ature was 100.6° F. the highest recorded during the illness; it dropped to 99° F. in the evening, and only once again reached 100° F., and that on the day following admission. The pulse was 100, regular in force and rhythm. The urine, specific gravity 1027, contained neither albumen nor sugar. There was no difficulty in swallowing, and the patient took fluids easily out of an ordinary feeder.

After-History.—On the night of admission at 2 A.M. he had a general tetanic spasm which lasted about two minutes. In this first spasm he did not go into a state of opisthotonos, though in the later spasms the body assumed this position. During this and successive spasms the pulse became almost uncountable, on account of its increased frequency. After this spasm he was given potassium bromide grs. xv, with chloral hydrate grs. x, but this was not repeated, and was, in fact, the only drug treatment throughout the illness.

Treatment by Antitetanic Serum.—The diagnosis of acute tetanus having been made, communication by telegram was made to London for a supply of antitetanus serum. This arrived the following day, and the first dose of 10 c.cm. was given subcutaneously in the loin at 1 P.M. on January 27th. The prick of the needle caused another general spasm, on which account the succeeding injections were given under chloroform, which generally, though not always, prevented further general spasms from this cause. Doses of 10 c.cm. were injected hypodermically uninterruptedly every four hours for twelve more doses. After this the injections were continued four-hourly for six more days, but were now given *per rectum*, which operation did not cause any general spasm. They were then given eight-hourly for three days longer, and finally omitted on February 9th. In all, 13 injections were given hypodermically, and 55 *per rectum*, making a total of 680 c.cm. of serum used. In the subsequent history of the case there is not much to note. On February 2nd (seven days after the first dose of serum) an urticarial eruption appeared around the seat of inoculation in the loin; this spread over the abdomen and down the thighs, but was not accompanied by any rise of temperature, and lasted only two or three days. This was the only ill-effect that could be ascribed to the serum. The patient henceforth made a slow but uninterrupted recovery.

Convalescence.—The abdominal muscles remained rigid for two or three weeks after the other symptoms had subsided, but these gradually relaxed under continued rest and hot baths. He was discharged to our convalescent home at Cromer on March 10th, feeling perfectly well.

The following curve shows the relation between the spasms and the serum inoculations:

It will be seen that the maximum daily number of spasms occurred on the fourth day after the serum treatment was commenced, after which there was a gradual decline in their severity and number to the zero line five days later. This was to be expected, since the toxin had had seven clear days to produce its effects before the serum treatment was begun; and the operation required for the hypodermic injections in part explains the frequency of the spasms, since, as I have said before, the administration of chloroform did not always prevent these.

In the war of the American Rebellion the mortality from all cases of tetanus, 505 in number, was 89.3 per cent., and in 203 of these cases there were only 2 recoveries.¹ With such a mortality one may, I think, justly ascribe the success in the above case to the serum, since all treatment by drugs was withheld. I would go further, and say that the success was due to the quantity of serum used. In many of the previously recorded cases I find that the amount of serum used is indefinitely stated, as is also the day on which the first symptom appeared. But I find that Mr. Stanley Copley² gave 160 c.cm. of B. I. P. M. serum plus 13½ grams of Tizzoni's serum to a case that recovered, the injections extending over a period of ten days, and, as far as I have been able to make out, this is the maximum quantity hitherto recorded as having been given.

The present case is instructive on two or three points. In

the first place it confirms the belief that cases of acute tetanus can be successfully treated with the antitetanic serum if this is given in sufficiently large doses and frequently repeated. Secondly, it suggests that it is probably not necessary to resort to the intracerebral method of administering the serum provided that this be given in sufficient amount. Thirdly, it emphasises the fact that in serum-therapeutics the chances of ill-effects from over dosage is remote. And, fourthly, it encourages us not to condemn the various antitoxins before these have been standardised, and their efficiency has been disproved by a fair and unbiassed trial.

The rectal injections were given through a flexible rubber tube of small calibre under hydrostatic pressure, about an ounce of pancreatised milk being used to drive the serum into the bowel to minimise the chance of waste. A plain warm water injection of a pint was given daily to wash out the rectum whilst the enemata were being continued. There is nothing novel in resorting to this method of giving antitoxin, though I have not seen recorded a case of tetanus that was treated in this manner.

I would add for the benefit of your readers that the serum used in the above case was all supplied by Messrs. Parke, Davis, and Co., and that the total cost of the amount used was £10 10s.

REFERENCES.

- ¹ Allbutt's *System of Medicine*, vol. i, p. 789. ² BRITISH MEDICAL JOURNAL, vol. i, 1899, p. 337, et seq.

PUERPERAL ECLAMPSIA AND ITS TREATMENT BY MORPHINE.

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As cases of this disease are of comparative rarity in private practice, and its results usually so disastrous, this report of several cases which have come under my observation may be of interest:

In 1895, in consultation with Dr. Saunders, I saw Mrs. Q., aged 28, primipara; she had had one fit, and her urine was loaded with albumen, being almost solid on boiling. As we decided to induce labour, chloroform was administered and the os was dilated, the fits at this stage coming on at frequent intervals till a dead child was born. She remained in a dazed condition for six days, and then died.

