller Foundation. In 1955 he wrote: "I suggest, as a way of looking at the population problem, that there are some interesting analogies between the growth of the human population of the world and the increase of cells observable in neoplasms. . . . Cancerous growths demand food; but, so far as I know, they have never been cured by getting it."

Malthus, of course, would have agreed with Gregg. Writing in 1798 he said: "That population does invariably increase where there are the means of subsistence, the history of every people that have ever existed will abundantly prove." Such a clear statement was sure to evoke a contradiction. In 1842 Thomas Doubleday, in "The True Law of Population," stated that nutrition and fertility

are *inversely* related. The way to stop population growth, he said, is to feed people well. This Anti-Gregg Hypothesis was revived in 1952 by Josué de Castro. In "The Geography of Hunger," de Castro asserted that population growth can be brought to a halt by feeding everybody plenty of proteins.

Physiological evidence does not support the anti-Gregg Hypothesis. The supposition is, of course, very pleasing to our humanitarian impulses. The will to believe what is pleasant has, in the last generation, led to another anti-Gregg position, the doctrine of the Benign Demographic Transition. The latest mutation is favored by the most powerful demographers of our day, a group Kingsley Davis calls the "Population Establishment." Observing that rich countries have lower fertility than poor countries, these demographers conclude that the way to reduce fertility is to shower poor people with food *and* wealth; zero population growth will then automatically ensue.

Unfortunately, too many historical facts contradict the latest anti-Gregg position. Take the United States, for example. When income went down in the 1930's, so also did fertility. Following the Second World War, income rose continuously until 1974, but fertility rose until 1957 and then fell. Most perplexing. Now another depression threatens. Who would like to bet that fertility will rise as times get tough? That is what the Anti-Gregg Hypothesis predicts. If we won't bet on this hypothesis for our own country, are we wise to bet on it elsewhere?

Our own foreign aid money is laid down on such a wager. Worse still, we wager the well-being of poor foreigners also. Thus far, we—*and they*—have lost in this gamble. In the last generation, our massive foreign aid bets have not prevented poor populations from nearly doubling while their growth rates have trebled. Their environments are more stressed than ever. The prospects for their posterity become worse every day. It is a mark of the compulsive gambler that he doubles the stakes when he loses steadily. Those who call for still greater increases in foreign aid to push poor people through the hypothetical demographic transition seem to be in

the grip of a compulsion. That it is a humanitarian compulsion does not excuse actions that fly in the face of Gregg's Law.

*Trouble in the Lifeboat*

(1978)

Opposition to “lifeboat ethics” was prompt and vigorous. Much of it was unnecessary, and I am afraid I was to blame for that. When I presented my paper orally before a meeting of the American Association for the Advancement of Science in San Francisco, an editor of *Psychology Today* asked if he could publish it. I agreed to prepare a shortened version, which I did, under the title “Lifeboat Ethics.”<sup>1</sup> Unfortunately the editor, without consulting me, added a subtitle: “The Case Against Helping the Poor.” The best that can be said for this subtitle is that it certainly catches people’s attention.

How can anybody be against helping the poor? I’m not; and I know no one who is. Human beings are social animals. We want to help one another whenever we can (provided the effort doesn’t cost too much trouble or expense). The key question is this: what constitutes help? Building dams—if these increase disease? Bringing in the “Green Revolution”—if this increases unemployment? Helping people in the highlands cut wood for fuel—if this

increases flooding in the lowlands? The words "help" and "aid" are prejudicial. To be objective we should initially use only the word "intervention" and then constantly ask, "Will the proposed intervention actually help the people subjected to it, without hurting their neighbors or their posterity?" U.S. AID—a clever, prejudicial acronym for the Agency for International Development—should really be called the U.S. Intervention Agency; but this yields no usefully prejudicial acronym with which to wheedle Congress out of money.

I suspect that many people who might have accepted the argument of "Living on a Lifeboat" were inflexibly turned against it by their conviction that the author was opposed to helping the poor. The list of my opponents includes some distinguished names. For a second time I was honored with an attack by a president of the American Association for the Advancement of Science in the editorial column of *Science*.<sup>2</sup> This time it was Dr. Roger Revelle, Director of the Center for Population Studies at Harvard; he dismissed lifeboat ethics as "this obscene doctrine." Dr. Revelle may be right of course:

The American Heritage Dictionary defines the word ["obscene"] as follows: "Offensive to accepted standards of decency or modesty." Obscenity is, then, a relational term: it defines the relation of an idea to the standards of the speaker. It is an unacceptable relation, so we must always ask, which needs changing—the idea or the standards?

Half a century ago D. H. Lawrence challenged the obscenity of sex. "Decent" people tried to suppress "*Lady Chatterley's Lover*": in the end they lost and we changed our standards. Now there are those who regard rational discussion of survival as an obscenity. Should we repress open and rational discussion, or should we tackle the very real problems of survival in an overcrowded world?<sup>3</sup>

Those who regard an idea as obscene will naturally try to prevent discussion—or at any rate, dispassionate discussion. Their behavior ostensibly defines the area of a taboo. In a society like ours that esteems freedom of discussion, a taboo on words or ideas has two layers: the first is the primary taboo on the forbidden thing; the second is the taboo against mentioning that there is a taboo. Faced with what he regards as the necessity of suppressing discussion, a person who praises discussion in the abstract may have recourse to the word "obscene." The stalker of taboos becomes, in such a society, an obscenity-stalker.

As many of my critics have pointed out, there are rhetorical dangers in the lifeboat metaphor. "We in the U.S. don't live on a lifeboat; we live on a luxury liner" is the most frequent comment. This raises difficult questions of the meaning and limits of necessity, luxury, temperance and waste, all puzzling and important matters quite apart from the lifeboat situation. Such critics raise, perhaps unwittingly, the spectre of sumptuary laws, which most of us in the European culture thought we had seen the last of in the 17th century. *Plus ça change, plus c'est la même chose?*

In February 1975 a symposium on "Triage in Medicine and Society" was held at the Texas Medical Center's Institute of Religion and Human Development in Houston. Though I was unable to attend I was invited to contribute the concluding essay when time came to publish the proceedings in a scholarly journal. Since the lifeboat metaphor evoked such strong emotional reactions I de-emphasized it in my essay, laying stress instead on the more fundamental idea of carrying capacity. This concept, both simple and profound, is one that real "dirt farmers" understand almost intuitively, but which seems to be almost beyond the grasp of many economists, who assume that every shortage can be cured by raising the price. The ratio of economists to farmers is highest in the richest countries, from which I deduce that the more prosperous a nation is the more difficult will it be for its citizenry to take in the ethical implications of carrying capacity. This limitation on

understanding among the rich is unfortunate for the poor of the world, most especially for their posterity.

