If then a large number of patients are taken, and suitable media employed, the bacillus influenzæ can be obtained in a sufficient number of instances to justify one in saying that it is the cause of the disease. Definite proof, however, is obtained from the fact that it will reproduce the disease when it is injected into a suitable experimental animal. In appearance it is a very minute, thin rod.

At the onset of the disease it grows in the throat and nose, where it gives rise to the well-known catarrh, with which the attack starts. The toxins or poisons which it then forms are absorbed into the blood and produce the rise in temperature and prostration, while later on the organism itself may spread downwards into the lungs, where it gives rise to bronchitis and not infrequently to a disease which has the characteristics of a broncho-pneumonia, with the distribution of the lobar variety, or upwards through the Eustachian tube into the middle ear, where it is particularly liable to set up mastoid disease.

The microbes with which the bacillus influenzæ is often associated in this epidemic are usually a streptococcus or the pneumococcus, or both—and there can be no doubt that they are both responsible for many of the fatalities which have occurred. The reason is that many organisms grow better—both in culture media and in the body—when in association with others, just as one can imagine a soldier fighting better when he has his friends alongside him. The phenomena is known as "symbiosis," and one occasionally takes advantage of it in a laboratory when one wants to grow a particularly virulent strain of a microbe. In the preparation of diphtheric antitoxins, for instance, a much more luxuriant growth of the diphtheria bacillus can be obtained if one adds some bacillus podigiosus to the cultures.

The pneumococcus-influenza combination seems to be particularly liable to attack the lungs, and the addition of staphylococcus appears to increase the severity of the initial toxæmia, and of suppuration such as mastoid abscesses.

Coming now to treatment. As regards the patient himself, we try both to kill the microbe direct and to increase the bodily resistance, so that he is able to manufacture antibodies to the germ for himself. As regards the first, we cannot do very much. There is no drug taken internally that will kill the microbe, but there is some evidence that irrigation of the nostrils with a weak solution of permanganate of potash is able to retard the growth of the germ in the nose. The measures adopted to keep up the resistance of the patient are common to most infectious diseases, and comprise nursing, good food, tonics, stimulants, &c., but the two most important are bed and more bed. I need not dwell on these now.

Secondly, can we do anything in the way of preventive treatment? Apart from obvious essentials of sanitation, such as free ventilation and disinfection, together with prompt isolation of those suffering from the disease, the general public is asking us to inoculate them against it. They have a sort of idea—for which I am afraid we must blame some over-enthusiastic bacteriologists—that we can now "inoculate" against anything from a chilblain to the plagues of Egypt; that all we have to do is to collect the germ, kill it, and inject it under the skin of a healthy person in order to prevent him from contracting the disease.

I wish we could do that. There would soon be no more disease of any kind, and most of us could sell our microscopes and buy a farm!

Unfortunately, however, the problem is by no means so simple. A vaccine is like a sharp scalpel, and is capable of doing almost unlimited harm in the hands of an unskilled person, or when improperly used.

As regards the present epidemic, it is easy enough to prepare a vaccine containing a mixture of bacillus influenzæ, streptococci and pneumococci, but the trouble is that its use is followed by a marked "negative phase," as it is called, that is to say, that for a variable period after inoculation, the patient's resistance to influenza is actually lowered. It is true that this is followed by a prolonged rise in his defensive powers, but as he may go down in the negative phase, it is usually undesirable to inoculate during an epidemic: we should wait for it to subside, and then try to immunise the patient for the future. It is probable that a course of about twelve injections is required for success in this respect. The vaccine may appropriately contain b. influenzæ, streptococcus and pneumococcus.

MINISTRY OF HEALTH BILL.

Dr. Addison introduced the Ministry of Health Bill into the House of Commons on November 7th. Keen interest was evinced in his speech. Under the Bill the Minister of Health will have the powers of all present Departments that deal with health. Treatment of the sick and infirm will *not* be part of the Poor Law.

Our Poor Law Infirmaries should become State Schools of Nursing.

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