The next case I saw two months after, again in consultation with Dr. Saunders, his partner, and Dr. Greathead; Mrs. T., aged 25, primipara, eighth month, whose urine was found to be loaded with albumen. We agreed that no operative measures should be adopted unless fits should come on. The same night she had numerous severe fits, and we all agreed that labour should be induced. Chloroform was given without any effect upon the fits; the child was born dead, and the mother, going from one fit to another, died the next day.

The next case I saw one month after this was that of Mrs. S., aged 21, in the eighth month, who had had one fit. Her face was puffed, she had severe headache, and the urine on boiling was almost solid. I ordered liq. ammon. acet. 3ij ter die. The albumen greatly decreased, while the urine increased, and she was safely delivered of a baby three weeks after without any return of the fit. The albumen disappeared from the urine one month later.

On June 5th, 1890, I was called in to see Mrs. S., primipara, aged 29. I found that she had one slight fit, from which, however, she had recovered when I saw her. She had oedema of the eyelids and legs, and her urine, on being boiled, was solid with albumen. Soon after, she had two more fits and my partner (Dr. Bays) and I saw her in a third one of a most severe character, from which we thought it unlikely that she would recover; however she slowly improved. Dr. Greathead saw her in consultation, and pulv. jalapæ co. and elaterium having been given, dry cupping was tried. A hypodermic injection of gr. ½ of pilocarpin, beyond making her perspire feebly, had no effect. The fits continuing severely, and the labour progressing, though slowly, at 3 P.M. I injected hypodermically gr. ¼ morphine, gr. ⅙ atrop. sulph. From that time she had no more fits. At 11 P.M. I repeated the injection; she was then breathing stertorously and was unconscious, taking no nourishment and passing no water. The next morning I again injected gr. ¼ morphine, and at 1 P.M. the child was born naturally, the mother being conscious though somewhat dazed. For two days I gave morphine, gr. ⅙, night and morning, and also put her on liq. ammon. acet. The albumen rapidly decreased in amount, and a fortnight afterwards only a trace remained, and the patient was practically well. A point of great interest was that the child, a male, when born was quite black, and after taking two or three breaths had a severe fit; he was put into a warm bath and given castor oil. For four days he took no food, his lips being moistened with milk and water. During this time he had thirty-nine fits in all; on the fifth day the fits ceased, and he is now perfectly healthy.

Eight days later my partner, Dr. Bays, saw A. L., a primipara, aged 33, who was said to be a few days over her time, and to have had six fits during the night. At 7 A.M. she was in a somewhat dazed state, had bitten her tongue, and was in the early part of the first stage of labour. Four grs. of calomel, 2 ozs. of mist. sennæ co., and a mixture of liq. ammon. acet. and morphine were ordered. Three hours after he was summoned to see her, and was told that she was dying; the fits had come on much more

severely, and she was then in one which had lasted over an hour. Morphine gr. $\frac{1}{2}$, with atrop. sulph. gr. $\frac{1}{10}$, was injected, soon after which the fits ceased. As the aperient had not acted, enemata were administered without effect. She remained free from fits till the evening, when they again returned with great severity; the os was then slowly dilating, and the pains coming on regularly, but with little force. Another injection of morphine gr. $\frac{1}{2}$ caused a cessation of the fits, which did not return. On the succeeding morning morphine gr. $\frac{1}{2}$ was injected, and the labour was found to be progressing slowly. During these two days she remained in a semi-conscious condition, not recognising anyone, though capable of feeling pain. On the evening of the second day, as the os was well dilated, and there was uterine inertia, chloroform was administered, and a dead child was delivered with forceps. The mother was in a restless and sleepless condition for four days afterwards; this was relieved by injections of morphine gr. $\frac{1}{2}$. The urine, which in the early stage of the illness contained one-eighth albumen, was free from it on the fifth day. The bowels were at last moved by repeated doses of mist. sennae co.

These cases suggest the conclusion that to induce labour, however severe the fits, is a great mistake, the two cases so treated terminating fatally, whereas those in which no operative procedures were carried out with a view to remove a cause of the fits recovered perfectly. In both cases the fits were almost at once checked by the administration of morphine, and did not return so long as the patient was under its influence. Another advantage is that morphine is free from the depressing effect upon the heart exerted by chloroform or chloral. The old idea that it exercised a bad effect in cases of renal trouble would appear to have no foundation in fact.

SYPHILIS IN THE ROYAL NAVY.

By J. P. H. GREENHALGH, M.B., CH.B.VICT.

Surgeon, R.N.

COMPARATIVELY recently it was pointed out in the BRITISH MEDICAL JOURNAL that the decrease in the late venereal returns of the Indian Army could be accounted for on two grounds, these being (1) the inclusion of syphilis under the Cantonments Act for infectious diseases; (2) more efficient treatment. With reference to this question of treatment the following significant passage occurs:

We had occasion some 18 months ago to call attention to the fact that in very many instances soldiers were only treated for syphilis as long as there was some outward sign of the disease, and that no regular and long-continued treatment was carried out. After the secondary symptoms had disappeared temporarily, and the man was discharged from hospital, only too often no further medicine was taken until the disease broke out again, probably in a more virulent form.