Then it was decided to republish the symposium as a book, under the title *Lifeboat Ethics: The Moral Dilemmas of World Hunger*.<sup>4</sup> The other contributors, not wanting to benefit from a discussion of other people's misery, wished to assign all the royalties to some international organization devoted to sending food abroad to starving people. That was a reasonable course of action for those who believe that every gift of food is synonymous with aid, but it posed a moral dilemma for me, being unwilling as I am to equate intervention with aid. I did not want to be selfish, but neither did I want to harm others (as I saw the matter) by a gift of food. What to do? As an alternative I suggested that we assign the royalties to the Hastings Institute for Society, Ethics and the Life Sciences. The money would then neither help nor harm the present poor of the world, but by financing some fundamental thinking (such as indeed goes on at the Hastings) it might ultimately decrease the misery in the world at least a little bit. The suggestion was accepted. What follows in the next chapter is my contribution to the book.

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## *Carrying Capacity as an Ethical Concept*<sup>1</sup>

(1976)

Lifeboat Ethics is merely a special application of the logic of the commons.<sup>2</sup> The classic paradigm is that of a pasture held as common property by a community and governed by the following rules: first, each herdsman may pasture as many cattle as he wishes on the commons; and second, the gain from the growth of cattle accrues to the individual owners of the cattle. In an underpopulated world the system of the commons may do no harm and may even be the most economic way to manage things, since management costs are kept to a minimum. In an overpopulated (or overexploited) world a system of the commons leads to ruin, because each herdsman has more to gain individually by increasing the size of his herd than he has to lose as a single member of the community guilty of lowering the carrying capacity of the environment. Consequently he (with others) overloads the commons.

Even if an individual fully perceives the ultimate consequences of his actions he is most unlikely to act in any other way, for he cannot count on the restraint *his* conscience might dictate being matched by a similar restraint on the part of *all* the others. (Anything less than all is not enough.) Since mutual ruin is inevitable, it is quite proper to speak of the *tragedy* of the commons.

Tragedy is the price of freedom in the commons. Only by changing to some other system (socialism or private enterprise, for example) can ruin be averted. In other words, in a crowded world survival requires that some freedom be given up. (We have, however, a choice in the freedom to be sacrificed.) Survival is possible under several different politico-economic systems—but not under the system of the commons. When we understand this point, we reject the ideal of distributive justice stated by Karl Marx a century ago, "From each according to his ability, to each according to his needs."<sup>3</sup> This ideal might be defensible if "needs" were defined by the larger community rather than by the individual (or individual political unit) *and if "needs" were static.*<sup>4</sup> But in the past quarter-century, with the best will in the world, some humanitarians have been asserting that rich populations must supply the needs of poor populations even though the recipient populations increase without restraint. At the United Nations conference on population in Bucharest in 1973 spokesmen for the poor nations repeatedly said in effect: "We poor people have the right to reproduce as much as we want to; you in the rich world have the responsibility of keeping us alive."

Such a Marxian disjunction of rights and responsibilities inevitably tends toward tragic ruin for all. It is almost incredible that this position is supported by thoughtful persons, but it is. How does this come about? In part, I think, because language deceives us. When a disastrous loss of life threatens, people speak of a "crisis," implying that the threat is temporary. More subtle is the implication of quantitative stability built into the pronoun "they" and its relatives. Let me illustrate this point with quantified prototype statements based on two different points of view.

*Crisis analysis:* "These poor people (1,000,000) are starving, because of a crisis (flood, drought, or the like). How can we refuse *them* (1,000,000)? Let us feed *them* (1,000,000). Once the crisis is past those who are still hungry are few (say 1,000) and there is no further need for our intervention."

*Crunch analysis:* "Those (1,000,000) who are hungry are reproducing. We send food to *them* (1,010,000). *Their* lives (1,020,000) are saved. But since the environment is still essentially the same, the next year *they* (1,030,000) ask for more food. We send it to *them* (1,045,000); and the next year *they* (1,068,000) ask for still more. Since the need has not gone away, it is a mistake to speak of a passing crisis: it is evidently a permanent crunch that this growing 'they' face—a growing disaster, not a passing state of affairs."

"They" increases in size. Rhetoric makes no allowance for a ballooning pronoun. Thus we can easily be deceived by language. We cannot deal adequately with ethical questions if we ignore quantitative matters. This attitude has been rejected by James Sellers, who dismisses prophets of doom from Malthus<sup>5</sup> to Meadows<sup>6</sup> as "chiliasts." Chiliasts (or millennialists, to use the Latin-derived equivalent of the Greek term) predict a catastrophic end of things a thousand years from some reference point. The classic example is the prediction of Judgment Day in the year 1000 anno Domini. Those who predicted it were wrong, of course; but the fact that this specific prediction was wrong is no valid criticism of the use of numbers in thinking. Millennialism is numerology, not science.

In science, most of the time, it is not so much exact numbers that are important as it is the relative size of numbers and the direction of change in the magnitude of them. Much productive analysis is accomplished with only the crude quantitation of "order of magnitude" thinking. First and second derivatives are often calculated with no finer aim than to find out if they are positive or negative. Survival can hinge on the crude issue of the sign of change, regardless of number. This is a far cry from the spurious precision of numerology. Unfortunately the chasm between the

"two cultures," as C. P. Snow called them,<sup>7</sup> keeps many in the non-scientific culture from understanding the significance of the quantitative approach. One is tempted to wonder also whether an additional impediment to understanding may not be the mortal sin called Pride, which some theologians regard as the mother of all sins.

Returning to Marx, it is obvious that the *each* in "to each according to his needs" is not—despite the grammar—a unitary, stable entity: "each" is a place-holder for a ballooning variable. Before we commit ourselves to saving the life of *each* and every person in need we had better ask this question: "And then what?" That is, what about tomorrow, what about posterity? As Hans Jonas has pointed out,<sup>8</sup> traditional ethics has almost entirely ignored the claims of posterity. In an overpopulated world humanity cannot long endure under a regime governed by posterity-blind ethics. It is the essence of ecological ethics that it pays attention to posterity.

