

the average dose, and by slowing up circulation of the virus keeps its virulence at a lower level. We know that in many organisms rapid passage exalts virulence.

If, as I anticipate, this epidemic dies down when the incidence has not far surpassed the 1-per-1,000 level, the future can be predicted with some confidence. It must be remembered that in the first big epidemic of 1916 the incidence in the Auckland area was half as great again, being over 15 per 10,000. At that time, however, the population must have been largely unsalted to begin with. I think it is safe to assume that the new cycle will be similar to the last, in which case we may expect a certain number of sporadic cases every year (perhaps an average of 6 yearly in the Auckland district) and another epidemic about half as severe as the present one around about 1957.

There is every reason to believe, however, that this prediction need never come true.

The solution to poliomyelitis will not be found through field studies such as the present, but in the laboratory. Nature has shown herself capable of producing an efficient active immunity. One day, perhaps very soon, the bacteriologists will go one better. Then at last poliomyelitis will be conquered, just as to-day we are conquering diphtheria.

SUMMARY

(a) Paper is a study of a poliomyelitis epidemic in the Central Auckland Health District which commenced in November, 1947, and by the end of April, 1949, had produced 345 cases in a population of about 350,000.

(b) Incidence per 10,000 reached 8.0 in the city, 15.4 in the country districts, and 21.5 in certain urban areas lying between city and country.

(c) In general, incidence was inversely related to population density. Abnormally high incidences in some urban areas was attributed to influx of rural dwellers in recent years. Unusually low incidence in one city area may have been related to the periodic effect of race meetings in increasing the local density.

(d) The three previous Auckland epidemics showed a successively declining incidence, and were linked by periods of grumbling activity. The present epidemic was preceded by a lull, and its toll has approached that of the 1916 epidemic. It is probable that a new cycle has begun which will imitate the first, but on a lower scale.

(e) Spot maps showed that the disease was already wide-spread before the first positive cases revealed its presence. Some ebb and flow, but no actual movement from one area to another, occurred during its course. An interesting feature was the comparative rarity of cases in the neighbourhood of the city's sewage-polluted bathing beaches.

(f) An inverse correlation was noted between the ratios of "suspect" to positive cases established in a previous inquiry, and the incidence of cases with paralysis or paresis in various age/sex groups. High ratios indicated lower severity.

(g) It was estimated that by the end of April, 1949, all boys aged 10-15 years in Auckland had been affected by poliomyelitis, either "suspect" or positive. Less than half the girls of this age had been affected. Estimates are given for the other age groups.

(h) Families of cases showed no significant difference in composition from the average in the area.

(i) No correlation, whether inverse or direct, was found between sanitary conditions in schools and the incidence of positive cases.

(j) The cycle of poliomyelitis in the community is discussed in the light of these findings.