This is a serious indictment, touching as it does our professional responsibility to those under our charge, which, whether in the public service or out of it, I take to be our first obligation. It is no less a matter of concern to have to admit that in the Royal Navy at any rate, this allegation contains a present-day element of truth. Two examples will suffice to show its applicability:

CASE I.—A. B., aged 23, stoker, contracted syphilis in March, 1899. He was sent to hospital early in July of the same year, where he remained for a period of seven weeks. In the following January he developed late secondaries; mucous patches and small ulcers were present on the lips, palate, and tonsils, and staining of the skin indicated the antecedent occurrence of a rash. He was again sent into hospital in February.

CASE II.—C. D., aged 20, stoker, contracted syphilis in the middle of January, 1900. He was returned from hospital about the end of March; three weeks later he reappeared for treatment. He had then a large indurated sore occupying the same position as the original chancre, and a roseolar rash over the trunk, characteristically syphilitic.

Reading between the lines, it seems that the first case was treated until secondary symptoms had disappeared, the second until the primary lesion had subsided; both men were then discharged to duty.

The fault does not lie at the doors of the hospital staff. It is obviously impracticable for men to be retained in hospital for periods of from twelve to eighteen months in order to undergo a continuous course of treatment. And it would be ridiculous to suggest that medical men in the navy do not recognise the imperative necessity for prolonged mercurialisation in syphilis equally with their professional brethren in other spheres of practice. The evil is rather the outcome of a faulty nomenclature.

Any case of venereal disease is, in accordance with the nosological requirements at the Admiralty, returned as primary syphilis. Whether the lesion be clearly one of Hunterian chancreoid infection or one of local contagious and non-infecting ulceration, the designation is the same, and here we have the crux of the whole question. A man is sent into hospital with venereal disease, and is discharged after a

few weeks apparently well, with "primary syphilis" entered on his medical history sheet. Should treatment be carried on?

It is not to be denied that many difficulties at present bar the way to a satisfactory answer. It may be argued that where a differential diagnosis has been established before the patient is forwarded to hospital, it is incumbent on the medical officer primarily responsible to continue or discontinue treatment when the man returns under his care, as the case requires. Where, however, the doctor or the patient is shortly transferred elsewhere, other arrangements are necessary. In such an event a supplementary note on the history sheet would clear up the ambiguity of the official entry, and the purpose would still be served. Such an innovation, however, the effectiveness of which depends on its universal application, could only be introduced through the proper channels, and even if this were not so, is it satisfactory that individual expedients should be a substitute for official action? To the medical mind the term primary syphilis is specifically limited to the true infective process, and that it should include other conditions which *in ipso* are pathologically distinct is as confusing as it is unscientific. Once the wide-reaching difference between Hunterian syphilis and non-infecting venereal ulceration is recognised, and its importance made obvious on the medical history sheet, the way for thorough treatment, which means diminished overcrowding of hospitals by cases of secondary syphilis, improved statistics, and a corresponding increase in the effective strength of the navy is made easy. In every depôt and on every ship a time list of men under treatment would be kept; in the case of men newly joined a brief inspection of their history sheets, coupled with the certain knowledge that where specific disease existed treatment had been regularly carried out up to date, would give all the information necessary to the completion of a prophylactic circle embracing the entire navy, and to the carrying on of an adequate campaign against this formidable and insidious disease.

NOTE ON A CASE OF PROTRACTED STUPOR OR TRANCE,

TREATED IN THE ROYAL INFIRMARY, NEWCASTLE-UPON-TYNE.

By DAVID DRUMMOND, M.D.,
Senior Physician to the Hospital.

D. B., a clerk, aged 26, was admitted into the Royal Infirmary, Newcastle-upon-Tyne, on March 31st, 1900, in a state usually described as lethargy, trance, or stupor.

History.

He was always more or less melancholic and reserved, and religious to the verge of fanaticism. During the previous two years he became less and less communicative and increasingly taciturn, and for twelve months prior to his admission he seldom spoke unless addressed, lost his appetite, and became thin and pale, but attended regularly to his employment until seven weeks before his admission, when he voluntarily retired into private life, and spent his time reading the Bible and taking solitary walks. A little later he declined to leave his bed, and refused food, and towards the end of March his illness culminated in a "fit" (?), when he passed into the state to be presently described.

Family History.

A neurotic family history was elicited. His grandfather died in an asylum and his brother committed suicide, whilst one brother died of phthisis during the patient's stay in the infirmary.

Condition on Admission.

He was a tall, spare, sickly, and anæmic young man. There was no history of sexual irregularities. At the time of admission to hospital it was stated by friends who brought him that he had not moved or spoken for a week. He lay motionless and took no notice of his surroundings. His eyes were open and appeared to stare in front of him with a far-away look that suggested subconsciousness. His limbs were cold, flaccid, and unresisting. The tongue was coated and the breath foul, and nutrition much lowered. The reflexes, superficial and deep, were just perceptible, but the corneal reflex