Since "helping" starving people requires that we who are rich give up some of our wealth, any refusal to do so is almost sure to be attributed to selfishness. Selfishness there may be, but focusing on selfishness is likely to be non-productive. In truth, a selfish motive can be found in all policy proposals. The selfishness of *not* giving is obvious and need not be elaborated. But the selfishness of giving is no less real, though more subtle.<sup>9</sup> Consider the sources of support for Public Law 480, the act of Congress under which surplus foods were given to poor countries, or sold to them at bargain prices ("concessionary terms" is the euphemism). Why did we give food away? Conventional wisdom says it was because we momentarily transcended our normal selfishness. Is that the whole story?

It is not. The "we" of the above sentence needs to be subdivided. The farmers who grew the grain did not give it away. They sold it to the government (which then gave it away). Farmers received selfish benefits in two ways: the direct sale of grain, and the economic support to farm prices given by this governmental pur-

chase in an otherwise free market. The operation of P. L. 480 during the past quarter-century brought American farmers to a level of prosperity never known before.

Who else benefited—in a selfish way? The stockholders and employees of the railroads that moved grain to seaports benefited. So also did freight-boat operators (U.S. "bottoms" were specified by law). So also did grain elevator operators. So also did agricultural research scientists who were financially supported in a burgeoning but futile effort "to feed a hungry world."<sup>10</sup> And so also did the large bureaucracy required to keep the P.L. 480 system working. In toto, probably several million people personally benefited from the P.L. 480 program. Their labors cannot be called wholly selfless.

Who *did* make a sacrifice for P.L. 480? The citizens generally, nearly two hundred million of them, paying directly or indirectly through taxes. But each of these many millions lost only a little: whereas each of the million or so gainers gained a great deal. The blunt truth is that *philanthropy pays*—if you are hired as a philanthropist. Those on the gaining side of P.L. 480 made a great deal of money and could afford to spend lavishly to persuade Congress to continue the program. Those on the sacrificing side sacrificed only a little bit per capita and could not afford to spend much protecting their pocketbooks against philanthropic inroads. And so P.L. 480 continued, year after year.

Should we condemn philanthropy when we discover that some of its roots are selfish? I think not, otherwise probably no philanthropy would be possible. The secret of practical success in large-scale public philanthropy is this: see to it that the losses are widely distributed so that the per capita loss is small, but concentrate the gains in a relatively few people so that these few will have the economic power needed to pressure the legislature into supporting the program.

I have spent some time on this issue because I would like to dispose once and for all of condemnatory arguments based on "selfishness." As a matter of principle we should always assume

that selfishness is *part* of the motivation of every action. But what of it? If Smith proposes a certain public policy, it is far more important to know whether the policy will do public harm or public good than it is to know whether Smith's motives are selfish or selfless. Consequences ("ends") can be more objectively determined than motivations ("means"). Situational ethics wisely uses consequences as the measure of morality. "If the end does not justify the means, what does?" asks Joseph Fletcher.<sup>11</sup> The obsession of older ethical systems with means and motives is no doubt in part a consequence of envy, which has a thousand disguises.<sup>12</sup> (Though I am sure this is true, the situationist should not dwell on envy very long, for it is after all only a motive, and as such not directly verifiable. In any case public policy must be primarily concerned with consequences.)

Even judging an act by its consequences is not easy. We are limited by the basic theorem of ecology, "We can never do merely one thing."<sup>13</sup> The fact that an act has many consequences is all the more reason for de-emphasizing motives as we carry out our ethical analyses. Motives by definition apply only to intended consequences. The multitudinous unintended ones are commonly denigrated by the term "side effects." But "The road to hell is paved with good intentions," so let's have done with motivational evaluations of public policy.

Even after we have agreed to eschew motivational analysis, foreign aid is a tough nut to crack. The literature is large and contradictory, but it all points to the inescapable conclusion that a quarter of a century of earnest effort has not conquered world poverty. To many observers the threat of future disasters is more convincing now than it was a quarter of a century ago—and the disasters are not all in the future either.<sup>14</sup> Where have we gone wrong in foreign aid?

We wanted to do good, of course. The question, "How can we help a poor country?" seems like a simple question, one that should have a simple answer. Our failure to answer it suggests that

the question is not as simple as we thought. The variety of contradictory answers offered is disheartening.

How can we find our way through this thicket? I suggest we take a cue from a mathematician. The great algebraist Karl Jacobi (1804-1851) had a simple stratagem that he recommended to students who found themselves butting their heads against a stone wall. *Umkehren, immer umkehren*—"Invert, always invert." Don't just keep asking the same old question over and over: turn it upside down and ask the opposite question. The answer you get then may not be the one you want, but it may throw useful light on the question you started with.

Let's try a Jacobian inversion of the food/population problem. To sharpen the issue, let us take a particular example, say India. The question we want to answer is, "How can we help India?" But since that approach has repeatedly thrust us against a stone wall, let's pose the Jacobian invert, "How can we *harm* India?" After we've answered this perverse question we will return to the original (and proper) one.

As a matter of method, let us grant ourselves the most malevolent of motives: let us ask, "How can we harm India—*really* harm her?" Of course we might plaster the country with thermonuclear bombs, speedily wiping out most of the 600 million people. But, to the truly malevolent mind, that's not much fun: a dead man is beyond harming. Bacterial warfare could be a bit "better," but not much. No: we want something that will really make India suffer, not merely for a day or a week, but on and on and on. How can we achieve this inhumane goal?

Quite simply: by sending India a bounty of food, year after year. The United States exports about 80 million tons of grain a year. Most of it we sell: the foreign exchange it yields we use for such needed imports as petroleum (38 percent of our oil consumption in 1974), iron ore, bauxite, chromium, tin, etc. But in the pursuit of our malevolent goal let us "unselfishly" tighten our belts, make sacrifices, and do without that foreign exchange. Let us *give* all 80 million tons of grain to the Indians each year.

