occurrence of abdominal pain, were present. The labour had only lasted nine hours, the rupture of the membranes having taken place only six hours previously to the accident. Moreover, there was no impaction, for the head had steadily advanced, and there was no deformity of the pelvis, and there had been no interference with the labour in any way.

Harrow, January, 1846.

ON SOME ELECTRICAL EFFECTS DEVELOPED CHIEFLY BY THE GALVANIC BATTERY.

By GEORGE P. T. HILL, Esq., Filey.

On sending a current of electricity, by means of the galvanic battery, through fine metallic wires, the most refractory metals are fused with facility, and become incandescent. If thin metallic leaves be employed, they burn with great brilliancy, being dissipated into vapour. Now, on the supposition that the space between the ultimate atoms of a body, independent of the several forces that may be arranged round them, are entirely occupied by heat, I think the evolution of the latter substance, as exemplified in the above cases, may be satisfactorily accounted for. As a consequence of the law, that no two bodies can occupy the same space at the same time, we may suppose that the addition of electricity to a substance causes its heat of combination to be evolved, and thus to become sensible. Otherwise, whence arises this great increase of temperature? The caloric must obviously be supplied through the medium of one or other of the bodies employed; and if we grant this, the inquiry naturally presents itself as to what causes its evolution. Suppose M to represent a body, and B the heat of combination arranged all around it. Now, if we add to this a portion of electricity, C, on the supposition that this is material, a displacement of part of the specific heat, B, must take place, or the body be considerably enlarged. We find that heat is evolved, and must, I conceive, consider the specific heat of the body to have been lessened, for any other source from which this rise of temperature could have been derived is unknown. The form of the body remains unchanged, for, as the specific heat is replaced, atom for atom, or, rather, volume for volume, by the electricity, no condensation can possibly take place. The evolved heat now exerts its action upon the body, which, as in ordinary circumstances, assumes the liquid form, and becomes incandescent.

In these experiments we find quantity of electricity to be the sole requisite. The large battery of Children, though capable of fusing several feet of platinum wire, had an intensity so feeble as not sensibly to cause a divergence of the gold leaves of the electrometer. This is perfectly in accordance with the above theory, for it is clear that the larger the addition of electricity, the greater the diminution of specific heat, whether the tension be high or low. Did the evolved heat proceed from the electric fluid itself, we should of course expect that intensity as well as quantity would be required for the production of these effects. This we know not to be the case. I do not consider the circumstance stated by Dalton, that the specific heats of bodies are greater at high than low temperatures, to be any obstacle to the reception of the above, for, to use an expression of the late Dr. Turner, these phenomena "have been investigated only for matter when in its ordinary state, and probably do not apply in cases of electric excitement. On the other hand, increase of specific heat causes an evolution of electricity. Harris detected electricity, though in exceedingly minute quantity, in the evaporation of distilled water from platinum vessels, when the presence of any chemical action was out of the question. In this we have phenomena directly opposed to the former, but I think they may be considered no more anomalous than the fact, that watery vapour should be decomposed by metallic iron, heated to redness; and that the oxide thus generated should, in its turn, be decomposable by a stream of hydrogen gas. I apprehend, then, that there are other causes in operation, which modify the effects of these most subtle and diffusive bodies, heat and electricity. In the condensation of aqueous vapour, the objects in contact with it likewise show signs of electric excitement. For a portion of vapour contains more specific heat, and less specific electricity, than the same when liquid, and, therefore, before it can assume this form, it must receive electricity from surrounding objects, which thus exhibit signs of its emission.

No heat is evolved when a current of positive or negative electricity only is passed along a body, for in this case the repulsion of the particles confines the fluid to the surface alone, where it cannot influence the internal arrangements of the conductor.

Filey, January, 1846.

THE REPORT OF A CASE OF TETANUS SUCCESSFULLY TREATED.

By W. S. PRESHAW, Esq., M.R.C.S. Ed., St. Helier's, Jersey.

