possibility. There was the possibility, suggested by a single positive experimental result, of the transmission of the virus from an infected female louse to the ova. The recorded experience in the German army during the War, however, had been that the risk of transmission of the virus to man through a second generation of infected lice was negligible.

FULMINATING CEREBROSPINAL FEVER: PROGNOSIS AND TREATMENT.

By Captains P. W. MclLAGAN and W. E. COOKE.
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"This is the most malignant form of meningitis. It runs a very acute course and frequently kills the patient in from a few hours to a day."—Epidemic Cerebrospinal Meningitis," Sophian.

"The fatal termination usually occurs within ten to thirty hours after the onset."—Meningococcus Meningitis," Heiman and Feldstein.

"The name fulminating or foudroyant has been applied to those cases which begin with startling suddenness and run a uniformly rapid course, terminating in death in twenty-four to thirty-six hours."—"Cerebrospinal Fever," Foster and Gaskell.

"Cerebrospinal meningitis may begin abruptly with unheard-of acuteness during apparently perfect health, and terminate fatally after a course of a few hours. Such is fulminating cerebrospinal fever."—"La Meningite Cerebrospinale," Netter and Debre.

Any form of treatment which can hope to modify favourably the course of this type of cerebrospinal fever is worthy of the most careful consideration. In a recent paper (British Medical Journal and Lancet, December, 1916), we drew attention to the constant association of haemorrhagic adrenalitis with the fulminating type of cerebrospinal fever. In this type we pointed out that death was due, not to the severity of the meningitis, but to a sudden withdrawal from the circulation of the internal secretion of the adrenal gland, on account of interference with its secreting cells. This results in loss of tone of the muscle fibre of the blood vessels and failure of the peripheral circulation, with secondary failure of the cardiac muscle.

Within a very few hours of the onset of the disease the patient is frequently pulseless at the wrist, but the heart continues to beat for some considerable time. In spite of this, the peripheral circulation cannot be maintained because of the dilatation of the blood-vessels, the patient becomes intensely cyanosed, and death takes place because of the cessation of the circulation.

In the same paper we suggested that it might be possible to replace artificially the epinephrin in the circulation and so restore the vascular tone, until such time as the adrenals might recover their function, or
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untill this could be undertaken by other members of the chromaffin system. This might be effected by intravenous or intramuscular injection of adrenalin. Subcutaneous injection is useless because the local vasoconstriction produced prevents absorption.

During the three past months we have had several opportunities of testing this theory in fulminating cases of cerebrospinal fever, and we think that the results are sufficiently striking to merit further trial.


Case 3.—W. History of abrupt onset. March 9, 1917: On admission: Quite unconscious. Profuse purpuric rash covering face, trunk and limbs. On left thumb and right toes, haemorrhage into deeper tissues. No pulse
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Case 7.—I., April 5, 1917. On admission: Unconscious and very restless; intense cyanosis and profuse petechial rash. No radial pulse
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Case 8.—B. Acute onset day previous to admission. April 19, 1917: Complains of severe headache; neck stiff; Kernig present; profuse hemorrhagic rash; marked cyanosis; pulse slow, 64, feeble and irregular. Temperature normal. Liq. adrenalin ten minims every four hours. Lumbar puncture forty-five cubic centimetres faintly turbid fluid, containing meningococci, serum. April 20, 1917: Pulse much stronger and regular. Serum treatment continued. Adrenalin stopped. Complete recovery.


The above cases were all of the fulminating type, and all, with one exception, were in a pulseless condition on admission. Each received
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injection of liq. adrenalin in doses of ten minims to twenty minims of the 1,000 solution, either intravenously or intramuscularly.

In all, with one exception, the radial pulse became perceptible, and with the same exception, recovered sufficiently to run a course not unlike the ordinary acute case so far as the meningeal element is concerned.

Each case was treated by intrathecal and intramuscular injection of antituberculous serum, in addition to the injection of liq. adrenalin.

The mortality rate in this series is thirty-three per cent, and while the numbers are far too small to allow one to state definite conclusions, it would appear that the prognosis in cases so treated is more hopeful than that suggested in the opening quotations.

ON THE USE OF ACETOZONE AS A GENERAL SURGICAL ANTISEPTIC

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AND

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The important properties of an ideal antiseptic appear to be (vide Browning and others, British Medical Journal, January 20, 1917):—

(1) Great potency against all micro-organisms in presence of protein material, as serum, etc.

(2) No deleterious effect on phagocytosis.

(3) Innocuous effect on tissues.

(4) Stimulating effect on connective tissue cells so as to promote healthy granulations.

(5) No toxicity.

In benzoyl-acetyl-peroxide we have a preparation that fulfils these conditions.

After previous experience of this substance in my surgical wards, I introduced it into this country in May, 1915, and have used it extensively in London Military Hospitals since then as an antiseptic solution in the treatment of septic wounds. Its formula is C₆H₅CO O O COCH₃, and it is known as acetozone. It has been used for years as an intestinal antiseptic in enteric fever and mucous colitis by physicians, and as a throat spray, but its use as a general surgical antiseptic application to wounds is unknown here.

The curative effect of a solution of this drug (a) containing five grains to the pint and used cold as a bath (cost is 8d. a gallon at Army prices, and plenty of it is available); (b) or a seven-grain solution with one-third hot water added. Its action is very rapid indeed; unhealed amputation stumps heal quickly if put into a bath of this solution for half an hour