On a purely vegetable diet it takes about 400 pounds of grain to keep one person alive and healthy for a year. The 600 million Indians need 120 million tons per year; since their nutrition is less than adequate presumably they are getting a bit less than that now. So the 80 million tons we give them will almost double India's per capita supply of food. With a surplus, Indians can afford to vary their diet by growing some less efficient crops; they can also convert some of the grain into meat (pork and chickens for the Hindus, beef and chickens for the Moslems). The entire nation can then be supplied not only with plenty of calories, but also with an adequate supply of high quality protein. The people's eyes will sparkle, their steps will become more elastic; and they will be capable of more work. "Fatalism" will no doubt diminish. (Much so-called fatalism is merely a consequence of malnutrition.) Indians may even become a bit overweight, though they will still be getting only two-thirds as much food as the average inhabitant of a rich country. Surely—we think—surely a well-fed India would be better off?

Not so: *ceteris paribus*, they will ultimately be worse off. Remember, "We can never do merely one thing." A generous gift of food would have not only nutritional consequences: it would also have political and economic consequences. The difficulty of distributing free food to a poor people is well known. Harbor, storage, and transport inadequacies result in great losses of grain to rats and fungi. Political corruption diverts food from those who need it most to those who are more powerful. More abundant supplies depress free market prices and discourage native farmers from growing food in subsequent years. Research into better ways of agriculture is also discouraged. Why look for better ways to grow food when there is food enough already?

There are replies, of sorts, to all the above points. It may be maintained that all these evils are only temporary ones; in time, organizational sense will be brought into the distributional system and the government will crack down on corruption. Realizing the desirability of producing more food, for export if nothing else, a

wise government will subsidize agricultural research in spite of an apparent surplus. Experience does not give much support to this optimistic view, but let us grant the conclusions for the sake of getting on to more important matters. Worse is to come.

The Indian unemployment rate is commonly reckoned at 30 percent, but it is acknowledged that this is a minimum figure. Underemployment is rife. Check into a hotel in Calcutta with four small bags and four bearers will carry your luggage to the room—with another man to carry the key. Custom, and a knowledge of what the traffic will bear, decree this practice. In addition malnutrition justifies it in part. Adequately fed, half as many men would suffice. So one of the early consequences of achieving a higher level of nutrition in the Indian population would be to increase the number of unemployed.

India needs many things that food will not buy. Food will not diminish the unemployment rate (quite the contrary); nor will it increase the supply of minerals, bicycles, clothes, automobiles, gasoline, schools, books, movies, or television. All these things require energy for their manufacture and maintenance.

Of course, food is a form of energy, but it is convertible to other forms only with great loss; so we are practically justified in considering energy and food as mutually exclusive goods. On this basis the most striking difference between poor and rich countries is not in the food they eat but in the energy they use. On a per capita basis rich countries use about three times as much of the primary foods—grains and the like—as do poor countries. (To a large extent this is because the rich convert much of the grain to more "wasteful" animal meat.) But when it comes to energy, rich countries use ten times as much per capita. (Near the extremes Americans use 60 times as much per person as Indians.) By reasonable standards much of this energy may be wasted (e.g., in the manufacture of "exercycles" for sweating the fat off people who have eaten too much), but a large share of this energy supplies the goods we regard as civilized: effortless transportation, some luxury foods, a variety of sports, clean space-heating, more than adequate

clothing, and energy-consuming arts—music, visual arts, electronic auxiliaries, etc. Merely giving food to a people does almost nothing to satisfy the appetite for any of these other goods.

But a well-nourished people is better fitted to try to wrest more energy from its environment. The question then is this: Is the native environment able to furnish more energy? And at what cost?

In India energy is already being gotten from the environment at a fearful cost. In the past two centuries millions of acres of India have been deforested in the struggle for fuel, with the usual environmental degradation. The Vale of Kashmir, once one of the garden spots of the world, has been denuded to such an extent that the hills no longer hold water as they once did, and the springs supplying the famous gardens are drying up. So desperate is the need for charcoal for fuel that the Kashmiri now make it out of tree leaves. This wasteful practice denies the soil of needed organic mulch.

Throughout India, as is well known, cow dung is burned to cook food. The minerals of the dung are not thereby lost, but the ability of dung to improve soil filth is. Some of the nitrogen in the dung goes off into the air and does not return to Indian soil. Here we see a classic example of the "vicious circle": because Indians are poor they burn dung, depriving the soil of nitrogen and making themselves still poorer the following year. If we give them plenty of food, as they cook this food with cow dung they will lower still more the ability of their land to produce food.

Let us look at another example of this counter-productive behavior. Twenty-five years ago western countries brought food and medicine to Nepal. In the summer of 1974 a disastrous flood struck Bangladesh, killing tens of thousands of people, by government admission. (True losses in that part of the world are always greater than admitted losses.) Was there any connection between feeding Nepal and flooding Bangladesh? Indeed there was, and is.<sup>15</sup>

Nepal nestles amongst the Himalayas. Much of its land is precipitous, and winters are cold. The Nepalese need fuel, which they

get from trees. Because more Nepalese are being kept alive now, the demand for timber is escalating. As trees are cut down, the soil under them is washed down the slopes into the rivers that run through India and Bangladesh. Once the absorption capacity of forest soil is gone, floods rise faster and to higher maxima. The flood of 1974 covered two-thirds of Bangladesh, twice the area of "normal" floods—which themselves are the consequence of deforestation in preceding centuries.

By bringing food and medicine to Nepal we intended only to save lives. But we can never do merely one thing, and the Nepalese lives we saved created a Nepalese energy-famine. The lives we saved from starvation in Nepal a quarter of a century ago were paid for in our time by lives lost to flooding and its attendant evils in Bangladesh. The saying, "Man does not live by bread alone," takes on new meaning.

Still we have not described what may be the worst consequence of a food-only policy: revolution and civil disorder. Many kindhearted people who support food aid programs solicit the cooperation of "hard-nosed" doubters by arguing that good nutrition is needed for world peace. Starving people will attack others, they say. Nothing could be further from the truth. The monumental studies of Ancel Keys and others have shown that starving people are completely selfish.<sup>16</sup> They are incapable of cooperating with others; and they are incapable of laying plans for tomorrow and carrying them out. Moreover, modern war is so expensive that even the richest countries can hardly afford it.

