

REVIEWS

Multiply and Replenish: Alternative Perspectives on Population

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Population Resources and the Future of Non-Malthusian Perspectives. Howard M. Bahr, Bruce A. Chadwick, and Darwin L. Thomas, eds. Provo, Utah: Brigham Young University Press, 1972. 352 pp. \$3.95.

This collection of essays is frankly polemical, asking indeed for "equal time" in the great debate which is now going on concerning the limits of growth, both in the human population and in its artifacts. It is no accident that this volume comes out of Brigham Young University, though it is in no sense an official statement, or even an unofficial statement, of the Mormon Church. Nevertheless, one suspects that it has been inspired in part at least by a reaction to strong implied criticism of Mormon ethics and, in some aspects, of the wider Judao-Christian ethic, as implied, for instance, in the famous biblical verse about being fruitful and multiplying. The essays are all the more effective, however, because their tone is moderate and they are concerned more with the correction of extreme positions on the other side rather than with the taking of extreme positions on the pro-natalist side.

Perhaps the key to the discussion is in the title of the first essay, which is unsigned, but which is presumably by the editors—"Are Proposals for Population Control Premature?" In this whole dispute what cannot be denied are the identities, which I am quite prepared to call the "Malthusian identities," because at bottom it was Malthus who recognized them. The first of these is that the earth is ultimately limited and finite. The corollary to this is that the human population cannot grow indefinitely. If indeed it grows at any finite rate whatever greater than zero, it will reach the ultimate limit at some point. This means that ultimately the population must have a zero trend, though this does not preclude fluctuations about this zero trend. Finally, if any population is to have a zero trend, there must be some regulatory processes to ensure that over a reasonable period the number of births and the number of deaths must be equal. This proposition derives from the great identity, which I have elsewhere somewhat frivolously called the "bath-tub theorem," that for any population, or any set whatever, the number of additions minus the number of subtractions is equal to the increase in the total stock, and that therefore if this increase is to be zero, additions must equal subtractions, that is, over a sufficient period births must equal deaths.

There is no attempt to deny these fundamental Malthusian identities in this volume; indeed it would be foolish to try to do so, for while empirical propositions can be reasonably denied, identities cannot. The crux of the argument is in the word "premature." Granted that, at some time in the future, births must equal deaths, the question is: How far off is this day of reckoning? According to Pro-

fessor Forrester and the Club of Rome, it is getting close as historical time goes, that is, within the next hundred years. There is no essay in this volume which directly attempts to refute the projections of Professors Forrester and Meadows, which is a pity, as these projections are open to considerable criticism on the grounds, for instance, that they make no real allowance for the increase in human knowledge. The arguments of this volume are of a qualitative rather than quantitative nature, and while many of them are worth serious consideration, the real issues of the debate are quantitative. "How much" and "how long" cannot really be answered by qualitative arguments.

Section II (Section I is the Introduction) consists of two essays on "'Overpopulation,' the Wrong Problem," by Ben Wattenberg and Harold J. Barnett. These are valuable in attacking the view that *all* we have to worry about is population, which one must confess some of the more extreme anti-natalists almost seem to apply. It is certainly necessary to remind ourselves that many of the most severe and immediate problems of the world, such as war, pollution, poverty, maldistribution, poor provision of public goods, external diseconomies, crime, mental disease, and just plain underachievement of human potential—which is perhaps the worst of them all—will still be with us, even if we only had half the present world population, or a quarter of it, provided that other conditions remain the same. Evil is a hydra-headed monster, and cutting off any one of its heads will not kill it. Furthermore, there is a real question of priorities of present effort, the answer to which depends a good deal on our feeling about the marginal productivity of effort. What the authors of these essays seem to be saying is that neither pro- nor anti-natalist policies and efforts have actually been very successful, so why not concentrate on the other things?

I must confess, I am by no means convinced by these arguments, in the sense that while reduction of population growth is not a panacea to all human ills, the anti-natalists seem to me to be right in supposing first of all that the sharp reduction in mortality which has taken place in the last seventy-five years, especially in the tropics, has created a desperate need for anti-natalist policies, at least in these areas. Otherwise, very major disasters may ensue which the Temperate Zone countries, at a later state of development of population process, will be both unable and perhaps unwilling to cope with. Thus, while it is entirely legitimate to point out the need for thinking about priorities and for not putting all our eggs into the basket labeled population control, thinking about them will still lead us to the conclusion that a long-range effort towards population control should begin now. The very ineffectiveness of natalist policies of any kind should spur us to seek both for more effective and more humane solutions to the problem, rather than the ultimate solution of rising misery and mortality.

