of soda, and the internal administration of the sulphite of magnesia, had a remarkably beneficial effect.*

It appears, then, that the alkaline sulphites and hyposulphites are of value in the treatment of some diseases of the skin; and that they are deserving of a more extended trial than has hitherto been accorded to them.

NOTES OF A

CASE OF ACUTE TRAUMATIC TETANUS TREATED BY CHLORAL.

BY ALEX. BALLANTYNE, M.D. EDIN.

WHILE chloral is upon its trial the following details of this case may not be altogether uninteresting to the profession:—

On May 12th I was called to see J.S.—, a healthy, muscular man of sober habits, aged thirty-four. I found him lying on his back, his head bent backward, and sunk deeply in the pillow. He had a well-marked tetanic expression of face, and could open the mouth to the extent of only half an inch. He was sweating very profusely, and his pulse was 112. On moving the bedclothes for further examination, he had a severe opisthotonic spasm, during which there was great depression of the ensiform cartilage, accompanied by severe pain in the præcordia, and catching of the breath. These spasms recurred at short intervals. After the spasm the abdominal and thoracic muscles remained persistently hard, the back slightly arched, the legs straight, and their muscles rigid. The breathing was shallow and irregular. There was no difficulty in swallowing fluids, and no evidence of laryngeal spasm.

After a prolonged search a small suppurating wound was found at the base of the nail of the left thumb. He stated that a fortnight ago (April 27th) a thorn had run into his thumb, but that he had altogether disregarded the wound, as it had given him no trouble, though he thought the thorn had not been all removed. Further, that on the 9th of May he began to suffer from pain in the neck and stiffness of the jaw. On the 10th he was worse, and took salts and senna, which acted very severely. On the 11th the medicine still continued to act, spasms affecting the whole body occasionally occurred, and he was entirely confined to bed. He said that since the 9th he had slept but little, on account of the pain in the back. A slight incision through the skin was sufficient to expose the portion of thorn left, which was easily withdrawn, and a poultice applied. As he was some distance from town, I left him two fifteen-grain doses of Dover's powder, to be given with an interval of three hours between them.

On the following day (13th) it was found he had passed a sleepless night, and had suffered severely from spasms, recurring at short intervals. Condition generally much the same as yesterday. Pulse 112; temperature 103°; profuse sweating. Determined to give chloral alone in subsequent medical treatment. At 2.30 P.M., one drachm of chloral was given, and in five minutes he was asleep, rigidity of the muscles of the abdomen, thorax, and legs still remaining. Slept without stertor till 7 P.M., when he awoke, took beef-tea with relish, and slept till 9.30 P.M. At 10 P.M., pulse 100; temperature 99.5° (note the fall). He has no perspiration, and does not complain of pain; muscles still very tense. Gave half a drachm of chloral, which was repeated at 1 A.M. on the 14th, and also at 6 A.M., 10 A.M., and at 12 A.M., making in all three grains and a half in the twenty-four hours, fluid food being taken freely, sometimes before and sometimes after the medicine.

(To prevent repetition I may say here that fluid food and stimulants were well taken throughout the illness, and had undoubtedly much to do with the favourable issue of the case.)

14th.—Noon: Pulse 100; temperature 99°; no sweating; muscles very rigid; diaphragmatic spasms recur at longer intervals. Since 12 o'clock yesterday has had three drachms of chloral, given in half-drachm doses. At the evening visit

the patient lay for the first time on his side, the abdominal and thoracic muscles much less tense, and the legs flexed. Breath exhales chloral; no stertorous breathing; pulse and temperature the same as last visit.

15th.—Noon: Pulse 94; temperature 99°. Chloral given as on the 14th. Patient is easily roused. Complains of pain in the muscles of the back and legs. He can open his mouth widely; tongue dry and brown; conjunctiva very red; speaks thickly. Ordered chloral to be given every five hours in half-drachm doses.

16th.—Noon: Pulse 90 in sleep; temperature 99°; general condition of patient the same as yesterday. Aperient medicine given.

17th.—Noon: Pulse 90; temperature 98°. Fifteen grains and half a drachm of chloral to be given alternately every four hours, as the muscles are less rigid and the spasms almost gone.

18th.—After a second dose of aperient medicine, the bowels were moved freely, without any severe spasms occurring. Pulse in sleep 86; temperature 98.2°. Chloral as before.

On the morning of the 20th, patient progressing favourably. Fifteen-grain and half-drachm doses of chloral continued. In the evening, found patient much worse; pulse intermitting, 130; temperature 98°; breathing in long deep sighs; surface moist; extremities cold; no spasms. Upon inquiry, found he had been most injudiciously lifted out of bed while the soiled linen was removed. Ordered hot bottles to the feet and sides, stimulants to be freely given (two ounces of brandy every hour), and chloral to be intermitted for a few hours.