The thought that starving people can forcefully wrest subsistence from their richer brothers may appeal to our sense of justice, *but it just ain't so*. Starving people fight only among themselves, and that inefficiently.

So what would happen if we brought ample supplies of food to a population that was still poor in everything else? They would still be incapable of waging war at a distance, but their ability to fight among themselves would be vastly increased. With vigorous, well-nourished bodies and a keen sense of their impoverishment in

other things, they would no doubt soon create massive disorder in their own land. Of course, they might create a strong and united country, but what is the probability of that? Remember how much trouble the thirteen colonies had in forming themselves into a United States. Then remember that India is divided by two major religions, many castes, fourteen major languages and a hundred dialects. A partial separation of peoples along religious lines in 1947, at the time of the formation of Pakistan and of independent India, cost untold millions of lives. The budding off of Bangladesh (formerly East Pakistan) from the rest of Pakistan in 1971 cost several million more. All these losses were achieved on a low level of nutrition. The possibilities of blood-letting in a population of 600 million well-nourished people of many languages and religions and no appreciable tradition of cooperation stagger the imagination. Philanthropists with any imagination at all should be stunned by the thought of 600 million well-fed Indians seeking to meet their energy needs from their own resources.

So the answer to our Jacobian question, "How can we harm India?" is clear: send food *only*. Escaping the Jacobian by reinventing the question we now ask, "How can we *help* India?" Immediately we see that we must *never* send food without a matching gift of non-food energy. But before we go careening off on an intoxicating new program we had better look at some more quantities.

On a per capita basis, India uses the energy equivalent of one barrel of oil per year; the U.S. uses sixty. The world average of all countries, rich and poor, is ten. If we want to bring India only up to the present world average, we would have to send India about 9 x 600 million bbl. of oil per year (or its equivalent in coal, timber, gas or whatever). That would be more than five billion barrels of oil equivalent. What is the chance that we will make such a gift?

Surely it is nearly zero. For scale, note that our total yearly petroleum use is seven billion barrels (of which we import three billion). Of course we use (and have) a great deal of coal too. But these figures should suffice to give a feeling of scale.

More important is the undoubted psychological fact that a fall in income tends to dry up the springs of philanthropy. Despite wide disagreements about the future of energy it is obvious that from now on, for at least the next twenty years and possibly for centuries, our per capita supply of energy is going to fall, year after year. The food we gave in the past was "surplus." By no accounting do we have an energy surplus. In fact, the perceived deficit is rising year by year.

India has about one-third as much land as the United States. She has about three times as much population. If her people-to-land ratio were the same as ours she would have only about seventy million people (instead of 600 million). With the forested and relatively unspoiled farmlands of four centuries ago, seventy million people was probably well within the carrying capacity of the land. Even in today's India, seventy million people could probably make it in comfort and dignity—provided they didn't increase!

To send food only to a country already populated beyond the carrying capacity of its land is to collaborate in the further destruction of the land and the further impoverishment of its people.

Food plus energy is a recommendable policy; but for a large population under today's conditions this policy is defensible only by the logic of the old saying, "If wishes were horses, beggars would ride." The fantastic amount of energy needed for such a program is simply not in view. (We have mentioned nothing of the equally monumental "infrastructure" of political, technological, and educational machinery needed to handle unfamiliar forms and quantities of energy in the poor countries. In a short span of time this infrastructure is as difficult to bring into being as is an abundant supply of energy.)

In summary, then, here are the major foreign-aid possibilities that tender minds are willing to entertain:

a. Food plus energy—a conceivable, but practically impossible program.

b. Food alone—a conceivable and possible program, but one which would destroy the recipient.

In the light of this analysis the question of triage shrinks to negligible importance. If *any* gift of food to overpopulated countries does more harm than good, it is not necessary to decide which countries get the gift and which do not. For posterity's sake we should never send food to any population that is beyond the realistic carrying capacity of its land. The question of triage does not even arise.

Joseph Fletcher neatly summarized this point when he said, "We should give if it helps but not if it hurts." We would do well to memorize his aphorism, but we must be sure we understand the proper object of the verb, which is the recipient. Students of charity have long recognized that an important motive of the giver is to help himself, the giver.<sup>17</sup> Hindus give to secure a better life in the next incarnation; Moslems, to achieve a richer paradise at the end of this life; and Christians in a simpler day no doubt hoped to shorten their stay in purgatory by their generosity. Is there anyone who would say that contemporary charity is completely free of the self-serving element?

To deserve the name, charity surely must justify itself primarily, perhaps even solely, by the good it does the recipient, not only in the moment of giving but in the long run. That every act has multiple consequences was recognized by William L. Davison, who grouped the consequences of an act of charity into two value-classes, positive and negative.<sup>18</sup> True charity, he said,

confers benefits, and it refrains from injuring. . . . Hence, charity may sometimes assume an austere and even apparently unsympathetic aspect toward its object. When that object's real good cannot be achieved without inflicting pain and suffering, charity does not shrink from the infliction. . . . Moreover, a sharp distinction must be drawn between charity and amiability or good nature—the latter of

which is a weakness and may be detrimental to true charity, although it may also be turned to account in its service.

To the ecologically-minded student of ethics, most traditional ethics looks like mere amiability, focusing as it does on the manifest misery of the present generation to the neglect of the more subtle but equally real needs of a much larger posterity. It is amiability that feeds the Nepalese in one generation and drowns Bangladeshi in another. It is amiability that, contemplating the wretched multitudes of Indians asks, "How can we let them starve?" implying that we, and only we, have the power to end their suffering. Such an assumption surely springs from hubris.

Fifty years ago India and China were equally miserable, and their future prospects equally bleak. During the past generation we have given India "help" on a massive scale; China, because of political differences between her and us, has received no "help" from us and precious little from anybody else. Yet who is better off today? And whose future prospects look brighter? Even after generously discounting the reports of the first starry-eyed Americans to enter China in recent years, it is apparent that China's 900 million are physically better off than India's 600 million.

All that has come about without an iota of "help" from us.

Could it be that a country that is treated as a responsible agent does better in the long run than one that is treated as an irresponsible parasite which we must "save" repeatedly? Is it not possible that robust responsibility is a virtue among nations as it is among individuals? Can we tolerate a charity that destroys responsibility?

