

## HUMAN FERTILITY AND POPULATION PROBLEMS

ROY O. GREEP, EDITOR

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Demographers and sociologists interested in fertility control will find this book disappointing. For those with biomedical interests it should have greater utility. The volume does not adequately summarize nor extend sociological knowledge in this field; it more effectively summarizes biomedical knowledge. I shall return to this point after surveying the individual articles.

The book consists of eleven papers and eight discussions organized into six sections. It is the proceedings of a seminar sponsored by The American Academy of Arts and Sciences in Brookline, Massachusetts, May 3-5, 1963. Contributors are three M.D.'s, one Sc.D., one M.P.H., and six Ph.D.'s; three of the latter are social scientists, three are biomedical researchers.

In an introductory paper Hudson Hoagland discusses population control among animals. Contrary to the classical belief in the importance of food supply and predators as population control mechanisms, animal populations decline in response to stress. Stress is a function of population density, not of food supply. An interesting experiment with rats indicates that high density severely disrupts normal social behavior. Overcrowding in bird populations frequently leads to emigration.<sup>1</sup> Many mammals and birds practice infanticide under conditions of social stress. Such behavior ceases below certain critical densities. Hoagland's attempts to provide analogies of these findings to human populations are unsystematic and inadequate.

Section II contains biological and clinical papers by A. S. Parkes and C. R. García. Parkes outlines the actions of various mammalian

reproductive hormones and indicates several areas for further biomedical research. The paper is marred by brief exhibitions of sociological naïveté. García discusses research on physiological means of fertility control, concentrating on the actions of various chemical compounds. Most social scientists will not have the background to follow either paper in detail.

In Section III John Wyon makes a case for field studies of fertility as indispensable supplements to clinical and laboratory studies. Some data are meaningful only in the field context. He discusses the problem of obtaining correct dates of marriages, births, etc., in a village where illiteracy is prevalent and many people do not know their age; this problem can be solved by constructing a reference calendar of major historical events in the village.

Ronald Freedman's paper will interest those not already familiar with the Taiwan study.<sup>2</sup> High fertility countries are generally characterized by high mortality, economic underdevelopment, a prominent role for the family in social and economic relationships, and a young age distribution. A decline in mortality is probably a prerequisite for a fall in fertility. Mortality has declined in Taiwan and much modernization has occurred so that conditions are favorable for a decline in fertility, which has, in fact, already begun. Survey results indicate that people in Taichung overwhelmingly approve of birth control and desire moderate-sized families of three or four children, with two sons. Freedman presents the ingenious experimental design of a project undertaken to accelerate the decline of fertility in this favorable sociocultural context.<sup>3</sup>

Ansley Coale discusses the economic effects of fertility control in underdeveloped countries in Section IV.<sup>4</sup> He demonstrates that fertility reduction will benefit an underdeveloped country in the short run by producing a more favorable age distribution with a lower dependency burden; fewer young people to support means that more resources can be allocated to capital investment rather than consumption. In the intermediate future (30 to 60 years) the economy will benefit from lower fertility by a lower rate of labor force growth and thus a greater ability to provide jobs, reduce under-

employment, and increase the amount of productive equipment per worker. In the long run population size and density become crucial factors and, given present rates of population growth in underdeveloped countries, reach unthinkable levels unless fertility is reduced. Illustrative calculations indicate that substantial benefits in terms of income per consumer follow fertility reduction within 20 years and increase progressively thereafter. Coale's excellent analysis could be enhanced by the inclusion of several tables.

The fifth section consists of four papers. Gregory Pincus and Warren Nelson discuss biomedical research frontiers in female and male contraception, respectively. A once-a-month pill for men appears possible, but side-effects still require control. John Rock has a paper on future easy methods. If any peculiarly preovulatory odors (such as those in other mammals) could be identified and a simple test evolved for their detection, it might be possible to determine the time of ovulation and thus improve the efficiency of the rhythm method. Rock also suggests interference with sperm production by slightly raising the scrotal temperature. He indicates that the development of insulated underwear which would halt sperm production is not science fiction.

Christopher Tietze reviews the legal standing and incidence of abortion in the United States, Europe, and Japan.<sup>5</sup> Abortion is generally legal in Japan and Eastern Europe where it is common; mortality is extremely low. In 1961 legal abortions in Hungary exceeded live births by more than one-fifth.