On Wednesday, 22nd Oct., 1845, I was requested to visit F. B—, aged eleven years, residing at George's Town. He complained of a slight stiffness of the neck; had pain and difficulty on moving his head, legs, &c. I inquired if he had sustained any injury. He said he had not. Ordered a smart purgative of calomel and jalap, a warm bath for twenty minutes, and an antispasmodic mixture of sulphuric ether and tincture of opium. Towards evening the rigidity of the muscles of the head and neck increased, attended with difficulty in swallowing, tightness about the chest, and inability to move the jaw; the teeth were firmly set, almost every muscle quite rigid, and the spine bent into an arch, leaving no doubt as to the nature of the case. The boy still denied having received any injury. Ordered the spine to be well rubbed with a strong liniment, and the warm bath to be repeated. Next day the boy told me that, on the previous Saturday, (18th Oct.,) while stooping at play, a person struck him with a stick over the loins. He did not seem to have felt it much at the time, but the day following said that he felt as if unable to move his legs. Examined the spine, no mark of any injury, but he complained of a slight tenderness over the lumbar region of the spine. Ordered nine ounces of blood to be removed by the cupping-glass from the spot where he seemed to feel most pain. No relief. Next day ordered a dozen leeches to the same place, and a large blister along the spine. The symptoms not relieved. The warm bath as before. Unloaded the lower bowels by a saline enema, and gave an opiate. Next day to administer two grains of calomel every three hours, with a view to affect the mouth; continued for forty-eight hours, and, although aided by the copious use of strong mercurial ointment rubbed in inside the thighs, failed in producing the desired effect. Leeches again to the spine. Acted on the bowels by a dose of croton oil, and then administered the oil of turpentine by the mouth, and as an enema. After a due trial this failed. Ordered a blister to the lumbar region of the spine, and two grains of the muriate of morphia to be sprinkled over the blistered surface, and gave the solution in large doses, and at short intervals, but without the least benefit. Several medical friends attended with me, and the above means were persevered in for three weeks. The patient was rapidly sinking from want of nourishment, &c. A physician who had seen the case, kindly sent me *THE LANCET*, of 22nd March, 1845, in which there is a case recorded by J. W. Stapleton, Esq., "On the Administration of Intoxicating Doses of Alcohol in Tetanus;" but the result not being favourable, I declined this mode of treatment. I had thought of the Indian hemp, but the conclusions of Dr. Lawrie, of Glasgow, after having tried it in twenty-six cases, gave me little confidence in it.—(*London and Edinburgh Monthly Journal of Medical Science*, Nov. 1844, p. 946.)

I was, however, inclined to try belladonna, or arnica, when the friends desired a consultation with a French physician. He advised a trial of the hydropathic treatment. Many difficulties presented. The patient was at a distance from my house: I could not receive him there, nor had I liberty to treat him at the public hospital, and the system, to be fairly tried, required more favourable circumstances than those in which the boy was placed. However, I at once enveloped him in a linen sheet, well wrung out of cold water. Over this I placed three or four good blankets, &c., so as to exclude the air, and prevent evaporation. Kept the patient in this condition for an hour, by which time the temperature of the sheet was 100° Fahr. The coverings were removed, and the patient plunged into a cold bath, rubbed quite dry, and enveloped in dry blankets for six hours, during which time he perspired very freely, and slept soundly, and said he "felt quite slack." Repeated the cold bath while in a state of profuse perspiration, and, after an interval of an hour, the wet sheet and subsequent cold bath. This was repeated every six hours, and after twenty-four hours, the jaw relaxed a little, and the spine became less bent. I now placed him under the douche for three minutes, the water falling from a height of twenty feet, and in a stream of one inch and a half diameter. Dried and enveloped in the blankets as before. Able to open the mouth a little. Ordered the sheet and cold bath as before, and ten days from the commencement of the treatment, every symptom yielded, and the boy is now quite well. It cannot be said that "cold water" is a new remedy in such cases, for Dr. Cullen, in his "First Lines of the Practice of Physic," published in 1796, p. 341, observes, "The administration of it is sometimes by bathing the person in the sea, or, more

