

'THE ELEMENTS
OF
VITAL STATISTICS

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INTRODUCTION.

VITAL Statistics may be defined as the science of numbers applied to the life-history of communities and nations; and in the following pages the chief statistical facts concerning the various phases and stages of life will be in turn presented. The subject naturally divides itself into two sections: first, the sources of information, as the census enumerations, registration of births, marriages, sickness, death, etc.; and second, the information derived from these sources, which will be discussed in detail in the following pages. (See table of contents, pages vii.-xii.)

As the scope of a science widens, it is generally found necessary sooner or later to adopt numerical standards of comparison. In medical science this is found to be especially necessary, though perhaps in no other science is the difficulty of exact numerical statement so great. The value of *experience*, founded on an accumulation of individual facts, varies greatly according to the character of the observer. As Dr. Guy has put it: "The *sometimes* of the cautious is the *often* of the sanguine, the *always* of the empiric, and the *never* of the sceptic; while the numbers 1, 10, 100, and 10,000 have but one meaning for all mankind."

The variable accuracy of individual observers makes us

distrustful of generalities founded on imperfect reasoning or defective facts, and necessitates the use of figures. Experience tells us that a certain event is to be expected, while the numerical method can tell us how often it is to be expected. It is sometimes said *that statistics may be made to prove anything*; and no doubt they may be manipulated in such a manner as to make it difficult to detect the fallacies involved in their abuse. But this ignorant or unscrupulous abuse of figures does not discredit their legitimate use, and that they have a very important and perfectly trustworthy application to medical facts will be abundantly shown in the following pages.

PREFACE TO NEW EDITION.

THE steady demand for this work since the first edition was published in 1889, and the numerous inquiries that I have during the last two years received as to when a new edition would be ready, sufficiently indicate that it has fulfilled a useful purpose among those for whom it was specially intended—viz. medical officers of health and medical practitioners studying for a diploma in public health—and that it may in the future be even more widely useful. I take this opportunity of expressing my thanks to many of the above, and to correspondents in the United States and in foreign countries, who have shown their interest in the book, and have made suggestions of improvements which have been utilized in the preparation of the present edition.

The present edition forms an almost entirely new book, although its general plan remains as hitherto. It differs from former editions in regard to both omissions and additions. Much fewer statistical tables are inserted, it being assumed that the reader has access to the last annual report and annual summary of the English Registrar-General, as well as the last decennial supplement, on which an English text-book of vital statistics must necessarily be based. A number of foreign statistical tables have been inserted for

comparative purposes, as these are much more difficult of access to most readers. The exact method of construction of a life-table has been given, so that any medical officer of health may be able, by means of the instructions here given, to form a local life-table.

In various parts of the book will be found critical observations on commonly employed statistical methods, and discussions of problems of public health which lend themselves to statistical treatment. These, it is hoped, will increase the interest and value of the book, and lead to local investigations of disease on similar lines.

In a work involving such a mass of statistics it cannot be expected that no errors have crept in. It is believed, however, that these are very few. The author will be grateful for an intimation as to any such errors that may be detected.

ARTHUR NEWSHOLME.

11, GLOUCESTER PLACE, BRIGHTON,
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