The concluding paper is Cora DuBois's "Sociocultural Aspects of Population Control." Despite the facts that population growth is most rapid among the peasantry, that the needs, in one sense, of this group are the greatest, and that the group constitutes the great bulk of the population, birth control campaigns should be initiated in the urban white collar classes most caught up in the "revolution of rising expectations," the most modernized and "easiest" segments of the population. Research on communication channels would precede the extension of family planning to the urban proletariat and the village peasantry. Such a program would be in accord with "na-

tural" diffusion and adoption of innovations in communications, and would attempt to capitalize on informal interpersonal communication, as Freedman has done in Taiwan.<sup>6</sup> The legitimizing and reinforcing roles of the mass media are also considered in the discussion following the paper.

The edited discussions are lively and useful in pinpointing issues and next steps in research. However, some questions in the discussions are left unanswered; one expects this in an interpersonal discussion but not in an edited volume. Better editing could also have remedied the important but dangling and out-of-context paragraph in Freedman's comment on page 138; it appears that some of his remarks were omitted. The informal introductions of speakers and the speakers' informal opening remarks should have been deleted; these are appropriate in an oral but not in the written context.

Some of the papers are available in similar form elsewhere, as indicated in References 1, 2, and 4. Of course, a centralization of scattered writings does have its uses. But, unfortunately, the value of the work as a reference book is diminished by the absence of summaries and a bibliography, although several papers have references. There is no index.

The volume attempts "to focus attention on what can be done about the population and how."<sup>7</sup> It is the reviewer's impression that our social and cultural ignorance is more profound than our biomedical ignorance. This is not to deny that the development of improved contraceptive methods is of critical importance. However, the guidelines for further research appear clearer and the disarray of what is known seems less in biomedical than in social science fields. However, if biomedical personnel are becoming increasingly interested in whatever counsel social scientists can give concerning the conduct of birth control campaigns, as seems to be the case, it is particularly regrettable that several substantial contributions sociologists have made in recent years are not represented in this book. Even if the reviewer's suppositions are incorrect, a better balance could have been achieved.

One book cannot cover everything, of course, and the editor points

out that "Political, religious and humanistic aspects were not dealt with. Primary consideration was given . . . the bio-medical, socio-economic and cultural fronts."<sup>8</sup> From this point of view, the book is a success on "the biomedical front." The papers and discussion should stimulate research. Biomedical researchers will learn little of what is known on the "socio-economic and cultural fronts," however. Social scientists will find that from their perspective the book does not compare favorably with the recent collection by Kiser.<sup>9</sup>

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#### REFERENCES

<sup>1</sup> Similar conclusions are drawn by Wynne-Edwards, V. C., Population Control in Animals, *Scientific American*, 211, 68-74, August, 1964.

<sup>2</sup> For similar accounts, see Berelson, Bernard, and Freedman, Ronald, A Study in Fertility Control, *Scientific American*, 210, 29-37, May, 1964; Freedman, Ronald, et al., Fertility Trends in Taiwan: Tradition and Change, *Population Studies*, 16, 219-236, March, 1963; Freedman, Ronald, Taiwan: The Taichung Program of Pre-pregnancy Health, *Studies in Family Planning*, No. 1, 10-12, July, 1963.

<sup>3</sup> A subsequent paper by Berelson suggests that the program is successful and that word-of-mouth legitimation and diffusion of family-planning knowledge play critical roles in the process of fertility reduction.

<sup>4</sup> For a similar but more elaborate presentation, see Coale, Ansley J., Population and Economic Development, in Hauser, Philip M. (editor), *THE POPULATION DILEMMA*, Englewood Cliffs, N.J., Prentice-Hall, Inc., 1963, pp. 46-69.

<sup>5</sup> Tietze draws heavily on his earlier publications as he notes on p. 222.

<sup>6</sup> This strategy is also consistent with recent suggestions by such sociologists as Bernard Berelson, Donald Bogue, Kingsley Davis, and J. Mayone Stycos.

<sup>7</sup> From the editor's Foreword.

<sup>8</sup> *Ibid.*

<sup>9</sup> Kiser, Clyde V. (editor), *RESEARCH IN FAMILY PLANNING*, Princeton, N. J., Princeton University Press, 1962.

Population - Population - Biological factors affecting human fertility: Reproduction is a quintessentially biological process, and hence all fertility analyses must consider the effects of biology. Such factors, in rough chronological order, include: the age of onset of potential fertility (or fecundability in demographic terminology); the degree of fecundability—i.e., the monthly probability of conceiving in the absence of contraception; the incidence of spontaneous abortion and stillbirth; the duration of temporary infecundability following the birth of a child; and the age of onset of perma