

PUBLIC HEALTH.

THE BACTERIA OF THE NOSE AND THROAT.

The Organisms a Normal Healthy Population Carries With It.

The account of the organisms found in the nose and throat of persons living in London and South-East England, some of whom were repeatedly swabbed over a period of seven years, is given in a Report* by Dr. Edith Straker, Dr. Bradford Hill, and Dr. R. Lovell, published by the Ministry of Health (Friday, November 17th). A second section of the Report gives some observations on the occurrence of *H. influenzae* in the trachea made by Dr. A. B. Rosher and Mr. W. T. Cole. The work extends observations made on the population of Manchester, which were published by the Ministry in 1930, and presents a picture of the naso-pharyngeal flora, and of its changes in relation to external conditions, which is more detailed and extensive than any previously on record. It shows that of any large group of adults living in an urban community between 20 and 40 per cent. will usually at any one time be carrying a pneumococcus in the nasopharynx, between 5 and 15 per cent. a hæmolytic streptococcus, between 40 and 80 per cent. the so-called "influenza bacillus" (*H. influenzae*), and between 5 and 20 per cent. the meningococcus. The pneumococcus and the meningococcus are, however, isolated less frequently from women than from men. The pneumococcus also was found rather more frequently in cold damp weather than during hot dry periods, while the reverse association tends to occur with the hæmolytic streptococcus. The latter organism shows a sharp rise in its prevalence in boys' boarding-schools in association with outbreaks of tonsillitis, many boys becoming carriers of the organism without any signs of illness. Such events seemed to the authors likely to be due to the introduction to the community of an "epidemic" strain of the organism, endowed with high infectivity and invasiveness, rather than to a general spread of existing strains. This observation is of interest in relation to the possible effects resulting from the evacuation of children from urban areas to rural districts and the consequent exchange of organisms. Conditions of overcrowding and other factors which may promote or hinder contact infection are clearly important. Neither the pneumococcus nor the "influenza bacillus" show any close association with the fluctuations in mortality attributed to influenza, and the findings lend no support to the view that the epidemic diseases studied are preceded by any characteristic change in the bacterial flora of the nasopharynx such as might serve as a useful warning of an imminent outbreak. No such change, for instance, was noted as a precursor of the outbreaks of influenza which occurred in London between 1930 and 1937. Further, during the war of 1914-1918 carrier rates of the meningococcus in Army units of 10 to 20 per cent. were regarded as dangerously high, and a rate of 20 per cent. as a warning of an impending epidemic. In these groups of the civil population, however, the carrier rates for this organism were frequently over 15 per cent., and on several occasions over 20 per cent., without any appearance of clinical infection.

Observations made on persons suffering from colds tell strongly against the view that the acute infectious cold is caused by any of the bacteria under study, but

* A study of the nasopharyngeal bacterial flora of different groups of persons observed in London and South-East England during the years 1930 to 1937, together with some observations on the occurrence of *H. influenzae* in the trachea. (Reports on Public Health and Medical Subjects, No. 90.) H.M. Stationery Office. Price 2s.

give evidence that in its later stages the nasal cavities are frequently invaded by pneumococci and *H. influenzae* with the result that a muco-purulent inflammation ensues. It also appears, from the observations made on the trachea, that conditions associated with the first quarter of the year—e.g., cold and damp weather—are particularly favourable to the invasion of the deeper parts of the respiratory tract by the "influenza bacillus." In summer months this organism is confined largely to the nasopharynx, but in late winter and early Spring the territory it occupies tends to be extended downwards into the trachea and bronchi and, to a less extent, forward into the nasal cavities.

Figures relating to the serological types of pneumococci observed make it highly probable that during a decade most individuals will harbour at one time or another most of the types prevalent in the areas where they live and work. Equally, within the space of a few years they are likely to carry, if only for a short period, each of the bacteria that was studied in this inquiry. It seems, therefore, that no epidemiological hypothesis need be rejected on the grounds that it postulates a widespread distribution of potentially pathogenic bacteria in the absence of overt clinical disease.

THE WAR AGAINST TYPHOID.

"Enormous Decrease in Incidence."

An enormous decrease in the incidence and mortality of enteric fevers in this country since the later years of the nineteenth century is recorded in a memorandum on typhoid fever issued by the Ministry of Health and published by the Stationery Office.

Chief factors responsible for the large reduction, it states, have been the improvement in the control and supervision of water, milk and food supplies, the more general introduction of the water-carriage system of sewage disposal, greater care in the collection and disposal of refuse, and the greater attention paid to cleanliness and personal hygiene.

During the past 15 years, in 40 outbreaks of typhoid and paratyphoid fever in which there were definite grounds for an opinion as to the vehicle of infection, the numbers were: water, 11; milk, 12; other foods, 17.

"These fevers are not diseases of the cow," the memorandum points out; "and, in outbreaks in which milk is proved to be the vehicle of infection, the infection must have been introduced from without, at, or after the time of milking."

"In this event subsequent pasteurisation would render the milk safe. . . . It is noteworthy that none of the milk in the outbreaks in question was pasteurised."

Persons who have once contracted typhoid fever and recovered are generally immune for life, though a second attack is not unknown, the report states.

AIR TREATMENT FOR WHOOPING COUGH.

A boy aged two was recently taken on a three-quarters of an hour flight to cure his whooping cough.

The boy, Richard Mitchell, is the son of Mr. L. Mitchell, a Johannesburg business man, who is in England on holiday with his wife. He was taken up to 10,000 ft., and his flight was to Brighton and back.

The high altitude method of treating whooping cough has been tried extensively in Holland since Dr. Willi Matter, of Strassburg, claimed last summer to have cured children by taking them to a height of 9,000 ft. and descending rapidly.

Two Leeds children were flown to a height of two and a half miles to test the theory, and they showed no sign of whooping afterwards, though a cough remained

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