frequently, by throwing cold water from a bason or bucket upon the patient's body, over the whole of it. When this is done, the body is carefully wiped dry, wrapped in blankets, and laid in bed, and, at the same time, an opiate is given, and, by repeating this, the patient is often quickly cured." Believing the douche to be a decided improvement on the bucket of water, and the wet sheet on the opiate, (for its effects are most soothing,) I would crave for this case a corner in your valuable journal. My medical friend, who sent me *THE LANCET* containing Mr. Stapleton's case, observed, that in such diseases, every contribution is valuable. With this thought, I enclose it to you.

St. Helier's, Jersey, Jan. 1846.

CASES OF MELÆNA; WITH OBSERVATIONS.

By EDWARDS CRISP, ESQ., M.R.C.S., &c., Walworth.

(Read before the South-London Medical Society.)

THE subject to which I am about to direct the attention of the Society, is that of melænotic discharge from the stomach and bowels. As, however, the narration of cases is thought to be more likely to lead to useful results than the reading of studied essays, I shall content myself with a few brief observations, and then proceed to the relation of some examples of this disease which have come under my own observation.

Melæna is described to be an evacuation of grumous fluid from the stomach or bowels, varying in colour from a dark brown to a jet black, having generally the consistence of pitch or treacle; it is nearly inodorous, except when mixed with the feces.

But little, at present, appears to be known respecting the pathology of melæna, some writers believing that the discharge consists of blood in a decomposed state; others, that it is a secretion from the stomach or bowels, whilst not a few are of opinion that it is solely a product of the liver, arising from a vitiated state of the biliary secretion. It would, I think, be out of place, on the present occasion, for me to discuss the merits of the foregoing theories; these are matters I shall leave to the consideration of my hearers.

I believe that one of the most frequent causes of melæna is obstruction to the passage of the blood in the intestinal, splenic, coronary, or portal veins; this obstruction may arise from various causes, such as enlarged glands, scirrhus, fungous, melænotic and other disorganizations of the liver; in short, any impediment to the passage of blood to the vena cava is, I think, likely to produce congestion of the portal and intestinal veins, and the consequent discharge of highly carbonized blood. Another very probable cause, in some instances, is a deteriorated condition of the blood itself, in consequence of which it escapes from its containing vessels, (as in the first case.) I am induced to think, however, (contrary to the opinion of some writers,) that this evacuation has often a salutary tendency, by unloading the portal system of superfluous and vitiated blood, and that it may not unfrequently—as in the second, third, and fifth cases—indicate a favourable crisis.

Treatment.—Where this discharge is consequent upon disorganization of the liver, (as in the fourth case,) but little permanent good can probably be expected from medical treatment. In other instances, in which simple congestion, with functional derangement only appear to exist, the administration of an occasional brisk purgative, followed by mild mercurials, with attention to the state of the skin, will often effect a cure.

In the more formidable examples, where the blood itself appears to be diseased, and the exudation is probably from a large extent of surface, the mineral acids and the oil of turpentine are likely to be most serviceable. I am disposed, judging from the recorded cases, to place more reliance on the latter. I have only tried it in one instance, which (as will be seen) terminated fatally; the medicine, however, had scarcely a fair trial, as it was not administered until a late period of the disease.

CASE 1.—June 27th, 1839, I was requested to see Mr. G. W—, aged 58; he is about six feet four inches in height; his appearance is now rather pale and emaciated, and he stoops in his walk. I learn the following particulars from him:—Was in the army for thirty years, (serjeant-major in the Lancers,) and has seen a great deal of service in Walcheren, South America, and the Peninsula; at the first place he had fever. He says his habits have always been temperate for a soldier. During the last two years his health has not been so good as formerly, and for the last six months he has had

frequent pain in the left side and over the epigastric region, sometimes extending between the shoulders. He suffers much from flatulence, and now complains of pain over the region of the stomach, which is much increased on pressure; a slight disposition to vomit; bowels costive; motions dark-coloured; urine rather small in quantity, and deposits much purpuric sediment; pulse 104, and feeble. Six leeches to be applied to the epigastrium, and a blister, and to take effervescing mixture.

