A certain number of the patients definitely attributed the onset of their nervous symptoms to some infective illness. It therefore appeared to be desirable to endeavour to find out if there was any causal relation between the effects of gas poisoning and infections, and the onset of symptoms of neurasthenia. With this objective in view the whole series of cases were analysed with a view to separating those who had recently been gassed or suffered from some infection previous to the onset of nervous symptoms from those in whom there was apparently no antecedent infection or gassing which could be related to the neurasthenia.

The result was as follows: Of the 100 cases, 52 gave a history of recent gassing or infection previous to the onset of neurasthenia, 48 gave no such history. The nervous symptoms were so diverse in character, and it is so impracticable to estimate them quantitatively, that it was not possible to classify the patients in order of severity of their symptoms, so that a table comparable to Table III cannot be given.

As stated above, the circulatory and respiratory mechanisms are not necessarily proportionately affected in mild cases of D.A.H., and with a view to obtaining further information in this connexion we have examined the condition of other reflexes in these neurasthenic patients. In making this attempt we were faced by the obvious difficulty that reflex responses cannot be estimated quantitatively. One has therefore to depend on some such arbitrary classification as brisk and sluggish or increased and normal.

On examining the clinical notes of the whole series of cases, it appeared that on the whole there was a tendency for the patients to show some exaggeration of the tendon reflexes, abdominal reflexes, etc. Tremor of hands and tongue was also frequently present. With regard, however, to both tremors and tendon reflexes, it was not possible to classify the patients into groups corresponding to the headings of Table III. There did not appear to be any relation between the severity of D.A.H. symptoms and the frequency of occurrence of exaggerated reflexes. Similarly, no relation could be observed between exaggerated reflexes and a history of recent gassing or infection.

With regard to tremors, however, it was evident that this symptom is more severe in cases showing well marked D.A.H. symptoms than in those who do not suffer in this way.

In view of the functional symptoms so frequently found in patients suffering from D.A.H. as a result of irritant gas poisoning, it was thought advisable to try to obtain some information as to the possibility of the upset of the Hering-Breuer reflex in these patients being of functional origin. An attempt in this direction was made at Taplow.

One of the gassed patients who showed the symptom of rapid shallow breathing to an extreme degree was hypnotized, and while in the hypnotic state was told to breathe slowly and deeply. In response he somewhat increased the depth of his respirations, but the rate remained quite unaltered. Consequently, when the experiment was terminated after a few minutes, he showed indications of over-ventilation. Immediately after he was roused from the hypnotic state the breathing became as shallow as before. The rate remained uninfluenced throughout. Since in this preliminary experiment there was no certainty as to the degree of hypnosis obtained, a second attempt to influence the rapid shallow breathing by hypnotic suggestion was made at the Ashhurst War Hospital.

The patient (Pensr. W.) joined the army in 1914, having previously always had good health. He gave a history of gradual onset of nervousness and of dysentery in France. Never gassed.

On admission his respirations were rapid and shallow, varying between about 40 and 53 per minute. His pulse rate also varied from about 80 to 120.

Hypnotic treatment was tried as follows:

January 3rd. First hypnosis: Not asleep; respirations 44 per minute.

January 5th. Second hypnosis: Slightly deeper; respirations 44 per minute.

January 8th. Third hypnosis: Relaxes well; respirations 44, varying slightly and going up to 46 just before he wakes spontaneously.

January 9th. Fourth hypnosis: Respirations 36, sitting quiet; 34 after three minutes.

January 11th. Fifth hypnosis: Seems to go fairly deep; feels warm glow in abdomen; cannot lift hand; respirations remain at 36 per minute, in spite of suggestion; respirations almost entirely costal.

Hypnotic treatment was then suspended for a time, and during the next few months he improved somewhat on the whole with rest, graduated exercise, and occasionally oxygen at night.

In May hypnosis was again tried by another medical officer daily for about a week. Respirations in waking state varied between 30 and 40 per minute. Under light hypnosis they could be reduced to 24, and on one occasion to 20 for about a minute, becoming more abdominal in character. The respirations would remain at about 25 per minute as long as he remained recumbent and relaxed, but returned to 30 to 40 as soon as he sat up.

CONCLUSIONS.

1. Of 100 patients admitted for "neurasthenia" 13 showed well marked symptoms of D.A.H., and 57 had the same condition in lesser degree.

2. The evidence available does not show the same causal relation between previous infection or gassing and "neurasthenia" as holds in the case of D.A.H.

3. No definite relation could be traced between the abnormal Hering-Breuer reflex of D.A.H. patients and the altered tendon reflexes of neurasthenia.

4. Attempts to control the Hering-Breuer mechanism by hypnotic suggestion were only partially successful. The respiration could be slowed for a short time while the patient was relaxed, but no permanent effect could be obtained.

We are indebted to the medical officers of the Ashhurst War Hospital for the clinical notes of the patients, and in particular to Major W. McDougall, F.R.S., who also carried out the first hypnotic treatment in the case of Pensioner W. We are also indebted to the Medical Research Committee for much help, and also to the British and Australian army authorities. To all these we wish to express our thanks.

