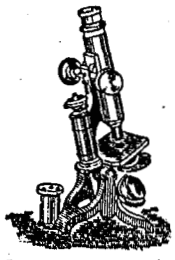
Medical Matters.

BACTERIA IN SEWAGE.



One of the most agreeable practical results of the Sanitary Congress at Manchester was the evidence afforded from experience of the success with which the sewage difficulty is being dealt with. It is about twenty years since M. Louis Mouras, of Vesoul, proved that bacteria, if given time to do their work, would render sewage innocuous. Since then it has gradually been discovered that there are two kinds of biological agents of purification—one that acts in the absence of air, or oxygen, called by Pasteur the anaërobic microbe, and another that requires oxygen—which is really the element in question—known as the aërobic. Both these thrive in different stages of sewage treatment, and each does an essential share in the work. So that, as Newman says, "We have in sewage the organisms present whose business it is to render soluble the solid matters and to split up the organic compounds into their simple elements, and then as a final stage in the process to oxydise these elements and so produce an effluent free from putrescible matter." These two processes are taken up and completed first by the bacteria that need no air, and then by those that require it. In several provincial towns, including Exeter, Yeovil, and Hexham, the two species of bacterial purifiers are systematically brought into operation; first the anaërobic in tanks from which light and air are excluded, and second the aërobic in filters, or cultivation beds to which light and air are admitted. Those who contend that this is Nature's way are, perhaps, right, for the germs required for the purifying process are everywhere present in air, earth, and water. Compared with these the organisms that diffuse diseases are units to millions. In twenty drops of sewage nearly as many millions of bacteria are found, and of these probably very few would convey typhoid or diphtheria. Most luckily where the bacterial method can be carried out in its entirety there is little or no sludge produced.

IMPORTANT REPORT ON ENTERIC.

A paper in the *British Medical Journal*, by Major R. H. Firth and Major W. H. Horrocks, gives the results of an inquiry into the influence of soils, fabrics, and flies in the dissemination of enteric infection. The general conclusions arrived at are that the enteric bacillus is capable of surviving in soil for much longer periods, even under most unfavourable conditions, than had been believed previously. Experiments made with certain fabrics, deliberately fouled with enteric material and then allowed to become quite dry, show that such clothing is capable of harbouring and giving off infection after as much as three months' drying and exposure to light and air.

Major Firth and his colleague draw from their experimental inquiry important lessons in respect of military sanitation. The first is the need of recognising that enteric fever is by no means an exclusively water-borne disease, but that not a few cases may and do arise by the dissemination of infected material by means of dust soil. This infective dust may be either inhaled or swallowed by men, and can also contaminate food.

A NEW SERUM.

The announcement was made at the recent medical congress at Carlsbad that Dr. Moser, assistant-physician at St. Anne's Hospital for Children, Vienna, has discovered a serum which has been repeatedly successful in the treatment of scarlet fever, and that it is probable that the Government will vote a considerable sum so that the serum may be made in large quantities and distributed amongst all the children's hospitals in Vienna. The serum is obtained by inoculating a horse with blood from the heart of a person who has died of scarlet fever, and has been used by Professor Escherich, Director of St. Anne's Children's Hospital, with good results. Several prominent physicians in Vienna are, however, counselling caution and further investigations before the new remedy is fully accepted. They say that the use of serums generally, even the diphtheritic serum, is strongly opposed still by some of the highest authorities, and that the number of cases in which the new serum has so far been tried is too small to warrant the statements made on its behalf. Dr. Moser, on the other hand, claims that in the cases in which he has used the serum, nearly 400, the mortality has decreased to 8 or 9 per cent., while in other hospitals it was twice as high. One thing does appear to us extraordinary—namely, that scarlet fever should be so rife in the children's hospitals in Vienna as to necessitate a Government grant to obtain large quantities of serum. We hope that the parents of these children are consulted before the serum is injected.

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