Much has been written of late upon the value of the diazo-reaction as a test for enteric fever, but it still seems that opinions are by no means unanimous as to the worth of the test in the diagnosis of this disease; and it has certainly been proved that the reaction occurs in maladies other than enteric fever, of which diseases tuberculosis is the most important. Acting on the above principles, I have examined the urine in 125 cases of all kinds and descriptions for the diazo-reaction. The cases have not been selected in any way, but the process has been applied in the out-patient room and the result noted.

Of these 125 cases in which the urine was examined, 5 only gave a positive reaction. In 120 instances no result whatever was obtained. Amongst those patients whose urine gave a negative result were instances of diseases of the lung of various kinds—phthisis, heart disease, gastric ulcer, bronchitis, etc.

The 5 cases were classified as follows: One was a case of acute tonsillitis, another of lobular pneumonia, two were cases of enteric fever in an early stage, and one was suffering from acute tuberculosis. The last patient was thought at first to have enteric fever, and this from a general consideration of history and symptoms. The occurrence of a positive reaction with the colour test not unnaturally tended to strongly strengthen this view of the nature of the case.

Nevertheless, the event proved that the diagnosis was incorrect. Thus the diazo-reaction broke down just at the very point when it would be of the greatest possible use. The extreme difficulty, even the impossibility, of differentiating typhoid fever from tuberculosis is generally admitted, and it is unfortunate that this test, so promising in many ways, should fail us in making a very important and difficult diagnosis.

Three other cases of enteric fever were carefully tested, but they all gave negative results. These cases were all in a more or less advanced stage of convalescence, which does not, however, render the occurrence of the reaction in any degree unlikely, for many cases are recorded in which the result was positive months after the attack of enteric fever had been recovered from.

I have also, subsequent to the above observations, made many examinations of the urine of patients suffering from typhoid fever, for the purpose of finding the diazo-reaction. Speaking generally, I have found that at some period of the fever the result was nearly always positive, and this usually at an advanced stage of the malady—that is to say, at the end of the second or early in the third week. Positive results were always most freely obtained when the temperature was high and the symptoms severe; in other words, they were always most obvious in well-marked and anxious cases.

The result of my observations, so far as regards enteric fever, is that the diazo-reaction is of little or no use in a practical sense. And this because it does not occur at a stage of the malady at which alone difficulties can really arise—the early stage. Further, the liability of a positive reaction to recur in cases of tuberculosis is a most serious drawback, and one which alone would tend to render the test valueless.

As regards the 125 cases, there was not once a positive reaction in the very numerous instances of gout and anaemia, and the same applies to diabetes.

It has been stated that in phthisis the reaction only shows itself in those patients in whom the malady is far advanced, and that, therefore, the fact of its occurrence should be regarded as a danger signal.

My experience of the diazo-reaction in phthisis is not large, but I have had the opportunity of applying the test in very advanced cases of the disease. My results do not in any way agree with those which would mark the diazo-reaction either as of usual occurrence in the later phases of the malady or, when it does occur, as being of any special significance. In ordinary cases of this description the result was negative, and when the reaction was positive there was no reason whatever to suppose that the case offered any special feature of gravity beyond that which is usual at the stage at which the affection had arrived.

It is worthy of note, too, in this connexion, that the case referred to above of acute tuberculosis, which was at first thought to be one of enteric fever, although showing a well-marked positive reaction, yet some months later was in no worse condition, the disease not having made rapid progress.

My experience, then, of the diazo-reaction is that from a strictly practical point of view it is of very little value. When the result is positive in enteric fever the malady is so far advanced that there can be no possibility of error as regards the diagnosis. In the very early stage, when alone there may be some little difficulty in determining the nature of the malady, the test usually gives negative results, and even if this is not the case the positive reaction by no means excludes the possibility of the case being one of tuberculosis.

In my judgement far too much importance is at the present time attached to laboratory tests in clinical medicine. A reversion to the old-fashioned but sound, though laborious, manner of acquiring a knowledge of the symptoms and physical signs of disease is greatly to be wished, for it is by the cultivation of the senses at the bedside and in the dead-house, and in this way only, that a real and satisfactory knowledge of medicine can be obtained.

THREE CASES OF CEREBRO-SPINAL FEVER TREATED WITH ANTIPYRIN.

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BY the kind permission of the Senior Medical Officer of Bermuda, I am enabled to publish the following cases of infective meningitis in the hope that further trial may be given to the treatment of this very fatal disease by antipyrin.

The disease broke out under the following circumstances: The transport *Montrose* left Durban for Bermuda on August 11th, 1901, having on board a detachment of 2nd Royal Warwickshire Regiment and Boer prisoners of war, of whom, including some embarked at Capetown, there were nearly 1,000. The *Montrose* is a large roomy ship with particularly airy troop decks, the height between decks being greater than usual, and she is furnished with large portways for cattle opening outward on each deck, which were kept open the greater part of the voyage. The prisoners of war embarked at Durban were recently captured, many of them emaciated and debilitated from the hardships of the field; their clothes were dirty, and scabies and pediculosis very prevalent. Old men and young boys were included, and all were suffering from mental depression, natural under the circumstances. The Capetown contingent, having been some time at Green Point, were in much better condition.

