PART 3.—ABSTRACT OF A REPORT UPON AN INQUIRY INTO THE OCCURRENCE OF RHEUMATIC FEVER IN AUCKLAND.

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Scope and Method of Inquiry.—The main purpose of this inquiry in Auckland was to determine the prevalence and nature of rheumatic fever, a non-notifiable disease. A rapid sample of the youth of this city was obtained from the examination of 10,040 children in seventeen city primary schools so situated geographically as to form a true cross-section of the city. Cases of rheumatic fever were sorted out, followed up to their homes, carefully examined, and full inquiries made into the personal, family, social, and housing histories of each one. A control group of fifty healthy non-rheumatic children was formed and similarly examined, having similar age and sex grouping as the rheumatic cases, and representative of suburban and crowded city areas. A further group of patients was followed up from the Public Hospital records of rheumatic-fever cases under forty years of age for the previous three years. Throughout the inquiry only the clinical entity rheumatic fever was sought, with its recognized heart or choreic manifestations. One hundred and seven cases comprise the present study.

Prevalence.—In 10,040 school-children sixty-six cases of rheumatic fever were traced—thirty-one in males, thirty-five in females. At some time during the primary-school period 0·6 per cent. of the roll was attacked, a morbidity rate of 0·6 per 1,000 (average of ten years). Twenty-one children suffered from rheumatic fever without heart involvement, while in thirty more carditis developed during the attack. In twenty of these latter the damage was irremediable. There were fifteen cases of chorea, in five of which carditis developed and remained. The power of chorea to damage the heart was as potent as other types of acute rheumatism. Of the total sixty-six cases, twenty-five returned to school with damaged hearts. For the same group of 10,040 children, fifty-four were considered to have organic heart-disease. It would appear, then, that rheumatic fever was responsible for 46 per cent. of organic cardiac disease. Could the former be prevented, almost half of the latter in our schools would be eliminated.

Tracing back the hospital records from September, 1927, for three years, eighty-seven cases of rheumatic fever were treated—fifty-one in males, thirty-six in females. Forty-one typical cases under forty years of age were traced. Eight patients suffered from rheumatic fever without and twenty-seven with carditis. Of these latter, twenty-three were left with permanently damaged hearts. In six cases of chorea, one carditis developed and proved irremediable.

Sex Incidence.—School group (annual rate per 10,000 pupils, average of ten years)—Males, 3·1; females, 3·5. Hospital group (annual rate per 10,000 city and suburbs population, average of three years)—Males, 0·89; females, 0·63. In both groups chorea had a greater incidence on girls than on boys.

Age Incidence.—Up to the fifth year the incidence of acute rheumatism was low. The next years were heavily attacked, rising to a maximum in the ninth year. 0–4 years, ten cases; 5–9 years, fifty-nine cases; 10–14 years, twenty cases; 15–19 years, five cases; 20–39 years, thirteen cases. In Auckland, as elsewhere, acute rheumatism is essentially a school-age disease.

Seasonal Incidence.—The highest incidence occurred in September, (12·4 per cent.) the next highest in July (11·8 per cent.), and generally in the winter and early spring months. The lowest incidence occurred in our summer months. Cold was correlated with prevalence; with rainfall also there seemed to be a definite association. When the annual attack rate per 1,000 for the school group was plotted against the mean temperature and mean rainfall for the years 1918–1927 it was seen that, with an exception in 1922, the rheumatic fever morbidity was positively correlated with the rainfall and negatively with the temperature.

Etiology.—No evidence as to the essential cause was found.

Duration of Treatment; Recurrences; Some Physical Observations.—In the school group 74 per cent. were treated in their homes. The average duration was six weeks, but 57 per cent. of these children had less time in bed. For the remainder sent to hospital and for the actual hospital group the average was seven weeks in bed, 29 per cent. only receiving less. Recurrences occurred in 29 per cent. of the school, and in 46 per cent. of the hospital cases. Anæmia was evident in 31 per cent. of cases. Nutrition was subnormal in 29 per cent., a figure above that found in routine school examinations. With regard to teeth, diet, and constipation there was no significant departure from control findings. It happened that less goitre was found in each rheumatic group than in non-rheumatic controls.

State of Tonsils.—School group: Healthy throats, 16·7 per cent.; subject to sore throats, 39·4 per cent.; enlarged tonsils, 59·1 per cent.; tonsillectomies, 24·2 per cent; total enlarged tonsils and removals, 83·3 per cent. Hospital group figures were respectively 46·3 per cent., 19·5 per cent., 36·6 per cent., 17·1 per cent., 53·7 per cent. Control group figures were respectively, 30 per cent., 20 per cent., 54 per cent., 16 per cent., 70 per cent.

The above figures, while showing widespread tonsillar affection in healthy children reveal still more in rheumatic children. Tonsillitis ushered in the rheumatic attack in 34·6 per cent. of cases. It would seem that tonsillar hypertrophy, while less frequent in adult life (see hospital group, half adults, retrogression with increasing age) was common at the age of first attacks. It would seem that the tonsils were the portal of entry. The tendency to tonsillar hypertrophy in childhood means a predisposition to rheumatic disease, the incidence of which would be reduced if the former could be understood and prevented.

Complete removal of tonsils in this series did not avoid the occurrence of rheumatic fever, but appears to have prevented permanent heart damage. This was absent in cases where the tonsils were enucleated before the attack.