21st.—Patient much better; pulse 100, regular; temperature 98.5°. Complains much of pain in the back and legs, and suffers from spasm. Chloral as before.

After this date, the patient steadily improved. The chloral was given in varying and gradually decreasing quantities till the 3rd of June, when it was discontinued.

June 6th.—Patient quite convalescent; entirely free from hardness of the muscles; takes solid food with ease, and has no discomfort whatever.

Remarks.—This (though the ninth) is the only case of traumatic tetanus I have seen recover. To what extent the chloral had to do with the recovery it is not easy to determine exactly. That it played a most important part as a palliative in the treatment no one will deny. I have chosen to call the case one of *acute* tetanus, because, although nearly a fortnight had elapsed between the reception of the wound and the occurrence of trismus, although the temperature on the fourth day was only 103°, and although the muscles of the larynx and of deglutition were unaffected before the first dose of chloral was given, the extent, frequency, and severity of the spasms, the intensity and length of the diaphragmatic spasm, and the persistent rigidity of the thoracic and abdominal muscles, were as great as in the fatal cases I had seen. The high temperature noted in tetanus—110° Fahr., and over 44°C. (Wunderlich)—is generally observed towards the end of the disease when fatal; and this remark applies frequently also to the spasm of the muscles of the pharynx and larynx, which sometimes remain unaffected for days even in fatal cases, and only subsequently become the seat of spasm. Whether in this instance the use of chloral prevented the spasm spreading to these muscles of course we cannot say, but it is not improbable. In giving the chloral, it was observed that the patient was less rapidly affected by it as the doses were repeated, and that the first dose of one drachm had the most marked effect, reminding one very much of the rapid effect of chloroform in cases of severe and protracted labour, where the patient is much exhausted. The congestion of the conjunctiva was very great during the exhibition of the remedy, and continued for some days after the doses were much lessened.

In all, the patient had six ounces and a quarter of chloral during the three weeks, on an average of two to two and a half drachms per diem. After the 20th the chloral was sometimes intermitted for several hours; but when more than six hours elapsed, the symptoms invariably became more intense, and the patient required a larger dose more frequently repeated during the next eight or twelve hours. Not unfrequently an extra half-drachm of chloral was given in addition to those noted in the report for some specially severe time of suffering.

* Dublin Quarterly Journal of Medical Science, vol. xlii., p. 363.

I have given chloral very frequently, and have found it most useful in whooping-cough, in all varieties of neuralgic pain, in the insomnia of drunkards, in aggravated hysteria, and in one case of acute mania. In whooping-cough very small doses were enough, from two to five grains. In the insomnia of drunkards, sometimes doses of one drachm required to be repeated.

Dalkeith, June 6th, 1870.

CASE OF EXTENSIVE MITRAL DISEASE, WITH A FUNGOID FIBRINOUS GROWTH, COMPLICATED WITH DRY GANGRENE ARISING FROM EMBOLISM.

UNDER THE CARE OF

DR. JAMES SALMON,

INSPECTOR-GENERAL OF HOSPITALS AND FLEETS.

(Reported by Staff-Surg. J. D. MACDONALD, R.N., M.D., F.R.S.;
and communicated by the DIRECTOR-GENERAL OF THE
MEDICAL DEPARTMENT OF THE NAVY.)

On the 24th of March, 1869, —, aged thirty-three, corporal R.M., of H.M.S. *Asia*, was reported sick on shore, and unable to return to his duty. On being visited by Dr. Charles Forbes, staff surgeon of the ship, he was found to be labouring under what appeared to be an attack of intermittent fever, with difficult micturition, owing to the existence of an old callous stricture, for which he had been under treatment in Haslar Hospital two years previously. He remained on shore for a few days, and was then brought on board the ship for further treatment. The febrile symptoms still continued; an exacerbation, marked by rigors followed by profuse perspirations, coming on every night. Neuralgic or rheumatic pains now began to strike down both lower extremities; the urine was scanty and high-coloured; the tongue dry, with a central streak; and the pulse much accelerated. Under these circumstances it was considered advisable to send him to hospital.

He was admitted into 21 ward on the 9th April, in a state of profuse perspiration. His febrile attacks had of late been variable both as to the time of their recurrence and duration, ranging between a few hours and a whole day. He complained of slight headache, vertigo, and thirst, with much pain in the right gastrocnemius muscle, which was tender to the touch. Tongue coated at the sides, and rather dry in the centre. Bowels confined; had passed his water freely in the morning. On auscultation a loud bruit was detected with the first sound of the heart.