Measles broke out at the commencement of the voyage, as well as pneumonia of a particularly virulent type (39 cases with 13 deaths); influenza also ran through the ship. None of the troops, it may be mentioned, contracted pneumonia, and only one measles.

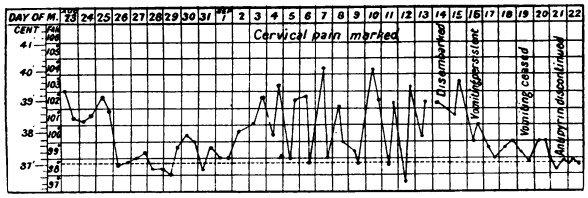
The weather was wet and cold from Durban half way to St. Vincent, afterwards mild and occasionally hot. The prisoners were not overcrowded, having more space than would be assigned to troops on a transport, but they stayed below as much as possible, and being accustomed to the veld felt the confinement of the ship a good deal. They were well fed, and suffered little from sea-sickness.

The first case of infective meningitis occurred on August 19th, and was rapidly fatal, the patient being brought into hospital in a comatose condition. The next case—that of J. de C., described below—was on August 23d. The third and fourth cases were among the patients isolated for measles, and both died on September 1st, after two and three days' illness. The fifth and sixth cases, H. J. C. and N. de B., were admitted on August 31st, and their cases are given in detail. No further cases occurred, and on September 1st the *Montrose* reached St. Vincent, between which port and Bermuda there was but little sickness of any kind.

The first, third, and fourth cases were treated on ordinary lines, and proved rapidly fatal; the remaining three cases were treated from the outset with antipyrin, and of these two, as will be seen from the following notes, recovered.

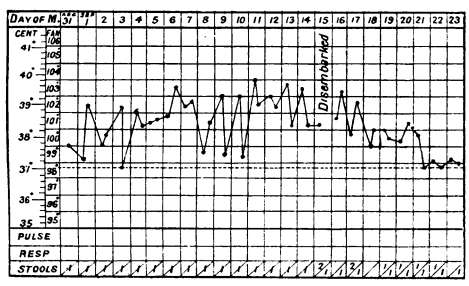
CASE I.—J. de C. (Transvaaler), aged 19, was admitted to hospital on the ss. *Montrose*, August 23rd, in a semi-comatose condition, continually crying out, and complaining of intense pain about the nape of the neck. Temperature, 103°. Antipyrin, gr. x, was ordered at once, and to be continued thrice daily. By the 26th the temperature had fallen almost to

normal, pain disappeared and the patient apparently convalescent. Antipyrin was stopped on 28th, but recommenced on September 3rd, the patient having relapsed with a temperature of 102.8°, and intense cervical pain. The pain rapidly diminished under this treatment, and the temperature pursued an irregular course, with a maximum of 104.4° on September 6th and 9th. On September 14th, on the arrival of the *Montrose* at Bermuda, the patient was transferred to the hospital for prisoners of war, Ports Island. Although every care was taken, he relapsed after transfer, complaining of cervical pain; vomiting also supervened, and was very troublesome. The temperature becoming normal on September 21st, antipyrin was discontinued and champagne given. He now improved steadily, vomiting ceased, and appetite returned, and he was able to sit up. The bowels acted on alternate days with an occasional purgative. On October 3rd he complained of inability to pass his urine, and a catheter was used until the 11th, when the power of micturition



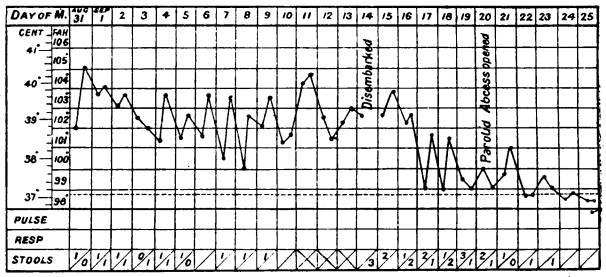
suddenly returned. On the 12th he again complained of intense pain in the neck, and consequent insomnia, lying with his head depressed and turned to the left, and groaning constantly; these symptoms were at once relieved by antipyrin and an icebag. On the 16th some constipation set in, which was with difficulty relieved by purgatives and enemata. On September 30th he complained for the first time of general headache, and he again had an attack of "cerebral" vomiting. Symptoms were not improved by sodium bromide, but relieved by antipyrin. His temperature now continued normal, his appetite good, he slept fairly well, and had occasional attacks of vomiting, occasional cephalalgia, occasional exacerbations of cervical pain, until his death, which occurred suddenly without rigor or convulsion, on November 21st, the ninety-first day of his illness. No necropsy was permitted. Throughout the case there was no inequality of pupils. Rigidity and stiffness of the cervical muscles was very marked, also photophobia and partial ptosis of the right eyelid.

