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REVIEWS

Population and Biology: A Bridge Between Disciplines. EDITED BY NATHAN KEYFITZ. (International Union for the Scientific Study of Population, Liège, 1984.)

Sixteen papers presented at a Conference of the Union in 1981 are printed in this volume, with the usual accompaniments of Introductions and Indexes. The object of the Conference was, to quote the Editor, "to extend demography by exposing us to a wider range of questions and issues than are our ordinary fare. Its purpose was not to introduce demography to biologists but to sensitize demographers to biological issues impinging on their discipline."

The last two or three decades have seen a considerable growth in Britain and the English-speaking world generally of what are usually termed 'bio-social' studies. The Organizing Committee of the Conference showed no awareness of this development, perhaps because it contained no Briton. The Committee elected for a strongly biological approach to this inter-disciplinary field, whereas a good deal of the work done in the United Kingdom and Commonwealth could be described as primarily sociological, or at least incorporating social factors as an important element in the analysis. It is not easy to avoid a bias in one or other of these directions, as there are fundamental differences of method and material between biologists and demographers which are difficult to reconcile. To quote the first paragraph of the Foreword, 'In principle, nobody will deny that there are a number of common problems and issues. . . . In practice, things are not as easy as they look . . . the dialogue between social science and biology is not always possible or fruitful.' This rather unhopeful beginning is echoed in many of the papers, which tend to finish by emphasizing the very limited nature or use of the analyses attempted; and this is true even though 'population' is thought of in the context of living beings generally, including insects, animals and primitive man, as often as in relation to the normal stuff of demography.

Among the more definite findings disclosed are that:

(1) selectivity in the choice of marriage partners could have some influence on the genetic constitution of populations but the effects are either small or unclear; little more definite emerges from a study of the selective action of other demographic factors such as migration and changes in fertility;
(2) homeostasis in primitive human populations is achieved by a complex of elements, in which infanticide may play only a small part; and
(3) epidemics in such primitive peoples resulting from associations with modern cultures eliminate significant fractions of their numbers and lead to the breakdown of traditional organization and a radical transformation of native social life.

The flavour of the book can be further savoured from the following extracts from the titles of a sample of the papers:

Morbidity and Resistance to Disease
Vertebrate Populations, Pathogens and the Immune System
On the Possibility of Applying Biological Laws to Social Phenomena.

The contribution of perhaps the most interest to actuaries is called 'Natural Selection for Mortality Patterns. General Ideas and Some Reference to Man', by Carlo Matessi of the Laboratory of Biochemical and Evolutionary Genetics in Pavia. The author asks why, in mammals and some other organizations, mortality is high in infancy, at a minimum just before reproductive age is reached and increasing steadily thereafter. He reckons that these phenomena 'can be predicted as resulting from natural selection of genes which modify mortality in an age-specific way . . . shifting the age of onset of specific causes of mortality. . . . A sustained late reproductive and post-reproductive survival such as observed in man . . . is quite likely due to the . . . long-lasting need for parental care. Mathematical models should be developed for this important case.'

PETER R. COX

Methodologies for the Collection and Analysis of Mortality Data. (Proceedings of a Seminar at Dakar in July 1981, EDITED BY JACQUES VALLIN, JOHN H. POLLARD AND LARRY HELIGMAN.) IUSSP, LIÈGE, 1984.

Much of this volume will only be of interest to those actuaries who are also demographers. The first part is concerned with different methods of data collection employed in various countries, contrasting the single-round 'retrospective' inquiry with multi-round 'prospective' surveys involving interviewing the same sample population on several occasions; to the reviewer's mind all collection of data is retrospective and all attempts at extrapolation prospective, but this is merely a semantic quibble. The advantages and disadvantages of the alternative methods, and possible errors, are discussed, as well as difficulties encountered. Some of the papers are also concerned with morbidity studies related to certain diseases, and with occupational mortality. It is interesting that in some countries it is possible to study mortality through data subdivided by colour or race, a process which can probably not be undertaken in the United Kingdom without infringing the race relations legislation until this legislation is amended.

The second part of the volume moves on to the measurement of mortality from the collected data, and includes the construction of the United Nations Model Life Tables. Although actuaries will find little that is new in this part, one very useful paper gives a concise summary of what the author considers to be the five purposes of graduation, followed by a description of certain of the available methods. Another interesting paper analyses the difficulties encountered in cohort analysis.

The final part examines the analysis of mortality determinants. The papers most interesting to actuaries are probably those dealing with the effects of morbidity changes on mortality, and with cause of death studies.

In general, this is a publication for the specialist but, for the greater part, not for the student.

My brother, K. M. A. Barnett, O.B.E., author of 'Hong Kong Life Tables' and former colonial service administrator and advisor to the United Nations, made the following comments from the demographic viewpoint:

For the Bangladesh 1981 census we could not make much use of the Matlab material (Chapter 4). To understand why, suppose that in the U.K. the Beveridge plan had been implemented only in the former county of Rutland. Among other consequences, those who were able would have found ways of moving into Rutland from adjoining countries, or even from further afield. That such a movement happened in Matlab thana (thana = police district) is evidenced by the much higher literacy rates, especially for females. Over Bangladesh as a whole, less than 5% of women can read and write. Even in Dhaka, the capital city, female literacy is below that of Matlab, except in the so-called Cantonment Area. So Matlab exhibits a kind of Heisenberg effect.

Chapter 6 would have been more useful if the author had considered also the problems of those developing countries which do not have compulsory registration of vital events. In Malawi, for example, deaths of, and births of children to, Europeans and Indians living in Blantyre or Lilongwe are mostly registered; in Zomba they are registered if the widow(er), parent or close friend takes the trouble to drive 42 miles to Blantyre; African births and deaths are very seldom registered, unless they occur in one of the larger hospitals. So any analysis of mortality by cause requires either an ad-hoc survey or special questions added to the census. Neither gives flow data; and as the large hospitals I mentioned do not have a defined catchment area it takes real ingenuity (and much guesswork) to learn anything from the results.

Looking at the papers as a whole, I think the distinguished authors erred on the side of optimism. Perhaps whistling in the dark, as the run-down of U.N. and other agencies working in developing countries means that the decade studied may well represent a high point in the efficacy of this kind of study.

H. A. R. BARNETT