June 28th.—Less pain, and says he is better.

He continued in the above state till the 12th of July. The pain in the epigastric region, however, was seldom complained of, and he could bear pressure without uneasiness. The motions were always of a dark leaden hue, and very offensive; the pulse feeble, and never under 98, sometimes 120. He is more debilitated than when I first saw him. I met Mr. Baker, of Bulstrode-street, on the 29th, who saw him with me every four or five days. Mr. Baker had formerly attended him. The treatment consisted in the administration of mild mercurials at night, followed occasionally by a brisk purgative in the morning, and five or six drops of prussic acid three or four times daily.

On the 12th of July he passed several black, pitchy motions, and vomited a large quantity of fluid blood, became exceedingly weak, and Mr. Baker, who happened to be present, gave large quantities of brandy. I administered two or three doses of the diacetate of lead, and seeing Dr. Blundell pass, I called him in. He agreed to my suggestion to try twenty drops of spirit of turpentine every four hours, and tincture of opium, twelve drops, every two hours.

July 13th.—Has passed a restless night, but slept at intervals; no return of the hæmatemesis; pulse very feeble, 104; no pain on pressure over any part of the abdomen; bowels relieved three or four times; motions still melænotic, having a peculiar odour. Spirit of turpentine, ten drops; tincture of opium, ten drops, every four hours.

July 14th.—Better; no vomiting; bowels not relieved. Administered four or five purgative enemata, when a quantity of the same melænotic matter passed from the bowels. Omit the turpentine and opium, and take infusion of roses, one ounce and a half, every five hours.

July 21st.—Since the last report, there has been no bleeding from the bowels, but the motions are of a dark leaden colour, and very offensive. The pulse is sometimes not more than 98 in the morning, but towards evening it is generally 104 to 110. He has had but little pain in the abdomen, and complains less of flatulence.

July 23rd.—Much in the same state; the bowels do not act without enemata; the motions still of the same colour.

July 25th.—Appeared to be going on very well till four o'clock this morning, when he suddenly became faint, cold, and pulseless, and died at ten A.M. Could not prevail on the wife to consent to a post-mortem examination.

CASE 2.—July 31st, 1845.—I was requested to visit Mrs. M—, Camberwell, a stout, healthy-looking woman, aged seventy-five. For the last two or three days she has been affected with rigors, followed by heat of skin, &c. There is great pain and uneasiness over the abdomen, which is considerably distended with flatus; bowels relaxed. The symptoms gradually became more unfavourable, the tongue brown, muttering delirium, pulse feeble, fixed pain over the region of the liver, &c. A few days after I first saw her, and when I entertained but slight hopes of her recovery, a large quantity of dark pitchy fluid was passed from the bowels. The discharge of this fluid continued for four or five days, when the motions became solid and natural in appearance; the symptoms gradually improved, and she is now, (October 22,) considering her advanced age, in a tolerable state of health. The treatment consisted in the administration of aperients, with febrifuge medicines, and occasional doses of mercury with chalk, and opium; these followed by quinine, with sulphuric acid. Ten leeches were applied to the side, and hot fomentations frequently used.

CASE 3.—Sept. 27th, 1845.—I was called to Mr. B—, Walworth, aged sixty, whom I have attended at intervals for several years for severe pains in the region of the stomach and liver. He has been, also, subject to violent palpitations of the heart, arising, probably, from hypertrophy of the left ventricle, and diseased aortic valves. During the last four or five days, the pains over the stomach and liver have been more than usually acute, and yesterday morning he became very faint. On my arrival I was shown a solid hard motion, which he had passed: the upper part of this was of a natural