CASE II.—H. J. C. (Transvaaler), aged 13, was admitted to hospital on the ss. *Montrose* on August 31st in a semi-comatose condition, constantly crying out for water, and complaining of pain in the back of the head and neck. The temperature was 100°, reaching 102.6° next day. Antipyrin gr. v ter die was ordered and continued steadily throughout the case. The temperature pursued an irregular course, ultimately falling by lysis; the "hydrocephalic cry" was most marked; restlessness and photophobia in a less degree; the neck was stiff and tender. He remained in a condi-



tion of semistupor until after transfer to Ports Island Hospital on September 14th. All cervical pain having disappeared, antipyrin was discontinued on September 21st. The patient was thin, weak, and anaemic, but made an uninterrupted recovery, rapidly putting on flesh. He was discharged from the hospital on October 19th, his mental faculties appearing in no ways impaired. He had, however, well-marked strabismus. The bowels acted regularly throughout; there was no inequality of the pupils.

CASE III.—N. de B. (Transvaaler), aged 15, was also admitted on August 31st in a semicomatose state complaining of pain in the head and neck. His temperature was 102°, reaching 103° in the evening. Calomel was given and antipyrin gr. v ter die ordered and continued throughout the case. Patient was very restless, complaining of the light, and when not asleep constantly crying out "Doctor, doctor," or "Water, water." Cervical rigidity was well marked. On September 6th the left parotid was swollen and tender, and two days later the right was in the same condition. The patient became extremely weak, and from September 10th to 13th all evacuations were involuntary. On the 14th he was transferred to Ports Island, being very restless, constantly crying out. Temperature 104.6°. On September 18th two large boils on the back were incised. On September 20th, fluctuation being distinct, both parotids were opened, and a large quantity of pus evacuated, and the abscesses drained. The temperature fell to 99°. On the 21st there was slight rise of temperature and some vomiting. On the 24th the patient, although very deaf, seemed for the first time to understand what was said to him, and from this point onward began to make steady progress. On October 4th a large gluteal abscess was opened. On October 15th he had a relapse, his temperature rising to 104° to 105°, and pain in the neck returning. Antipyrin, which had been discontinued since September 22nd, was ordered and continued until September 20th, by which time he was again convalescent. Recovery was now uninterrupted, and the patient discharged from hospital on December 13th. There was no inequality of pupils; there was well-marked squint during convalescence, but it disappeared before the patient left hospital.



To sum up: Of the 6 cases of infective meningitis on the ss. *Montrose*, 3 were treated in the ordinary way and died; 3 were treated with antipyrin, and of these 2 recovered; and 1 lived ninety days. The outbreak was not confined to one part of the ship; 2 cases were from the upper, and 2 from the lower troop deck, and 2 from the infectious ward, which was aft near the hospital. The causation of infective meningitis or cerebro-spinal fever is still uncertain, but the modern view that it may be due to infection of the meninges by different pathogenic germs receives support from the outbreak under consideration when measles, pneumonia, and influenza were all present, and from the occurrence of parotid and other abscesses in the case of J. de C. It is also confirmed by the case of an orderly (St. John Ambulance Brigade), who, being in good health, scrubbed out a ward in one of the hospital buildings in Bloemfontein, which had been long and closely occupied with enteric cases, and died in three or four days with all the symptoms of acute cerebral meningitis.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, ETC.

MALIGNANT SMALL-POX FATAL WITHIN SIX HOURS.

ON April 8th I was called about 8 A.M. to visit a boy, aged 10 weeks, and I saw the child within half an hour. The case seemed a very peculiar one. The whole face was covered with a subcutaneous haemorrhagic rash or purpura. But besides this there was a rash slightly elevated on the surface which closely resembled that of an ordinary case of measles, and though that disease occurred to my mind I could at once see, from the dusky skin and extreme prostration of the child, that the disease was not measles but something of a far more serious character. Beneath the jaw and around the neck were some half-dozen well-marked red patches, giving an appearance as if produced by touching the surface with the top of the finger dipped in blood. There were, as well, some six or eight similar spots on the buttocks, which were also covered with a subcutaneous mottling similar to that on the face. The rest of the body at that time, though of an ashy pale colour, showed no rash of any kind. The temperature was 101°. The child was partly unconscious, and groaned as if in pain.

I concluded that the case was one of malignant small-pox, and I informed the relatives to that effect; but on this my first visit I was not without some doubt. I asked my partner Dr. Hine to visit the case, and though he suspected small-pox he could not pronounce definitely. I then sent a note to the medical officer of health for this district to inform him of the case, and asked him to examine the child. He went directly, and after his visit he informed me that he thought the case an extraordinary one, and that he would not then wish to decide whether it was small-pox or not. As it was the first case of suspected small-pox occurring in the district,