

that, while formerly a rural disease, it had now become a city one, the schools being an important factor in its propagation. The investigations of the Medical Department Board show that children from 3 to 12 years are most frequently affected, and that the disease is often associated in the beginning with affections of the upper air-passages.

M. Filatow, of Moscow, President of the Russian Committee, said that, though the contagiousness of diphtheria was undoubted, there were still certain epidemiological facts not explained by contagion alone. Sporadic cases are usually seen long before the appearance of an epidemic. In certain countries, epidemics of diphtheria are observed after fatal throat disease in hogs and other animals. The epidemics are influenced by seasons and local conditions, generally increasing in autumn and diminishing in summer.

Mr. M. A. Adams, of Maidstone, England, concluded that damp, close, stagnant conditions of the atmosphere favored the increase of diphtheria, and that its virulence increased with the soil-air, showing that it depended upon the movements of the subsoil-water.

M. Roux, President of the French Committee, gave the statistics of treatment of diphtheria with antitoxin at the Hôpital des Enfants Malades, Paris. From February 1 to July 24, 1894, 448 children were thus treated, the mortality being 109, or 24.33 per cent. The average mortality from 1890 to 1894 was 51.71 per cent. in a total of 3971 children. The benefit from the antitoxin treatment, the conditions being the same, was therefore 27.38 per cent. Within the same period 500 cases of diphtheria were entered at the Hôpital Trousseau, 316, or 63.20 per cent. of whom died. Of the 448 children treated by antitoxin, 128 were found, by bacteriological examination, not to be suffering from true diphtheria; 20 other cases were in a dying condition when brought in. Of the 300 cases remaining, there were 78 deaths, or 26 per cent., instead of 50 per cent., as in former statistics, before the use of antitoxin. The serum used was taken from immunized horses, with a strength of between 50,000 and 100,000. Of this, 20 cubic centimetres (5 drachms) were injected under the skin of the thigh. This was not renewed if the patient was found not to be suffering from the true diphtheria; otherwise, a second injection was made twenty-four hours later, 0.10 or 0.20 gramme ($1\frac{1}{2}$ to 3 minims) being used. This was usually sufficient to bring about recovery. If the temperature remained elevated, however, a third-injection of the same amount was made. The average weight of the children being 14 kilogrammes (28 pounds), the amount of serum injected, as a general rule, equaled 1-1000th part of their body-weight, and in exceptional cases 1-100th part. Under the influence of the

injections the general condition remained excellent; the false membranes ceased to form within twenty-four hours after the first treatment; in thirty-six or at most seventy-two hours they became detached. In only 7 of the cases did they persist longer. The temperature frequently fell suddenly after the first injection; if it remained elevated in the cases of severe angina, it fell only after the second or third injection in lysis. The pulse returned to normal less rapidly than the temperature. A third of the cases of diphtheria, according to statistics, show albuminuria; and this having been present in only 54 out of the 120 cases treated with serum, it seemed evident to M. Roux that the remedy diminished the frequency of the symptom.

The mortality in cases of croup treated with the serum was also much less than with other methods. The author believes it possible to obtain much better results if the treatment be instituted earlier, and also believes that tracheotomy will become more and more rare, being superseded by intubation, combined with injections of serum.

Dr. Heubner, of Berlin, read a paper in the name of Professor Behring, stating that the action of the antitoxin was all the more certain the earlier it was administered in any given case. The injections should be aseptic, a sterilized Koch syringe being employed, from 0.10 to 0.12 gramme ($1\frac{1}{2}$ to 1.5 minims) being injected at a time. Massage is not necessary afterward, the absorption of the liquid being more rapid and the pain less when it is not practised.

Dr. Aronson, of Berlin, like M. Roux, regarded the serum of the horse as the most efficacious, taken from animals immunized with cultures through which a current of oxygen had been passed. This serum is three times stronger than that used by Professor Behring. From March to the end of July he had treated 192 cases of true diphtheria by means of the serum, 14 per cent. dying. Of these children 23 were moribund when brought into hospital, leaving 169 cases with 19 deaths, or a mortality of 11.2 per cent. In the same hospital the mortality was, in 1891, 32.5 per cent. in 203 cases; 1892, 35.4 per cent. in 341 cases; in 1893, 41.7 per cent. in 426 cases; and from January to March, 1894, 41.8 per cent. The serum treatment was also employed in 82 cases in other hospitals, making 274 cases, with a mortality of 15.3 per cent.

Dr. Aronson also made use of the serum to render immune the children of families in which diphtheria had occurred, and, of 130 such, only 2 were affected with diphtheria, and that of a mild form. The dose used was 1 cubic centimetre ($15\frac{1}{2}$ minims).—*La Semaine Médicale*, September 8, 1894.