

Vital Statistics

By DR. E. B. OLIVER.

Vital statistics are the statistics of life.

Vital statistics may be defined as statistics relating to the life histories of communities or nations. They pertain to those events which have to do with the origin, continuation and termination of the lives of the inhabitants. They commonly include statistics of births, marriages and deaths and the conditions attending these events. With these are usually also classed statistics of the occurrence of disease—morbidity statistics. Morbidity statistics, however, differ markedly from the others in their manner of collection and uses, so that to a greater degree than any of the others they constitute a class by themselves.

Vital statistics are not a thing of recent origin. Their development to their present form, however, is comparatively modern. The Egyptians, Greeks and Romans, made census enumerations. Some of the Ancients, notably the Romans, required also the registration of births and deaths. The statistical treatment of the records was, however, comparatively limited. During the last century and a half, and more particularly the last fifty years, the treatment of vital statistics has been undergoing a rapid evolution. In their present developed form they give a fund of useful information otherwise unobtainable. They have become an essential to every well-organized community and nation. They give a composite picture of the life history of a people which can be secured in no other way. They furnish a means of comparing the life history of one community or people with that of others and of the present with the past.

All vital statistics are based upon the population. The frequency of births, marriages, sickness and deaths is expressed in terms of the population usually as rates giving the number for each 1,000 inhabitants or class of inhabitants. In comparing different communities or different periods, births, marriages, deaths and the incidence of disease must be based upon a common unit of population. The first requisite to useful vital statistics is statistics of population showing the number of inhabitants, classified according to age, nativity, sex, race and occupation. It would be desirable, if possible, to have also a classification according to economic status, as birth, sickness, marriage and mortality rates frequently vary with the income of individuals or households. An understanding of population statistics is therefore the primary essential to the comprehension or use of vital statistics, and statistics of population will be first considered.

Population Statistics.

The principal source of information regarding population under existing conditions is a census enumeration. For Canada these enumerations are made every ten years.

As the only source of definite information as to population is the census enumeration, and as the population is continually changing, in most cases increasing, it is necessary to make estimates of the population for the periods between the census and especially for the accurate computation and expression of marriage, birth, death and sickness rates.

Estimates of Population.

The frequency of births, marriages or deaths is usually expressed as the number occurring during the calendar year per 1,000 population. The figures thus given are known as the birth, death or marriage rates and are computed on the mean population, that is, the number of inhabitants estimated to have existed at the middle of the year, July 1st. These estimates are necessary for all dates except those on which the census enumerations are made.

Marriage Statistics.

Marriage statistics are of interest because of the information they give regarding the social life of the people and the establishment of families and households, and because of the relation of marriage to population growth through their influence on the birth rate. Their consideration naturally precedes that of birth statistics.

Marriage rates may be expressed as the number of marriages for each 1,000 of population.

Marriage rates are usually influenced by economic conditions, national prosperity increases the rate, economic depression reduces it. For the same reason it is influenced by the demand for labor and the rate of wages. The relation of the standard of living to the average wage has a similar effect. In the absence of other factors, the marriage rate is usually a fair index of the relation of average income to standard living.

Birth Statistics.

Statistics of births are of interest mainly because of their relation to population growth, the excess of births over deaths being known as the "Natural increase." Growth of population has been the object of concern to nations largely because of its effect in determining the future military strength and the number of men available for purposes of offence and defence.

To the health officer and sanitarian birth statistics have only casual interest. Birth registrations, however, which furnishes the data from which the statistics are made, is important not only in public health work, but in other ways as well.

While the data from which population statistics are derived are obtained by direct enumeration, the data from which birth statistics are compiled are gotten by registration. The usual requirement is that whenever a child is born either the attending physician or midwife, or in their absence, the parents or the head of the household in which the birth occurs, shall register with an official designated for the purpose, certain information regarding the child and its parents.

There are several ways of expressing the birth rate. Each method of statement gives information not given by the others.

The birth rate may be expressed by the number of births occurring during the year per 1,000 women of child bearing is known as the crude birth rate.

Birth rates may be expressed as the number of births occurring during the year per 1,000 women of child bearing age. For this purpose the female population between the ages of 15 and 45 years as determined by census enumeration, or by estimation for intercensal and post censal years, is taken.

The principal sources of error in birth statistics are to be found in defective registration. There is no reliable check by which the failure to register births can in all cases be detected. In many foreign countries the people have become accustomed to register births and apparently their returns are quite complete. The registration of illegitimate births, however, is always less complete than that of the legitimate.

Birth statistics are of use in ascertaining the natural increase of the population (excess of births over deaths). They also give valuable information regarding the effective fertility or fecundity of the race and of the frequency of illegitimacy. These matters are of interest to the economist and the statesman. The possession of birth statistics also furnished the basis for the present accepted means of stating the infant mortality rate. The data from which the statistics are made, the registered births, are on the other hand of value to the community in many ways, and to the health officer among others may be specially useful. Some of the uses will be enumerated.

The registration of a child's birth forms a legal record that is frequently useful and may be of the greatest importance.

Registration of births shows where the babes are, and makes possible such observation and protection for health authorities to see that the babes are vaccinated against smallpox. This is one of the uses made of registration in England. It would also be possible to see that the babes of poor families have proper food and adequate attention. The observation of infants under two weeks of age would bring to light some cases of ophthalmia which otherwise might cause serious injury to vision and at times total blindness.

MUNICIPAL FISH MARKET.

That the people of Sydney, Australia, may derive full benefit from fish caught by the recently purchased Government trawlers, the municipality of Sydney has opened a fish market where the catch is disposed of at moderate prices to the public. The windows at the market are specially constructed, being air-tight and fitted with panes of glass in front, so that the space in which the fish are kept is insulated. From a refrigerator beneath, a blast of cold air is constantly passing over the fish, which, it is stated, will keep fresh for several weeks.