The following is a brief abstract of the symptoms and appearances presented day after day, until final dissolution:—

April 10th.—Pyretic still, but in profuse perspiration. Pulse rapid and feeble. Urine high-coloured and scanty.

11th.—No sleep last night; acute pain in the muscles of the left leg. There is little apparent swelling in the foot and ankle, though they are much congested and quite livid. Tongue red in the centre, and white at the base. Mouth clammy.

12th.—Right wrist has become tender and painful.

13th.—Both feet still more livid; skin of the toes dry and shrivelled considerably in some parts, more particularly round the matrix of the nails and below the ungual pad. Pulse still rapid and feeble; skin acting freely; pain much less than heretofore.

14th.—Loss of sensation in both extremities; slept pretty well during the night.

15th.—Pulse full, rather hard; surface moist; bowels open. At noon an attempt was made to introduce the catheter (Nos. 1, 3, 5, and 7), but without success. There was, however, no evidence of any retention of urine.

16th.—Gangrene is now well marked in the toes of both feet, and in the fingers of the right hand. Moreover, the buttocks have become discoloured.

17th.—There is no evident extension of the lividity of the limbs; has been rather uneasy in the night, with wandering delirium.

18th.—Passed a better night, and was free from perspiration. Both feet are quite cold and dark, but in no part is there any exudation. The left calf is swollen, tense, and painful. The lividity reaches half way up the right arm, and several vibices have made their appearance on the left side of the neck. A hard cord is to be felt extending from the right axilla down the inner part of the arm, but no pulsation is discoverable. The bruit accompanying the first sound of the heart is heard louder over the origin of the great vessels.

19th.—Has passed a restless night, with more or less delirium, but is now perfectly sensible; says he is comfortable, and there is no apparent increase of disease.

20th.—Had a better night. Right hand a little warmer; and there is no further extension of the discoloration.

21st.—Much rambling and restlessness during the night, but he appears to have more feeling in, and power over, the right hand.

22nd.—There is some vesication on the calf of the left leg. In other respects there is but little change. He is, however, much debilitated.

23rd.—5 P.M.: Violent action of the heart; pulse rapid; skin perspiring freely.

24th.—Was last night suddenly attacked with spasm and disordered action of the heart, and was restless and delirious at intervals. His countenance is anxious, breathing quick, and the affected extremities are cold. The impulses of the heart are faltering, he mutters to himself, but answers questions rationally when his attention is arrested.

25th.—Is much worse since yesterday, and is evidently sinking fast. 10.30 P.M.: Dead.

Autopsy.—On opening the chest some few ounces of fluid were found in the pericardium, which was itself somewhat opalescent. The heart was much enlarged with a superficial coating of fat, weighing one pound three ounces, with a portion of the arch of the aorta attached. The right side of the heart was quite healthy, the valves being thin and transparent. But on the left side the aortic valves were thickened and semi-cartilaginous, and a large bilobed fungoid growth connected with the internal commissure of the mitral valve nearly completely filled the auriculo-ventricular opening. On cutting down upon the right radial artery, the vessel was found to be obstructed by a cylindrical clot extending from the bifurcation of the brachial to the wrist, and clots of a similar kind were discovered in the ulnar; and it is interesting to remark that amongst these were noticed some small portions closely resembling the material of which the above-mentioned fibrinous growth was composed. The tibial vessels of the legs, and their ramifications passing into the capillary system of the muscles, were in a similar condition. In the left gastrocnemius, in particular, the blood had obviously been long stagnant before death, from the dingy lividity of its tissue apparent on section.

This case would appear to throw some light on the nature of that gangrene produced by the introduction of the rye fungus into the system.

Additional particulars are noticed in the explanation of three pathological drawings illustrating this case, and retained amongst the records at Haslar Hospital.*

Fig. 1 shows the effect of obstructed circulation in the right hand; dry gangrene of the thumb, fore and little finger having already set in. Some vibices were observable near the roots of the fingers, and above the wrist towards the middle of the forearm, while the intervening space presented a uniform purple tint. Blotches of a brick-red hue presented themselves at different points, probably where the congestion was arterial rather than venous; for even in this case the blood, clotted or otherwise, was sensibly brighter in the smaller arteries than in the corresponding veins.

Fig. 2 represents the lower extremity of the brachial, with a portion of the ulnar and radial arteries laid open longitudinally. After the removal of some contained blood, small bright-coloured clots were found adherent to the wall of the vessel, in general corresponding with the origin of small branches. A mass of broken-up purulent-looking fibrine filled up the bifurcation of the brachial, where the coats of the artery were remarkably thin and friable, and inseparably blended with a fatty substance, apparently within the sheath. Portions of more distinctly defined

* It has not been deemed necessary to reproduce the drawings, the descriptions in the text sufficiently explaining their nature.