THE BACKGROUND OF THE EPIDEMIC OF POLIOMYELITIS IN BOMBAY*

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It is proposed to place before the readers some facts about the background of the epidemic which began in 1949 and which has continued since then. The year 1949 has served as a landmark in the history of poliomyelitis as far as India is concerned. It was in this year that India in general and Bombay in particular was in the grip of poliomyelitis for the first time. Between the months of March and September of 1949 there occurred 253 cases of paralytic poliomyelitis in Bombay. As far as the knowledge goes except for a reference by Coelho to an epidemic in 1938, there is no mention anywhere of a major epidemic of poliomyelitis in India prior to 1949. The annual reports of the Bombay Municipality, while including poliomyelitis as a cause of death, did not supply any information regarding the incidence of the disease prior to 1949. To quote another reference as regards the dearth of previous records, McAlpine in 1945 stated, “the reports of the Public Health Commissioners with the Government of India for the years 1913 to 1937 make no reference to the occurrence of the disease poliomyelitis in the Army in India”. Thus, the existing records do not permit a proper assessment of the incidence of poliomyelitis in India as a whole for the years prior to 1949. Even today, proper data regarding poliomyelitis are not available from all the states of India. The disease became notifiable only in the year 1949 in the States of Bombay and Delhi, and in the year 1952 in the Punjab, Assam, Madhya Pradesh and Uttar Pradesh. It appears that the disease is still not notifiable in the remaining states of India.

The occurrence of a few sporadic cases of poliomyelitis in this country did not arouse any attention of the public health authorities. Interest was aroused when the epidemic broke out in 1949 in Bombay. It was in this year that the Polio Research Unit was established. The first duty of the Unit was to identify the disease and investigate into the cause of the epidemic. The identity of the disease was proved beyond doubt in a short period, but as regards the cause of the epidemic, even today, the Unit is not on a very certain footing to answer that question. The answer to this is a speculative one. To understand why the disease which was purely of a sporadic character suddenly turned its character to become an epidemic one in 1949, it is necessary to understand the background of the environment. During the period 1949 and the preceding years, as far back as 1942, there had occurred

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a lot of mixing of people from different parts of the world and also of people from different parts of this country. A large number of troops, particularly from countries where poliomyelitis has been endemic for a long time, passed through the city. With the fall of Burma a number of people evacuated to this country and settled down in Bombay. Within the country itself there was a slight but definite shift from the rural areas to the cities as many people from these areas were employed in projects connected with the war. The stress and strain that are inseparable consequences of any war were reflected heavily upon the civilian population and consisted mainly in the reduction of food supply and overcrowding in cities like Bombay. The immigration to the country of masses of population following independence and partition may have caused a mingling of the immune with the non-immune. Another event which may be mentioned because of its probable connection with the epidemic is that the employees of the conservancy department of the Bombay Municipality went on strike for a period of about 6 months from mid-May to mid-November, 1949. As a result of this, the sanitation of the city suffered, the overcrowded and congested areas being affected the most. Refuge accumulated in the streets and by-lanes, and to add to this a severe cyclone occurred. The rainfall recorded in that year was the highest recorded for many years.

Coincidentally with this there was an increase over previous years in the number of recorded cases of enteric fevers, the pattern of the incidence closely following that of poliomyelitis. While it is not exactly possible to relate the sequence of occurrence of cases during the epidemic of 1949, the circumstances that attended its occurrence, particularly accumulation of filth and other conditions favouring fly breeding, are suggestive of a mode of spread in common with other gastrointestinal infections. This is also suggested by the coincidence of the increase in the incidence of enteric fever and poliomyelitis. The next question which arises is whether the virus which caused the epidemic was an imported one. The circumstances present at that time were all in favour of this. But looking at the age groups involved during the epidemic and in the pre-epidemic years the disease appears to be solely restricted to the very young age group, i.e., 0-5 yrs. From this one concludes that the individuals of the higher age groups were already exposed to the virus and were rendered immune to it and it was the younger and non-immune population which was susceptible. This selective age group distribution of the cases favours the endemic strains as the causative agent of the epidemic.

Since the epidemic of 1949 the incidence of poliomyelitis has persisted at a higher level than the pre-epidemic years, i.e., 1952 and 1954. Whether this change in the incidence is due to a change in the behaviour of the virus or due to any other factor remains yet to be solved.

Explanation of the continuation of the epidemic pattern in these 10 years is an important matter though not easy. Every year about 10 per cent. of the population is added up in the form of new births, and this constitutes a part of the susceptible population. Secondly, the changing incidence of the type of the poliovirus in a population may have a role in the increased attack