Admittedly, China did not reach her present position of relative prosperity without great suffering, great loss of life. Did millions die? Tens of millions? We don't know. If we had enjoyed cordial relations with the new China during the birth process no doubt we would, out of a rich store of amiability, have seen to it that China remained as irresponsible and miserable as India. Our day-to-day decisions, with their delayed devastation, would have been com-

pletely justified by our traditional, posterity-blind ethics which seems incapable of asking the crucial question, "And then what?"

Underlying most ethical thought at present is the assumption that human life is the *summum bonum*. Perhaps it is; but we need to inquire carefully into what we mean by "human life." Do we mean the life of each and every human being now living, all 4,000,000,000 of them? Is each presently existing human being to be kept alive (and breeding) regardless of the consequences for future human beings? So, apparently, say amiable, individualistic, present-oriented, future-blind Western ethicists.

An ecologically-oriented ethicist asks, "And then what?" and insists that the needs of posterity be given a weighting commensurate with those of the present generation. The economic prejudice that leads to a heavy discounting of the future must be balanced by a recognition that the population of posterity vastly exceeds the population of the living.<sup>19</sup> We know from experience that the environment can be irreversibly damaged and the carrying capacity of a land permanently lowered.<sup>15</sup> Even a little lowering multiplied by an almost limitless posterity should weigh heavily in the scales against the needs of those living, once our charity expands beyond the limits of simple amiability.

We can, of course, increase carrying capacity somewhat. But only hubris leads us to think that our ability to do so is without limit. Despite all our technological accomplishments—and they are many—there is a potent germ of truth in the saying of Horace (65-8 B.C.): *Naturam expelles furca, tamen usque recurret*. "Drive nature off with a pitchfork, nevertheless she will return with a rush." This is the message of Rachel Carson,<sup>20</sup> which has been corroborated by many others.<sup>21</sup>

*The morality of an act is a function of the state of the system at the time the act is performed*—this is the foundation stone of situationist, ecological ethics.<sup>13</sup> A time-blind absolute ethical principle like that implied by the shibboleth, "the sanctity of life," leads to greater suffering than its situationist, ecological alternative—and ultimately and paradoxically, even to a lesser quantity of

life over a sufficiently long period of time. The interests of posterity can be brought into the reckoning of ethics if we abandon the idea of the sanctity of (present) life as an absolute ethical ideal, replacing it with the idea of the sanctity of the carrying capacity.

Those who would like to make the theory of ethics wholly rational must look with suspicion on any statement that includes the word "sanctity." There is a whole class of terms whose principal (and perhaps sole) purpose seems to be to set a stop to inquiry: "self-evident" and "sanctity" are members of this class. I must, therefore, show that "sanctity" is used as something more than a discussion-stopper when it occurs in the phrase "the sanctity of the carrying capacity."

Some there are who so love the world of Nature (that is, Nature *sine* Man) that they regard the preservation of a world without humankind as a legitimate objective of human beings. It is difficult to argue this ideal dispassionately and productively. Let me only say that I am not one of this class of nature-lovers; my view is definitely anthropocentric. Even so I argue that we would do well to accept "Thou shalt not exceed the carrying capacity of any environment" as a legitimate member of a new Decalogue. When for the sake of momentary gain by human beings the carrying capacity is transgressed, the long-term interests of the same human beings—"same" meaning themselves and their successors in time—are damaged. I should not say that the carrying capacity is something that is *intrinsically* sacred (whatever *that* may mean) but that the rhetorical device "carrying capacity" is a shorthand way of dealing time and posterity into the game. A mathematician would, I imagine, view "carrying capacity" as an algorithm, a substitute conceptual element with a different grammar from the elements it replaces. Algorithmic substitutions are made to facilitate analysis; when they are well chosen, they introduce no appreciable errors. I think "carrying capacity" meets significant analytical demands of a posterity-oriented ethics.

In an uncrowded world there may be no ethical need for the ecological concept of the carrying capacity. But ours is a crowded

world. We need this concept if we are to minimize human suffering in the long run (and not such a very long run at that). How Western man has pretty well succeeded in locking himself into a suicidal course of action by developing and clinging to a concept of the absolute sanctity of life is a topic that calls for deep inquiry. Lacking the certain knowledge that might come out of such a scholarly investigation, I close this essay with a personal view of the significance of—

### CARRYING CAPACITY<sup>22</sup>

(To Paul Sears)

*A man said to the universe:*

*"Sir, I exist!"*

*"However," replied the universe,*

*"The fact has not created in me*

*A sense of obligation."*

*—Stephen Crane, 1899.*

So spoke the poet, at century's end;  
And in those dour days when schools displayed the world,  
"Warts and all," to their reluctant learners,  
These lines thrust through the layers of wishfulness,  
Forming the minds that later found them to be true.

All that is past, now.

Original sin, then mere personal ego,

Open to the shafts of consciousness,

Now flourishes as an ego of the tribe

Whose battle cry (which none dare question) is

"Justice!"—But hear the poet's shade:

A tribe said to the universe,

"Sir, We exist!"

"So I see," said the universe,

### *Carrying Capacity as an Ethical Concept*

"But your multitude creates in me  
No feeling of obligation.

"Need creates right, you say? Your need, your right?  
Have you forgot we're married?  
Humanity and universe—Holy, indissoluble pair!  
Nothing you can do escapes my vigilant response.

"Dam my rivers and I'll salt your crops;  
Cut my trees and I'll flood your plains.  
Kill 'pests' and, by God, you'll get a silent spring!  
Go ahead—save every last baby's life!  
I'll starve the lot of them later,  
When they can savor to the full  
The exquisite justice of truth's retribution.  
Wrench from my earth those exponential powers  
No wobbling Willie should e'er be trusted with:  
Do this, and a million masks of envy shall create  
A hell of blackmail and tribal wars  
From which civilization will never recover.

"Don't speak to me of shortage. My world is vast  
And has more than enough—for no more than enough.  
There is a shortage of nothing, save will and wisdom;  
But there is a longage of people.

"Hubris—that was the Greeks' word for what ails you.  
Pride fueled the pyres of tragedy  
Which died (some say) with Shakespeare.  
O, incredible delusion! That potency should have no limits!  
'We believe no evil 'til the evil's done'—  
Witness the deserts' march across the earth,  
Spawned and nourished by men who whine, 'Abnormal weather.'  
Nearly as absurd as crying, 'Abnormal universe!' . . .  
But I suppose you'll be saying that, next."

