

Letters

Trustees of Civilization

Hardin's suggestion (Editorial, 25 June) deserves comment, if not a counterproposal. Many people, non-American and even some Americans, believe that, if our influence on the world were diminished in accord with the ratio of our population to the total world population, the entire world would substantially benefit. We "fortunate trustees" of a civilization threatened by a "breeding race" would do well to assess critically the precious legacy that we, the chosen ones, are preserving and will bestow on our progeny.

A truly humanistic approach that does not preclude population control certainly does exclude the notion that civilization and human dignity reside exclusively or even predominantly within the boundaries of any nation-state. The African, Chinese, Indian, or Pakistani scientist may believe that, except for a high breeding rate, his own civilization is uniquely suited for perpetuation in the aeons to come. Some day, some way, all scientists, whether of the atom, of population, or of human behavior, will somehow integrate a less provincial weltanschauung into their often pragmatic and operational proposals for social advancement.

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I am shocked and puzzled by Hardin's editorial: shocked because "...rights based on territory must be defended..." justifies militarism and ultimately the use of thermonuclear weapons; puzzled because I know of no nation that is engaged in a breeding race.

Although this policy, as advocated by Parson Weems, has been urged by leaders in the recent past (Mussolini, Hitler), certainly the consensus strongly condemns the conception and rearing of children for cannon fodder. India and China, the nations with the largest populations, have indicated their desire to stabilize their populations. America has always been a mi-

nority, so why should this be so worrisome, since it would appear that maintaining a relatively sparse population in the United States is one of Hardin's objectives?

... Overpopulation is a serious and timely problem, but it is one that can only be solved by knowledge and the persuasion such knowledge can effect. National survival seems a less than worthy objective. It is the survival of the living world—man, wolves, whales, sparrows, minnows, insects, mosses, trees, and grass—that concerns me.

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In reading Hardin's editorial, with its echoes of "manifest destiny," I am reminded of Mahatma Gandhi, who, when asked his opinion of Western civilization, smiled and said, "I think it would be a very good idea."

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Hardin's editorial raises some pertinent ethical problems which have long been recognized.

John D. Black, former professor of agricultural economics at Harvard and member of the Food and Agriculture Organization, wrote in a book entitled *Future Food and Agriculture Policy* that "Another point of view [is that] of the pure unthinking sentimentalist who says that relieving hunger and disease is always good and that it is the moral obligation of other nations to do this. . . . The answer is that when whole populations are concerned, prolonging a few lives this year is of no avail if this causes more misery and suffering in the years following. Those who speak in this way are charged with being hard-boiled and nonhumanitarian, but they are the true humanitarians" (1).

A similar point of view was expressed by Gerald Winfield, a medical missionary, who wrote, "It is obvious that the first objective of the medical program must not be the simple natural one of saving lives. Instead it must be the development of means whereby the Chinese people will reduce their birth

rate as rapidly as modern science can reduce the death rate. . . . The future welfare of the Chinese people is more dependent on the prevention of births than on the prevention of deaths" (2).

The British Political and Economic Planning Commission, in their book *World Population and Resources*, concluded that "The injection of outside help for development can, in the absence of any control over the birth rate, so accelerate population growth that it more than cancels out the contribution of large and expensive development towards raising the standard of living" (3).

Even more emphatic was an editorial in *BioScience* by David Prescott. He concluded that "Because it creates a vicious cycle that compounds human suffering at a high rate, the provision of food to the malnourished nations of the world who cannot, or will not, take very substantial measures to control their own reproductive rate is inhuman, immoral and irresponsible" (4).

In the National Academy of Sciences study *Resources and Man*, the committee recommended "that efforts to limit population increase in the nation and the world be intensified by whatever means are practicable, working toward a goal of zero rate of growth by the end of the century." They concluded that "To delay progress toward full self-regulation of population size is to play 'Russian Roulette' with the future of Man" (5).

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1. J. D. Black and M. E. Kiefer, *Future Food and Agriculture Policy* (McGraw-Hill, New York, 1948).
2. G. Winfield, *China: The Land and the People* (Sloane, New York, 1948).
3. Political and Economic Planning Commission, *World Population and Resources* (Essential Books, Fair Lawn, N.J., 1955).
4. D. Prescott, *BioScience* 19, 111 (1969).
5. *Resources and Man* (Study and Recommendations by the Committee on Resources and Man, Division of Earth Sciences, National Academy of Sciences-National Research Council, with the cooperation of the Division of Biology and Agriculture) (Freeman, San Francisco, 1969).