There is indeed an important demographic identity with which it seems to me the authors of this volume have not come to grips. It is that in an equilibrium population the average length of life of the individual in the population is the reciprocal of the birth (or death) rate. If the average age at death is to be 70, the birth rate in an equilibrium, stationary population must be about 14 per 1,000. If the birth rate is 40 per 1,000, which is all too common, then in equilibrium the average length of life will only be 25. A further proposition, which is not quite an identity, but which I think will command almost one hundred percent agreement, is that a society in which the expectation of life is well below the normal biological

span is clearly undesirable. Societies of a traditional type, which birth and death rates at 40 per 1,000 and an expectation of life of 25, are miserable and there is little case for them. If the birth rate is to be 14 per 1,000, however, this means that fertility must be far below the physiological maximum. This means there must be social controls of some kind which ensure that this fertility should not rise above the level which can be sustained at high levels of health and longevity. To my mind there is no way out of this proposition, and any attempt to deny it can only lead into a morass of immoral moralizing.

The third section consists of three essays by Philip F. Low, B. Delworth Gardner, and R. W. Behan, and is headed "How Full is the Earth?" These essays point out, with some justification, that it may be emptier than a lot of people think, in the sense that its carrying capacity may continue to be expanded by human knowledge. The limits of the earth are still unknown, both in regard to food, minerals and other natural resources, and potential cultural change. Qualitatively, I agree with these authors, and I think it is highly probable that the process of expansion of human knowledge will go on for quite a while. The thing which falsified Malthus' own prophecies, in so far as he made them, was not the identities, but the empirical phenomenon of the rise of human knowledge, with the concomitant rise in the resource base and carrying capacity. It is the fact that man has been ecologically cooperative with his own artifacts for many thousands of years, which has led to this enormous expansion of the human race and has apparently given the lie to Malthusian gloom. Nevertheless, the identities do catch up with us. Ultimately, we must face finitude, and while it is generally desirable that this day of reckoning be postponed, one has the uneasy feeling that too much postponement will run us into the danger that when it does arrive it will be totally disastrous, and that man may face an exhausted planet to which he cannot adapt. While I am prepared to give two cheers therefore for the moderate cheerfulness of these two chapters, again ecological eschatology creeps in as a skeleton at the feast.

The fourth section, "What Everyone Knows: The 'Disadvantages' of Large Families and High Density," consists of three papers by Darwin L. Thomas, Philip R. Kunz and Evan T. Peterson, and Bruce A. Chadwick, attacking the theses that high population density necessarily leads to social disorganization, that large families are bad for the children, and that a reduction in the size of the family would have necessarily desirable social spinoffs. The case here I think is quite well made, up to, shall we say, families of five children; beyond that the evidence I think is clear for deterioration. And, of course, five is too many for population stability. The conclusion which I would draw from this is that perhaps there should be more specialization in child rearing; perhaps half the population should average families of four and the other half of the population should not have children at all. The real trouble with these essays is that they really do not confront the ultimate moral and political issue, which is that even if families of four or five are more intrinsically desirable than families of two, we may have to sacrifice this in the interest of population stability. And it is absurd to suppose that the slight advantages, as they may well exist, of moderately large families can compensate for the ultimate disaster which these will impose on the human race. Still, good positions should not be supported by bad arguments, and there is little doubt, I think, that the anti-natalists are using wrong arguments when they argue that small families are intrinsically desirable in themselves.

The fifth section, headed "Man the Destroyer? Not Necessarily," two essays by B. Belworth Gardner and Elvis J. Holt, deal with the problem of the relations of population pressure and environmental damage, and point out these are only loosely related and that the central problem of pollution and environmental damage is how to develop processes of production which ultimately produce more goods per "bad." Pollution and environmental deterioration result mainly from the fact that goods and bads are produced jointly and we want the goods and so are prepared to put up with the bads. Still, I think the authors do not recognize adequately that the disposal of bads depends on there being an "away" in which to throw them, even though in the long run, as Garrett Hardin has pointed out so eloquently, there is really no "away" at all, except perhaps outerspace, so that even in the present historical period the increase in human population diminishes the possibility of finding an "away" in which to throw things. Here again, there is a real problem of priorities and I think a strong case can be made at the moment that more progress can be made with environmental problems by working on the production functions themselves than on the absolute rise of the population. But, here again, this may be a difference between short-run and long-run priorities.