Ravish capacity: reap consequences.

Man claims the first a duty and calls what follows

Tragedy.

Insult—Backlash. Not even the universe can break

This primal link. Who, then, has the power

To put an end to tragedy? Only those who recognize

Hubris in themselves.

*Population Control: Dare We Face  
the Taboo?*

(1996)

Amid the caterwauling of a wide spectrum of commentators, one thing is clear: the topic of population control is a most durable controversy. In the 3rd century the Church father Tertullian saw it as no problem, because (he said) the Lord has blessed humanity with four controls: disease, famine, wars and earthquakes—potent correctives for excessive fertility. In Tertullian's discontinuously populated world these negative feedbacks worked locally, so it would then have been pointless to speak of a global overpopulation problem. A region that suffered fearfully one year would presently be released from the disaster, and the old population level would soon be restored.

The term "population control" covers two quite different phenomena. On the one hand it can mean control that is *unplanned*, as far as humans are concerned: it was this that Tertullian had in mind. (Wars are humanly planned, but usually not as population

control measures. Famine and disease were regarded as largely beyond human control in Tertullian's day.) In modern times *planned* control is seen as a possible surrogate for the unplanned controls. Today, the effects of famine and disease have been greatly reduced by technological progress, and even the loss of life in earthquakes (always local) can be reduced by better engineering of buildings.

What about war? Prophecy is suspect here, partly because so many prophets went off half-cocked in the past. The coming of the submarine, the tank, the airplane, and plane-delivered bombs in the first World War led to predictions that war would soon be at an end: the "improvements" had made war "too horrible to contemplate." Nations would just have to find other ways to settle their differences.

World War II brought further "improvements" in all the old means of destruction, and added nuclear explosives and missiles that could be guided over long distances. Two other possibilities should be mentioned, though their "practical" value is still in dispute: chemical warfare and germ warfare.

In the past, each predicted catastrophe failed to be promptly realized. By shouting "Chicken Little!" scoffers lowered the anxiety level of the general public. A reborn Tertullian might well have taken another tack and asked: "Granted that disease and famines have been conquered, is humanity really better off with only total war as a population control measure?" For such a world as ours, would not disease be, in Tertullian's term, a "blessing"? Submitting to the "blessing" of disease-control does not require discrimination on the part of humanity. We can "let God choose who dies of disease." Or bow to Chance (a sort of god, perhaps).

One further population controller has been proposed: Nature, good old Mother Nature. Such romantic language is no longer acceptable, of course, so Nature has appeared in the professional literature suitably disguised. From about 1935 to 1975, the so-called "Demographic Transition" ruled the roost of surrogates-for-Nature. The argument ran as follows.

Over the past two centuries European populations, *as a whole*, had grown both richer and less fertile. Therefore (we were told), it should be obvious that "making people rich will automatically solve the problem of overpopulation." Following this path, it is not necessary to adopt distasteful political measures. Our economists will make us rich, and Mother Nature will take care of the rest. This theory really deserves to be called *the Benign Demographic Transition Theory* or "BDT."

Two things were fundamentally wrong with the theory. First, in deriving it a major fallacy of statistical thinking was committed: *post hoc ergo propter hoc*—"after this, therefore because of this." (Example: as storks became rarer in northern Europe over the past few centuries, human fertility fell. Therefore, it is said, statistics proves that "Storks bring babies.") *Post hoc* reasoning can suggest hypotheses to be tested; it cannot prove them. The more complex the world becomes, the oftener *post hoc* reasoning will lead to erroneous conclusions.

The second thing wrong with BDT is that it implies the denial of a fundamental principle of biology—a principle whose truth we have no anxiety about admitting when it is applied outside the human species. The principle is this: Make life easier for a species, and its fertility increases. Why? Because of Natural Selection. Bluntly put, Natural Selection is an investment in success; the postulated response of the BDT amounts to an investment in failure. For the sake of argument we can, at the outset, grant that both prosperity-fertile variants and prosperity-infertile variants exist in the same area. The latter group will head toward the extinction of their kind, since they produce relatively fewer offspring than the variant that responds to better times with greater fertility. (See Chapter 21.) Only God could nullify the competitive exclusion consequence of Natural Selection. (And why, pray tell, would He want to do so?)

Nature is not in the habit of investing in failure.

Detailed studies of regions of Europe show great variability, with both +BDT regions and -BDT regions. So much for *post hoc* statistics. Those who are interested in the role of the media in the mis-education of the public should be disturbed by Michael S. Teitelbaum's condemnation of the BDT theory: "Ironically its explanatory power has come into increasing scientific doubt at the very time that it is achieving its greatest acceptance by nonscientists." That was published in 1975. Now, a generation later, the theory still rules discussions of media-masters as well as the hearts of philanthropists—who continue to dispense monies into counterproductive programs.

During the reign of the Benign Demographic Transition there was much optimism about human populations among economists. It was a happy day of *laissez faire, laissez aller*: "Leave things alone; everything will turn out all right." In 1965 the English economist Barbara Ward said: "I would risk the guess that 20 years from now the lessening of population growth will not be the overriding priority it is rightly felt to be today." During this 20-year period the population of India increased by 47 percent, that of Pakistan and Bangladesh by 102 percent. On the other side of the argument we note that India's *rate* of population increase actually decreased from 2.5 percent per year to 2.3 percent, while the rate in the other two countries decreased from 3.3 percent to 2.7 percent. Good news, certainly; but both welcome and unwelcome reports must be discounted as repeating the fallacy of *post hoc* reasoning. Abandoning the ostentatious Latin phrase for a homely American one, we may say: "The show ain't over 'til the fat lady sings."

Thomas Robert Malthus may have supposed he had said the last word, but before the nineteenth century was out a small army of dissidents had risen to the surface of public discussion. As has been remarked several times, "each year Malthus is buried, only to be resurrected before the year is out." Neither interment nor resur-

rection has given peace to the ghost of Malthus. What's the trouble?