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TWO CASES OF PNEUMO-BACILLARY MENINGITIS OF BACTERIOLOGICAL INTEREST.

BY

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The following is an account of a bacteriological and pathological investigation of two cases of meningitis which occurred in No. — General Hospital, E.E.F., during 1917; they presented features of unusual interest, for the reason that the organism isolated from the first case closely resembled *B. pestis*, and in the second case the clinical aspects were so closely allied to those seen in cerebro-spinal meningitis that until the *B. pneumoniae* was isolated from the cerebro-spinal fluid the case was considered to be one of meningococcal infection.

CASE I.

Pte. X. was admitted to hospital suffering from an enlarged, hard, and painful gland in the posterior triangle of the neck; his temperature on admission was 102° F., and his mental condition was sluggish. In a short time (about one week) marked drowsiness supervened, and this passed on to coma, from which he did not recover. Shortly after admission the gland in the neck was incised; a sterile swab was passed deeply into the wound and sent in for bacteriological investigation. No obvious collection of pus was found upon incision.

An agar culture was made, and after forty-eight hours at 30° C. opaque, greyish-white shining colonies had appeared; a Gram preparation made from these colonies showed: (1) Cocco-bacilli, a few of them showing bipolar staining with fuchsin, and occurring at times in pairs. (2) Rod and filament forms. Both of these were negative to Gram staining. A guinea-pig inoculated with the culture died after six days; films made from the spleen (which showed, naked eye, numerous yellowish-white areas) and inguinal glands showed large numbers of cocco-bacilli, many of which showed definite bipolar staining with fuchsin or Loeffler's methylene blue.

Cerebro-spinal fluid from this patient was cultured upon agar and serum-agar at 30° C., and colonies similar to those obtained from the gland juice had grown after thirty-six hours; films made from these colonies showed Gram-negative cocco-bacilli and filament forms, with occasional bipolar staining in the former. The sugar reactions of a pure subculture gave glucose (ac.), lactose (ac.), mannite (ac.), no gas being formed in any. Gelatin was not liquefied, and upon potato the organism grew well.

At the end of the third week the patient died, the *post-mortem* findings being as follows: (1) Purulent exudate at base of brain:

(2) normal spleen; (3) other organs apparently no naked-eye change.

A rat was inoculated with pus from the base of the brain, and died after fourteen days; films made from the spleen and inguinal glands showed cocco-bacilli morphologically identical with those found in the guinea-pig. Cultures upon agar and serum agar of the pus from base of brain of the patient showed numerous colonies after twenty-four hours at 30° C., these being shown to be composed of an organism identical with that isolated from the gland in the neck.

In addition to the above investigations cultures were made from the blood of the patient during life and *post mortem* from the heart, but all proved negative for enterica or for septicaemia.

The interesting features about this case were:

1. The morphological similarity of the isolated organism to *B. pestis* (pleomorphism, bipolar staining). The cocco-bacilli seen in the smears of the guinea-pig's spleen and in those from the rat might possibly have been confused with *B. pseudotuberculosis rodentium*, but the animals were shown to be quite healthy before inoculation.

2. The meningococcus may at times assume a somewhat variable morphology, but the presence of bipolar staining and filament forms is unusual.

3. After about three subcultures upon agar the character of bipolar staining had disappeared, there being only deeply staining cocco-bacilli, occurring for the most part in pairs.

Finally, sugar reactions of a pure subculture corresponded in all respects with those given by *B. pneumoniae*—that is, a complete fermentation (AC + G) with all the ordinary sugars.

Clinically the case was unlike one of bubonic plague; the duration of the illness and the fact that the cervical glands are rarely affected (about 5 per cent. of all cases and then generally in children),¹ also the rarity of meningitis as a complication, all tended to negative the diagnosis of plague.

Cases of "larval plague" might possibly simulate such a case, but these are uncommon except when occurring during an epidemic.

B. pneumoniae varies somewhat in its cultural and morphological characters, according to the body medium in which it is growing—in this case a gland, and finally the cerebro-spinal fluid; bipolar staining is stated to be a fairly common variation in cases where the organism is passed through a guinea-pig or rat, and is a point which should be borne in mind.

CASE II.

Pte. Y. was admitted to hospital with clinical signs and symptoms pointing to a meningitis. No enlarged cervical glands were found and Kernig's sign was absent. A specimen of cerebro-spinal fluid was sent for cytological and bacteriological examination but gave entirely negative results; this specimen being quite clear and yielding upon centrifugalization only a few mononuclear leucocytes. A second specimen of cerebro-spinal fluid was sent next day, and this time was opaque, a film from the centrifugized deposit showing polymorphs in large numbers and a few coccoid and cocco-bacillary organisms which were Gram-negative as to staining. A culture of this deposit (pus) on Loeffler's serum gave, after twenty-four hours at 37° C., numerous opaque greyish-white shining colonies which proved to be composed of Gram-negative cocco-bacilli, occurring for the most part in pairs. The sugar reactions were as follows: Glucose, AC+G; lactose, AC+G; mannite, AC+G; saccharose, AC+G; dulcitol, AC+G; thus definitely showing that typical *B. pneumoniae* was the infecting organism. This strain grew well and rapidly upon agar at 37° C., and cultures showed a certain amount of pleomorphism.

