in this country. Illustration of this is afforded by certain localised outbreaks of cerebro-spinal fever in the eastern counties in 1890, where this disease was generally mistaken for sunstroke or for enteric fever, or was looked upon as a new form of illness; by the prevalence of what would seem to have been cerebro-spinal fever in Northamptonshire in 1890-91, where the malady was for the most part diagnosed as pneumonia or as sore throat; and by the occurrence of cerebro-spinal fever in Irthlingborough in 1905, where many of the persons attacked were regarded as suffering from influenza. In these anomalous forms of cerebro-spinal fever, many or even most of the symptoms associated with the recognised type of the disease may be absent, while in mild cases they may be so slight or of such brief duration as to escape notice. It is necessary to be on the outlook for such cases when cerebro-spinal fever occurs in a locality or when illness not clearly referable to definable cause prevails in a particular neighbourhood. Cerebro-spinal fever is apt also to escape recognition when it is of the "fulminant" variety, in which death ensues rapidly. In these instances the disease has been mistaken for typhus fever, idiopathic tetanus, malignant measles, or other diseases.

### Mode of Spread of the Disease.

Cerebro-spinal fever has a much more restricted direct infectivity than characterises a disease like small-pox, which attacks the majority of persons exposed to infection who are unprotected by vaccination or previous small-pox. In most outbreaks of cerebrospinal fever, only one member of the invaded family develops definite symptoms of meningeal disease, though exceptions to this statement The meningococcus is are not uncommon. found in the mucous secretion of the nasopharynx in a considerable proportion of those suffering from the disease, especially in its earlier stages, and also in some apparently healthy persons who have been in contact with cases of the disease.

#### INVESTIGATION OF SOURCES OF INFECTION.

The possible occurrence of anomalous cases should be investigated. Special attention should be directed to cases of sore throat, headaches, pains in back and limbs, &c., suggesting "influenza." The important share borne by healthy "carriers" as agents of infection should be borne in mind. The bacteriological examination of swabs from persons likely from their history to have acted as "carriers" should be undertaken.

# PRECAUTIONARY MEASURES AS TO CONTACTS.

All persons who have been in attendance on, or otherwise in close personal association with, the patient should be regarded as possible carriers of infection. The duration of the infectivity of contacts is doubtful. It will be a useful rule to regard them as possibly infective for three weeks from the date of last association with a patient, but the partial restrictions to their intercourse, otherwise desirable, may be relaxed if swabs from the nasopharynx examined under the conditions set out in the foregoing paragraph fail, preferably on twooccasions, to show the presence of the meningococcus. Contacts should be instructed and warned that they may be a source of danger, although remaining quite well themselves, and that for this reason they must abstain from intimate personal association with others. This rule should be especially followed by contacts who have catarrh. Contacts should also be advised that an open-air life diminishes the risk of infection both of themselves and of others. Isolation of such contacts in a hospital should not be attempted. Detection of the meningococcus in the nasopharynx of a contact is valuable evidence of his potential infectivity to others, while failure to find the micro-organism does not possess an equal negative value. Nasal sprays have been recommended for contacts, a disinfecting solution such as potassium permanganate, 1 in 1,000, being used. If spraying is employed it should be carried out under medical supervision.

## GENERAL PREVENTIVE MEASURES.

In the presence of cerebro-spinal fever the nearest approach to open-air life should be aimed at, especially for all contacts. In view of the known association of cerebro-spinal fever with overcrowding, insufficient ventilation, and uncleanliness, the avoidance of these conditions becomes a matter of prime importance. This is especially true where large numbers of persons are aggregated under one roof.

## A SERUM FOR GANGRENE.

Dr. Roux, Director of the Pasteur Institute at Paris, presented an important paper to the Academy of Science, in that city, on Monday last, outlining the possibility of a cure for gangrene by means of a serum discovered by M. Weinberg, a French scientist, which counteracts the effect of a bacillus found by him in gangrenous wounds. Wounds treated with this serum have been found to considerably improve.