If we are unwilling to permit the re-establishment of disease as a population control device, the social problem then hinges on political questions. We suspect that taboo inhibits the discussion of many issues that, if carried far enough, might lead to acceptable solutions. The fable of "Swift Justice" hints at possibilities; but (like most fables) it does not spell them out. Without profound and courageous investigation and discussion we are brought up short by this dilemma: *If the solution is acceptable, it won't work; if the solution might work, it isn't acceptable.*

This predicament can be illustrated by two alternatives. First, population size could be successfully controlled by a Nazi-like totalitarian government. *Not acceptable.*

Second, persuaded by the BDT (or one of its surrogates), we might dispense money lavishly to the poor (as we have done for a long time, both locally and internationally) in the hope that they would mend their reproductive ways. Since this won't achieve the desired end we must revert to the final judgment of almost all "soft" proposals: *Acceptable, but counter-productive.*

Society is caught on the horns of this dilemma. Hence the taboos—seldom acknowledged as such—that prevent us from even looking in the right direction. Can we escape these taboos at the present moment in time? Perhaps not; but we can at least list some of the factors involved in the problem. (Considering the risk of ostracism, it is quixotic to underestimate the potency of taboo.) Among the factors and proposals that need to be critically examined, the following stand out.

1. *The world is finite.* "World" refers to the portion of the world that is practically available for human sustenance. Accepting this guiding thought is a basic element of "conservative thinking." Since the time of the ancient Greeks, such thinking has characterized the work of the best scientists and scholars. As far as substances are concerned, humanity must make do with the 6,000 billion billion tons of earthly materials. Realistically, the mass of

other planets—and other star-systems—is beyond the possibility of incorporation into terrestrial economics. As for energy, the earth's surface's yearly allotment of solar energy is about 3,000 Q. (Q is an unfamiliar unit of 10 billion billion British Thermal Units.) Of this total, only about one part in 20,000 is captured by land-based photosynthesis, so there is much room for improvement here. (But "much" is *not* a synonym for "infinite.")

For a while we thought that nuclear energy would be an escape from the limitation of solar energy. It is now clear that the energy-costs of exploiting nuclear energy would produce a measure of environmental damage that would be unacceptable. The gain in energy from "the atom" would be less than the loss in energy used to rectify the damage.

2. *There's no such thing as a "free lunch."* An illusion of free lunches—of the absence of meaningful limits—unfortunately surged during the past three centuries because of the increasingly rapid growth of science and technology. But the acceleration must eventually turn negative; perhaps it already has.

3. *In a crowded world, there is no such thing as "free life."* When the carrying capacity of the environment has been reached, each additional life must be paid for by collecting fractions of needful resources from existing passengers on the earth's ecological "lifeboat." (In passing, we note that the introduction of the analogical term "lifeboat" is passionately rejected by those who refuse to think in terms of limits.) At a high population level each life added to the earthly lifeboat slightly lessens the quality of life for those already in it. The sum of many "slight" lessenings can grow to be a ruinously large one. (This point needs to be remembered by anyone engaged in setting immigration limits.)

There is no unique "carrying capacity" to a territory; there are large numbers of possible "carrying capacities," all inversely related to the quality of life opted for. Choice cannot be escaped, though it may be denied or disguised.

4. *Choice can be confined, or even completely prevented, by sacred words.* The operational meaning of "sacred" is quite sim-

ple: "Do not ask; do not investigate." The word "sacred" establishes a secondary taboo, without being candid about its own nature. "Sacred" has many cognates, which the psyche, threatened with thinking about a tabooed subject, uses for defense in depth.

5. *"Sanctity of life" establishes a taboo against the rational discussion of the human costs of human life.* History illustrates this truth. In its original Hebrew, dating from before the 4th century B.C., the Sixth Commandment reads: "Thou shalt not commit murder." Beginning in the 13th century A.D., Christians changed the wording of the Sixth to the following: "Thou shalt not kill." The two versions are separated in origin by at least 1,700 years, and the difference in meaning is enormous. The original "Thou shalt not murder" implies that not every kind of killing is to be regarded as murder. Murder then becomes a matter of definition, *which cries out for discussion*. Should we hold that killing a sperm-cell is murder? What about killing a newly fertilized egg? Killing an inch-long embryo? Killing a newborn babe that was born without a brain? Killing an aged and hopelessly ill man or woman—at the petitioner's own request? Killing an incurably comatose patient who didn't have time to request (or refuse) euthanasia? Killing an enemy of the nation? Killing an apparently incurable criminal, who habitually and randomly threatens the lives of others?

Christians have many different opinions about this hodgepodge of predicaments. Many thoughtful ones admit that there are at least a few forms of killing that are "the lesser of evils": for instance, killing a determined murderer before he can kill an innocent young child. (But note: language naturally distinguishes between "a tiny fetus" and "a young child," for the same reason that we distinguish between an acorn and an oak tree. With a great deal of investment of time, resources and care, a tiny acorn may become a mighty oak tree. But he who smashes a thousand acorns is never charged with "deforesting the environment.") *Potential* is not the same thing as *actual*.

Any exception at all to the dogmatic "Thou shalt not kill" version of the Sixth opens up a rational investigation into the quantities-and-qualities of life that are to be weighed in the balance. Implicitly, "Thou shalt not kill" asserts a taboo on all such discussion. This becomes embarrassingly obvious when, in an open meeting, one reminds Christians of the primeval Hebrew meaning of the Sixth Commandment. In response, a Christian audience is likely to act *as if it had not heard a single word*. . . . A very effective taboo indeed.

Speech is cheap; anyone can say, "Life is without measure." But the resources needed to support life are definitely finite, and can be measured. Paradoxically, those who say "All life is equally and infinitely precious" are in fact working for its early degradation and ultimate extinction.

Consider this question, which a truly liberal Christian should ask: *Does God give a prize for the maximum number of lives?* Adamantly defending the Christian version of the Sixth Commandment results in consequences. Can you accept any of the following? Quantity does not matter? Quality does not matter? Dignity (however defined) does not matter? Capacity of the environment to support life does not matter? Limits do not exist? . . . Fortunately, many of the new translations of the Bible reestablish the original and correct wording of the Sixth. Will public discussions ever catch up with the change?

These are by no means all of the tabooed areas of discussion about population. Cataloguing the rest is "an exercise left to the reader." There is necessarily much inertia in basic political arrangements for getting the daily work of society accomplished. In the slow evolution of these forms it is probably too soon to do anything about most of them.

But it is not too soon to start thinking.