We see, then, that in five or six weeks this pandemic had covered the whole of the larger countries of the world with the exception of Australia, and that it had not followed any definite geographical course, but burst out simultaneously at places so far apart as Cape Town and Boston, and later in Britain and New Zealand. Its course when once established was comparatively brief. On comparing the returns for New Zealand with those given for various towns in America we find a very similar history, the wave developing rapidly and receding as quickly, covering in all about ten weeks; and this seems to have been almost the universal experience.

The case of Australia is one of peculiar interest, since, while the primary pandemic wave reached there in August and September, the secondary wave did not develop in common with the rest of the world, but was delayed till the end of January, 1919. Since then, instead of following the rapid course experienced elsewhere, it has lingered for six months, varying in intensity, but never reaching the acute virulence experienced in New Zealand in November, 1918. There is not the definite wave peak seen in this country, but apparently the period of greatest intensity was in the first week in May, both in Victoria and New South Wales. As Australia was the only country to establish strict quarantine measures in October, and to attempt to secure the general protection of the population by vaccines and other measures, it is impossible to avoid the conclusion that these precautions have thus altered the incidence of the epidemic.

Although the general appearance of the secondary pandemic of influenza throughout the world did not take the form of a wave advancing from one country to another, it is noticeable that such a wave form was shown in the countries attacked. Thus in Africa the spread was from the Cape to Natal; in America from east to west; and in New Zealand, as will be shown, from north to south.

The Epidemic in New Zealand.

From a study of Tables VII, IX, and X, and the camp returns in Tables III and IV, it is possible to gather a general knowledge of the incidence of influenza in 1918 in the Dominion. We can now consider in detail the special features of the outbreak.

Incidence.

It is not possible to estimate with any accuracy the proportion of the population, which suffered from influenza during 1918. Taking the two waves together it is probable that at one period or another the majority of persons of susceptible age in the Dominion were affected. The camp returns relate to persons at the most susceptible ages, and from these one gathers that between 30 and 40 per cent. suffered in the first wave, and about 50 per cent. in the second wave. Among the Native soldiers in Narrow Neck Camp practically all were affected in the second wave.

On a general rough estimate for the whole population it is probable that about 40 per cent. of persons in the Dominion were attacked during the second wave. In the camps about 10 per cent. of the cases developed pneumonic complications. As the camp population was composed of males at the most susceptible period of life it is probable that the proportion of pneumonic cases in the general population was much less. A series of observations made in Maryland, U.S.A., showed great variation in incidence, some towns being as low as 23 per cent. and others as high as 59 per cent. The average seems to have been an incidence rate of 28 per cent. of the population.

Mortality.

A study of Table VII indicates that 5,559 Europeans died from influenza during 1918. Of these deaths 38 were registered prior to October, and so may be regarded as due to the primary wave. This is little higher than the normal influenzal death-rate for average years. But although it indicates that the primary wave was not of markedly high mortality, it is not altogether safe to accept these figures as strictly representing the mortality from influenza. Prior to the severe secondary outbreak it was not always customary for medical men notifying death from pneumonia and such complications to indicate that the primary disease was influenza. On studying Table VI, showing the deaths from all catarrhal diseases other than influenza, we find an undue death-rate from this cause from July onwards, which suggests that the influenzal outbreaks had an influence beyond that shown in the registration figures. Instead of falling from August onwards, as is usual, the rate rises. Then, again, comparing the returns for the five previous years we find that the average number of deaths was 769, the highest being in the year 1915, with 829 deaths. In 1918 we find 1,326 deaths due to catarrhal diseases other than influenza. It is obvious that some influence was present making for a high death-rate from acute pulmonary infections; and, further, this influence was at work prior to the appearance of the secondary wave of pneumonic influenza, for taking the deaths from acute pulmonary diseases during the first nine months of 1918 we find that 835 had occurred up to the end of September, whereas during the five previous years the average for the first nine months was under 550. It is certain, then, that the primary wave of influenza was accompanied by an undue proportion of fatal pneumonic complications. If to these deaths we were to add those from cerebro-spinal fever the mortality rate would be even higher. It is not, however, possible to say what proportion of the cases of this disease were preceded by influenza, though we know from experience in the camps and from certain outbreaks in the Wellington Province more or less associated with the camps that in a number of cases influenza of the primary-wave type was the predisposing cause.