

HUMAN SURVIVORSHIP

MODERN developments in vital statistics, which have replaced static descriptions of births and deaths by an analysis of the dynamics of population change, have for a number of years received great impetus from the work of Dr. Dublin and Dr. Lotka of the Metropolitan Life Insurance Company. Their new book *LENGTH OF LIFE*¹ assembles the results of a number of their studies in this field, together with some of the pertinent results of other workers, coordinating the description of the risk of death with some of its implications for the population and its future. Curiosity about the chance of dying is almost universal, but it is an unusual book which presents a large body of evidence on the subject in such an interesting way that it catches the imagination and stimulates further speculation. Although written primarily for the person actively interested in some phase of medical or public health problems, the discussion is for the most part presented in nontechnical language, and the book will appeal to the general reader as well as to the specialist.

Throughout the book, the life table is used to describe the length of life and at the outset the life table functions are defined and explained with great clarity. The detailed procedure of computing a life table is left to the final chapter, where the methods of King for an abridged or complete life table, and of Jenkins for a complete life table are fully presented with arithmetic examples to illustrate the application of the formulas. The preliminary description of the life table is, however, entirely adequate to permit a person quite unfamiliar with the procedure of its construction to follow the book with complete understanding.

The history of human beings with regard to length of life is traced over a period of 2,000 years, during which a continual improvement in length of survivorship has been achieved. The evidence on the subject is necessarily decidedly sketchy over a large part of this period, but the increase in the average duration of life is impressive even during the recent period for which reliable records are available. Life tables for white males and for white females in the United States, 1929 to 1931, are used as a base line of comparison and the change in the mortality within the present century is analyzed to show the contrasting behavior of the population of different age groups and for different causes of death, with regard to time trends in mortality rates.

¹ Dublin, Louis I. and Lotka, Alfred J.: *LENGTH OF LIFE*. New York, The Ronald Press, 1936. 400 pp. \$5.00.

The force of mortality from the principal causes is further studied by breaking up the life table into the leading cause groups, thus forming sublife tables showing the ages to which persons destined to die of a particular cause may be expected to survive. This analysis would be of great importance to the individual and his insurance company if it could be foretold what cause of death would be written on his certificate, but it is of considerable general interest in presenting in very picturesque form the relationship between age of death and certain cause groups. It is stated (page 121) that the nine principal causes thus described, although a mere handful out of the 200 main causes of death in the official list, are responsible for about seven-tenths of all the deaths in the population. This statement is somewhat misleading for the nine "causes" are actually groups including in all about fifty of the 200 official main causes.

The risk of dying at various ages is further related to such factors as geographical location, inheritance of longevity, physical impairments, occupation, and advances in medical science. A chapter is devoted to each of these topics and a number of tables are presented containing valuable evidence on them, such as, to cite only two, the death rates of policy-holders according to the longevity of their parents, and the expectation of life of persons in various occupational classes. In a book dealing with so many phases of mortality studies, the space devoted to each of these broad fields obviously does not permit an exhaustive discussion of them, and some of the conclusions must be taken as merely suggestive. In the treatment of the contributions of medical science, for example, the problem confronting the medical profession seems to be over-simplified, resulting in an undue optimism. Thus in discussing diphtheria, the authors feel (page 167) that if the disease is not practically eliminated within a short time, "then we do not know how to follow up our victories," but this implies a constancy in the powers of our foe, which recent evidence would lead us to doubt. Throughout the discussion of disease, natural evolution of the causative agent and its relation to man, is not suggested as a cause either of the gratifying decline observed in some diseases or of the increase in others, and the possible appearance of new disease entities is not considered.

These somewhat general discussions are followed by an explicit treatment of certain problems in the field of population growth. The application of the life table to the analysis of these problems brings out the

effect of the changing schedule of mortality on the rate of growth of the population, its age constitution, and its social and economic trends. This section of the book is of particular interest not only to the specialist in population studies but to the general person who is interested in the structure and problems of the society in which he lives. Its implications are of decided importance for the formation of any sound program of social planning.

The appendix to the book contains a very valuable collection of life tables. In addition to the life tables for the United States, 1929-1931, given in the text, the *American Experience Table* and the *American Men Ultimate Table* are given in complete form, and more than five hundred abridged tables are given, the complete expectation of life, and in some cases q_x values, being tabulated at decennial years. In the opinion of this reviewer, the collection of tables would be of wider use if for a smaller number of tables some function of the life table were tabulated at yearly intervals, or if for the abridged tables, q_x had been the function selected for tabulation in every case. A bibliography of the principal tables and a comprehensive index of text and tables are included.

Those who have followed the work of Dr. Dublin and Dr. Lotka in the past will very much appreciate this valuable collection of their studies and their new readers will find in it a wealth of interesting ideas.

MARGARET MERRELL

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A MANUAL OF THE COMMON CONTAGIOUS DISEASES¹

THIS is an exceedingly compact manual of the common contagious diseases and should be exceedingly useful to practicing physicians and health officers who wish to review rapidly the salient facts about the diagnosis and treatment of one or another of these ailments. One rarely finds such extensive clinical data in such compact and accessible form. There are, in addition, valuable and concise sections on the diagnosis and prevention of serum reactions, technique of vaccination, and on the general management of communicable diseases at home, in the hospital, and elsewhere.

¹ Stimson, Philip Moen, M.D.: A MANUAL OF THE COMMON CONTAGIOUS DISEASES. Philadelphia, Lea and Febiger, 1936, 437 pages. \$4.00.