The sixth section on "The 'Crisis' in Future Perspective" consists of essays by R. Buckminster Fuller and W. Farrell Edwards. Fuller, of course, is a great technological optimist. Edwards points out quite rightly that ecological strain in the future may result more from increasing per capita energy requirements and materials throughout than it does from increase in the numbers of the population. Still, one would have thought the conclusion of this is that we should put far *more* effort into reducing population in order to permit increased per capita energy consumption, so that this is an argument that can very easily backfire. One would like to have seen an essay which would criticize the methods of future projections, which are really very dubious, and a little study of the reasons why crystal balls in the past have been so remarkably clouded would not have come amiss.

The final section is on "Population Policies: Implicit Values and Ethical Problems," with essays by Howard M. Bahr, one of the editors, and Arthur J. Dyck. These do raise some interesting issues in regard to the conflict of values, but neither of them to my mind comes to grips with the more difficult of the ethical issues involved. One issue is the almost inevitable and agonizing conflict between individual liberty, individual expression, and the realization of individual potential, and the necessity for overall social controls at what might be called a "macro" level. This is indeed the major problem of what might be called "political ethics," how to reconcile order with freedom, the development of the individual with the survival of the total society or even the total evolutionary experiment. The principle that individual liberty should be diminished as little as possible is a sound one. On the other hand, the principle also that individual liberty may have to be circumscribed in the interests of general survival has always been accepted. My own somewhat half-hearted suggestion of equally distributed marketable licenses for having children, what I sometimes call my "green stamp plan" is mentioned by Dyck, but he does not seem to me to appreciate the problem of how to have social control with a minimum intervention in individual liberty.

The other ethical and political issue which I think is not mentioned at all in this volume, and which is perhaps so painful and dangerous that nobody dare mention it, is the problem of competitive population expansion on the part of differ-

ent groups in a society. Those groups in society that have a high rate of growth will grow proportionately relative to those who have lower rate of growth. Growth of groups may come either from surplus of births over deaths, or from immigration and conversion. The latter is usually an unimportant source of growth. Emphasis on high birth rates is seen as a recipe for eventual political dominance. One sees this problem in such places as far apart as Guyana, Trinidad, Quebec, The Netherlands, South Africa, Fiji, and Ceylon, where in racially or culturally heterogeneous societies the fear of many groups of being "outbred" may condemn the whole society to competitive population expansion, with mutually disastrous results. Anti-natalist policies, especially for other people, must also come under moral scrutiny and Mr. Behan points out, "The way to keep barbarians away from the gates apparently is to slip them the 'pill,'" (p. 114). Still, in view of the fact that on any considerations the optimum birth rate must be below, and indeed far below the physiological limit, the burden of moral truth lies always on the pro-natalists.

These essays deserve to be widely read, especially among the anti-natalists, because they do bring out some points which need to be kept in mind in this whole argument. It is a pity indeed that they are described as "non-Malthusian" because I am sure Malthus would have enjoyed them and would have approved of a lot of it. He was, after all, a Christian minister and no inconsiderable moral theologian, and it is a little unfair to saddle him with the excesses of some of his followers. However, I am afraid, also, if these are read by the pro-natalists, it will reinforce them in many of their errors. It is almost impossible to avoid doing good to our enemies and harm to our friends. One hopes in this case the good will outweigh the harm.

Issues in Science and Religion

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Issues In Science and Religion, by Ian G. Barbour. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1966. 470pp. Also a Harper Torchbook.

Being expert neither in the field of science nor of religion, we are relieved of the responsibility of discussing a theme [science and religion] whose treatment has suffered from everything but neglect. —HUGH NIBLEY

Ian G. Barbour's book is a rarity in the area of science and religion, for the theme does not suffer at all, but benefits greatly from Barbour's organization and presentation of problems. Barbour teaches modern physics, appears to be well-versed in modern theology, and has a broad knowledge of history and philosophy. In addition, he is well-acquainted with the development of science and with the history of religion. Mercifully, his book spares us the long and tangled history of their interaction, a welcome change from books of this sort. Instead, Dr. Barbour assembles what amounts to a history of philosophy or an intellectual history of