Rees's editorial (30 July, p. 381) misses the point of Hardin's editorial and reads thoughts into his mind that I feel sure are not there. I doubt that Hardin would deny, nor do I, that "one mouth, one meal" is a valid goal—provided that there are few enough mouths so that all can obtain a full meal, and not all starve together. We must indeed work to promote the human dignity of

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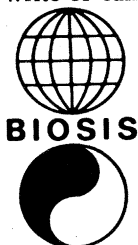
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all mankind, but not if in so doing we eliminate dignity entirely. We must work to raise the standard of living of the underdeveloped countries of the world, but not reduce all the people of the earth to poverty in the process. Hardin's editorial tries to express the fact that, today, "one world" would be a total, miserable mess in which civilization itself would be hard pressed to survive. Man is not served by the creation of equality at the expense of dignity.

Perhaps the position of America as a wealthy society is fortuitous and undeserved; but can the poor of the world, and future humanity as well, be helped by universal poverty? If the resources of the earth can support the present large and ever increasing human population; if the planet will not be rendered lifeless in the attempt; if other forms of life will not have to be eliminated entirely to accommodate our overabundance—then demonstrate that this is so, and refute the arguments of those who say that it is impossible. But do not criticize those who oppose "one mouth, one meal" without giving a method by which this may be attained.

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The replies to my editorial are precious source material for anyone interested in human reactions to the violation of a taboo. The point I made was well made by Malthus (1) in 1803, by W. F. Lloyd (2) in 1832, and very well indeed by John Stuart Mill (3) in 1848 in his *Principles of Political Economy*—"Society can feed the necessitous, if it takes their multiplication under control; or (if destitute of all moral feeling for the wretched offspring) it can leave the last to their own discretion, abandoning the first to their own care. But it cannot with impunity take the feeding upon itself, and leave the multiplying free."

The logical point has never been refuted, but the knowledge is repressed again and again. How can one shatter a taboo that impedes rational adjustment to the realities of the world? I don't know. My essay, "The tragedy of the commons" (4), was one attempt; elucidation of its international implications was the purpose of my editorial.

"Nature" acts as if she understands the principle. This was the thrust of Eliot Howard's *Territory in Bird Life* (5); in recent years V. C. Wynne-

Edwards (6) has also elaborated the point. So long as population growth is uncontrolled, the defense of territory is necessary for the survival of human dignity *somewhere*. We can call such a statement "selfish" if we wish—but what do we gain from the pejorative?

There is, of course, the vexing issue of ethnocentrism; if not all groups can be saved, who shall be favored? Only the mythical Man from Mars could give an objective answer to that question. In his absence, each of us must give his own reply. I have no objection if others, made of nobler stuff, wish to give their wealth to Africans, Indians, Pakistani, or what have you. In truth, I confess I cannot bring myself to do so. If the poor of the world will not, or cannot, "take their multiplication under control," I shall try to protect my access to the goods of the world, undeserving though I may be, and seek to save some of the earth's resources for my grandchildren and theirs.

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2. W. F. Lloyd, *Two Lectures on the Checks to Population* (Collingwood, Oxford, 1832).
3. J. S. Mill, *Principles of Political Economy* (Murray, London, 1848).
4. G. Hardin, *Science* **162**, 1243 (1968).
5. E. Howard, *Territory in Bird Life* (Murray, London, 1920).
6. See V. C. Wynne-Edwards, *Animal Dispersion in Relation to Social Behavior* (Oliver and Boyd, Edinburgh and London, 1962).

fd Virus Photo

Bryce Nelson's report (News and Comment, 27 Aug., p. 800) about the erroneous description of a photo in the 12 August issue of the *New York Times* as that of a "DNA molecule," rather than an "fd virus," further confuses, rather than clarifies, a very simple story. The story is that there is in fact no "story," except that the *New York Times* made an error.

In the 2 July issue of *Science*, Gabor, Kock, and Stroke (p. 11) described the holographic sharpening of an electron micrograph of the fd virus. The electron micrograph had originally been recorded by Crewe as a part of a collaborative effort by Crewe and Stroke. Subsequently the *New York Times* requested a photograph of the sharpened image of the virus that revealed a double helical stranding. The photograph