the actual population under consideration and from which the data are derived. It is, of course, impossible to prepare life-tables which shall be strictly accurate and exactly comparable one with another, because it is impossible to obtain strictly accurate data. A life-table is intended to answer the question, "Of a million children born, how many of each sex die at each age?" or, "What is the time which a man or woman of a given age may be expected to live?" A strictly accurate answer to this question could be given only if we knew the precise dates of birth and death of each of a million of children born under the circumstances we are investigating, and, strictly speaking, these million children should all be born on the same day. Notwithstanding, by using large masses of data which are more or less attainable, and by applying certain well known corrections, the individual errors tend to neutralize each other, and we can prepare tables which will be quite accurate enough for purposes of comparison.

A vast amount of labor has been expended upon, and study given to, this subject; for immense business interests and important points in the jurisprudence of inheritance depend upon the existence and accuracy of these tables. Hundreds of millions of dollars have been, and now are, invested in life insurance on the faith that certain life-tables truly represent the average course and duration of the life of a particular class of the community, and the result of more than a hundred years of experience has been applied to their correction under the powerful stimulus of urgent need, from a pecuniary point of view, to have them as accurate and reliable as possible.

In order to prepare a life-table for a given locality or occupation we must know the number of persons living at each year of age, and the number of deaths at each age which have occurred among these persons for one or more years. We assume that deaths have occurred at regular intervals during the year for each age and proceed to compute the number of persons at each age who were living in the middle of the period for which the deaths are registered.

In using census data, however, we can not directly compare the deaths at each single year of age with the number reported by the census as living at that age, because of the strong tendency of the average man or woman to report ages either of the living or of the dead, but especially the former, in numbers which are multiples of ten or five, or in so-called round numbers.

I do not propose to describe the methods of constructing a life-table. To make one sufficiently accurate to be used for the purposes of life insurance requires elaborate calculations and corrections, and the use of complicated mathematical formulæ.

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THE term "expectation of life" is used by different writers in different senses, and hence has often given rise to confusion and misunderstanding. It should be used only in the sense of the mean after-lifetime—that is, the average number of years which persons at any given age in a given place may expect to live. In a stationary population, where there is no migration, and where the births are exactly equal in number to the deaths, the expectation of life at any age would be found by dividing the sum of the number of years which the whole population lived after that age by the number actually living at that age.

The term "expectation of life" is often confused with the "probable duration of life," which is the age at which a certain number of new-born children will be reduced one-half, so that for any of these children it is an equal chance as to whether it will die before or after that age. The difference between the probable duration of life and expectation of life may be understood from the following example: Suppose that of 100 children born, 30 live one year, 20 live five years, 30 live forty years, and 20 live sixty years. Then the probable duration of life is five years, because at the end of five years just one-half of these children will be dead, so that at the beginning it is an even chance for any one child as to whether it will die before or after the age of five years; but the expectation of life of any one of these children is 25·3 years, because these 100 children will in all live 25,300 years of life. In like manner, if ten of these children were to die at the end of every five years, the probable duration of life would be 15 years, and the expectation of life would be 27·5.

Another phrase sometimes used in vital statistics is "specific intensity of life." This is the quotient of the dividend of the number of persons living at any age by the number dying at that age—that is—, being $\frac{Px}{Dx}$ the reverse of the ordinary mortality ratio.

The chief source of error in an approximate life table, constructed directly from the census figures and a registration of deaths without correction or adjustment, is due to the fact that there is a very considerable error in the number given of the living population in the first six or seven years of life. Usually the census figures show that the number of children two years old is greater than the number one year old, and that the number four years old is greater than the number two years old, owing to a tendency to erroneously report a child as being older than it is. If we undertake to adjust or correct these figures so as to truly represent the number living at each year, we usually have to make some assumptions as to the law governing the mortality, or as to what is sometimes called the law of life. This expression, the law of life, refers to the hypothesis that variations in mortality at successive ages take place in a regular succession which may be geometrically represented by a curve, and that, therefore, if we know the mortality at certain ages in a given community, we can, if we know this curve and if the number of observations were sufficient, deduce the mortality at other ages. Numerous formulæ have been proposed for this purpose, from that of De Moivre, in 1727, which is $Y = 86 - x$ (x being the age and Y the corresponding number of the living), to the latest and most generally accepted