This patient made a good recovery.

The author's thanks are due to Major Ferguson, R.A.M.C., Director of the Military Bacteriological Laboratory, E.E.F., for his assistance in carrying out the animal inoculations, etc., in connexion with Case I, and to Captain Campbell, R.A.M.C., of the same laboratory, for performing the *post-mortem* examination in the author's absence.

REFERENCE.

¹ Stitt, *Tropical Diseases*.

OF four hundred Serbian doctors in practice before the war, it is stated that in August fewer than one hundred were left.

THE Paris Neurological Society is organizing an annual meeting which neurologists and psychiatrists of various countries will be invited to attend. The first will be held in Paris in July, 1921, and will extend over two days. The question proposed for debate is the clinical forms and the treatment of syphilis of the nervous system.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RADICAL CURE OF FEMORAL HERNIA BY THE INGUINAL ROUTE.

AN operation for radical cure of femoral hernia I have performed for several years past has given perfect satisfaction and can be thoroughly relied on, provided there is asepsis. The method has been described in the *American Journal, Surgery, Gynecology, and Obstetrics*, September, 1918. The idea is to produce a closure on the ball valve principle.

The Operation.

Make a sufficient incision just below and parallel to Poupart's ligament. Expose the sac and its coverings. By gauze dissection free the sac and its coverings up to the femoral canal. Pulling on the sac, with a blunt dissector separate the attachments in the femoral canal. Open the sac and split it well up to the ring. Free adherent omentum and reduce the contents if possible. Now dissect up skin and fascia well above Poupart's ligament and incise the external oblique aponeurosis a quarter to half an inch above Poupart's ligament and parallel to it. Retract the cord or round ligament inwards. Incise the transversalis fascia from the spine of the pubes upwards and outwards, parallel to Poupart's ligament. Curved artery forceps are now passed up from the thigh through the femoral ring, external to the sac and coverings, to the abdominal aspect, and there the points of the forceps are exposed in order to see that the way is free and that there is sufficient room. From above, curved artery forceps are now passed downwards on to the thigh, and one half of the sac and its coverings are seized and pulled upwards to the abdominal aspect, and then the other half is made to follow suit. Examine the opening and free any further adhesions if present. Carefully, with needle and catgut, suture the neck of the sac high up, leaving the distal part intact. Now with needle and catgut stitch the sac and its coverings, till it assumes the shape of a ball, about half as big again as the abdominal aspect of the femoral ring. This size can be gauged with the finger. Finally, leave two long ends of this last piece of catgut at the distal portion of the ball. Curved forceps are now passed upwards from the thigh, through the canal, and the two terminal ends of catgut are seized and pulled downwards through the femoral canal on to the thigh. Gently pull these two ends of catgut till the ball of sac has been well wedged down beneath the transversalis fascia, which thoroughly blocks the opening at the abdominal aspect of the femoral ring. Thread one of the catgut ends on a needle, and this needle takes up a portion of the pectineal fascia, then the needle is withdrawn and the two ends tied together, thus steadying the ball valve of sac on the abdominal aspect of the femoral ring. The result is obvious that the more the patient strains the firmer the closure. Suture divided structures.

Patients can be guaranteed a cure, and can be got out of bed in a week. One of my last patients was a gentleman of about 70, whose hernia was strangulated, and he was home and walking about in a fortnight. The operation is a little tricky, and is best carried out by a surgeon of experience.

Edinburgh.

J. W. DOWDEN.

POLYCYTHAEMIA IN MITRAL DISEASE.

IN April of this year a Chinese girl, 16½ years of age, was admitted to the Victoria Hospital, Hong Kong, under my care, complaining of great dyspnoea and distress on the slightest exertion. She had fainted several times lately. Both the girl and her mother were of the uneducated class, and a history was difficult to elicit, but it appeared that although the condition had existed for some years it did not date back to early childhood. The girl was slightly built, her breasts were quite undeveloped, and she had never menstruated.

The heart's apex beat was somewhat heaving and diffuse, and 4½ in. to the left of the mid line in the fifth intercostal space. The right border of the heart extended ½ in. beyond the right border of the sternum. There was a marked presystolic thrill and definite presystolic and systolic bruits at the apex; the latter conducted into the axilla. The second sound at the pulmonary base was much accentuated, and after any slight exertion a very soft, blowing, mid-diastolic murmur could be heard at the pulmonary base, conducted down the left border of the sternum. This apparently was due to a certain degree of incompetence of the pulmonary valve, induced by long-standing high pressure in the pulmonary circuit, secondary to the damaged mitral valve. No signs of congenital abnormality could be made out. There was a slight cough throughout, with a few crepitations at the bases of both