

and the patient had a fit even whilst under the influence of chloroform.

On June 1st it was necessary to tie him down to the bed, as he kept getting up and standing with the bed-clothes in his hands; he did not sleep at all during the night, and wept in the morning, when his wife visited him. At about one o'clock P.M. the fits came on, and recurred at intervals, varying from ten minutes to half an hour, the duration of each fit not exceeding two minutes. He died at a quarter to one, June 2nd, having had *thirty-five fits* since the previous afternoon. They became gradually weaker, with the exception of the last but two, which was the strongest of all the attacks.

Post-mortem examination.—External appearances: good condition; several large patches of ecchymosis on the sides of the chest and the arms. A few white specks were seen on the right side of the dura mater, and rather anteriorly, apparently caused by atheromatous deposit in the substance of this membrane. The arachnoid appeared generally healthy, though presenting a few opaque spots here and there. On removing the brain, it appeared unusually large, and was found to weigh three pounds, eight ounces, and three drachms, avoirdupois weight. In the anterior lobe of the right cerebrum, was found a large indurated mass projecting by a considerable convexity into the longitudinal fissure, thus compressing and indenting the opposite hemisphere. This tumour, which was very hard and offered considerable resistance to the knife, extended downwards to below the level of the anterior cornu of the lateral ventricle, and presented a vertical diameter of about two inches and a half, and an antero-posterior one of about two inches. On cutting into the mass several cysts were found scattered through it, generally of considerable size, and containing yellow serous-looking fluid. There was a slight serous effusion in the lateral ventricle, and the inner surfaces of the right one were much softened superficially. There was perhaps also some softening of the fibres of the optic tract, but they did not appear to be pressed upon by the tumour, and nothing was found to account for the patient's total blindness, except the general effects of the pressure of this indurated mass. The cerebellum and other portions of the cerebrum appeared healthy, but the corpora geniculata were of an unusually dark colour. The tumour, the compressed portion of the hemisphere opposite to it, and the optic tract, were reserved for microscopical examination, to be conducted by Dr. Beale. Viscera of chest and abdomen healthy.

Examination of the indurated portion in the anterior part of the right hemisphere.—Upon making a section, numerous small cavities, varying much in size, (some being larger than a nut,) were observed. The walls of these cavities were for the most part smooth, with here and there shreds of soft cerebral matter projecting into the interior of the cavity, which latter contained a fluid almost colourless. Upon microscopical examination, this fluid was found to contain a few delicately-granular cells, without nuclei, and somewhat larger than a pus globule; much free oil; a considerable number of cells containing some; a few fragments of what appeared to be deep-black pigment; a few small red crystals of no definite form, (hæmatine?) fragments of nerve fibres, and blood globules. The coloured crystalline fragments were not acted upon by the addition of acetic acid; the indurated portion, besides containing a considerable number of minute vessels, appeared to consist chiefly of oval or rounded masses of a glistening but not highly-refracting substance, about the 1-500th of an inch in diameter, but varying much in size. These bodies were contained in the meshes of a delicate fibrous tissue, the fibres of which were rendered obscure by a multitude of oil globules. By the use of alcohol and ether, the fibres became more distinct, and were found to consist of very delicate fibrillæ, which were well defined, and readily soluble in a dilute solution of caustic soda. By the addition of a very dilute solution of the same re-agent, the fibrillæ were rendered clearer, and the meshes of the tissue more distinct, while the transparent bodies were entirely dissolved. Acetic acid was added to a portion of the tissue from which the fat had been removed, when all the fibrous character disappeared, and well-defined bodies, with a dark outline, and having an elongated but not regular form, were brought into view. The indurated mass also contained a great many cells filled with oil similar to those met with in the optic tracts. No nerve fibre whatever could be detected; vessels numerous, and here and there collections of oil globules were observed; but whether these were actually vascular coats or external to the vessels could not be decided with certainty.

Though the pathology of epilepsy, as we stated in the introductory remarks to this case, is unknown, cases like the present

are very likely to throw light on this obscure subject; for here we have a tangible morbid mass which, by gradual increase, and pressure on portions of the cerebrum ministering to certain functions, produced all the symptoms which the clinical clerk has so carefully noted down. The steps of the pathological phenomena are quite distinct: first, excitement from irritation of cerebral matter at the first development of the foreign body; then epileptic fits at long intervals; afterwards gradual loss of sight as the optic tract was more or less directly interfered with; and lastly, when the mass had acquired a huge size, a dreadful multiplication of the fits, which became so numerous and fearful, that the patient's sufferings were arrested by speedy dissolution.

How different are those cases in which the epilepsy depends on slow changes in the brain substance itself, the disease continuing for many years, and at last destroying the patient by gradually weakening the powers of life. But there is still another class of cases wherein the inflammatory process seems to have a great share, and in which mania follows in the wake of the epilepsy after the latter affection has been reigning for a few years. Look for instance at the following case:—

GUY'S HOSPITAL.

Epilepsy and Mania.

(Under the care of Dr. ADDISON.)

James B—, aged twenty-one, was admitted, Sept. 7, 1853. He is a strong-built, muscular young man, with a large head and dark eyes, which latter have a good deal of wildness in their expression. His mind appears to be seriously affected by the fits, which commenced about three years before admission, and have gradually increased in severity and frequency. The patient had, at the time he was first seen, from six to eight fits in a week, and sometimes two in a day. He is now and then sensible and coherent, but more frequently stupid and silly. The fits occur without any premonitory symptoms, as pain in the head or giddiness. His general health is exceedingly good; bowels regular; appetite excellent; teeth sound; chest healthy; urine scanty, without admixture of albumen.

Dr. Addison ordered one drop of croton oil to be taken immediately, and middle diet.

Second day.—The oil produced a copious evacuation; in the night the patient had a violent fit, during which he rolled out of bed, and beat his head violently. After the fit he was delirious, and left his bed, but slept quietly afterwards.

On the next day, the patient had another fit, foamed and bled at the mouth, the tongue being bitten (but already scarred) at the edges. Cupping-glasses were applied to the nape, and a brisk purgative given.

Upon this treatment the fits did not re-appear for three days, when five grains of calomel were ordered to be taken every night, and a blister to be applied to the nape of the neck.

On the sixth day after admission, the man had a violent fit in the night, and was the next day quite insane. He would not allow the blister to be put on, and was exceedingly violent and noisy, knocking down a nurse and a porter. He was with difficulty secured, and the next day removed from the hospital.

IODIDE OF POTASSIUM IN A CASE OF POISONING WITH LEAD.

By R. H. GOOLDEN, F.R.C.P.,

PHYSICIAN TO ST. THOMAS'S HOSPITAL.

THE following case may be of some interest to the profession, as illustrating the effect of iodide of potassium in a case of lead poison:—

William S—, admitted April 5th, 1853, age fifty; occupation, grinding lead for painters. For two months prior to admission he has been suffering severe muscular pains, and paralysis of both upper and lower extremities. He has never suffered from colic, and though rather constipated is otherwise in good health. The arms, from the shoulders downward, were perfectly useless, hanging down without the slightest power or control over them; when raised by anyone, without causing him any pain, they hung and dropped as though perfectly lifeless. The legs were less perfectly paralyzed; as he lay in bed he could move them slightly, but he could not stand without support, and he could not raise the left leg from the ground. The gums were swollen, ulcerated, and irregular, (some of the fangs of the teeth being denuded,) very red, with a distinct blue margin of one-eighth of an inch

in depth, and smeared with sordes and mucus. He has a good appetite. After a purge of calomel and colocynth, followed by a draught of senna and Epsom salts, he was ordered milk diet; iodide of potassium, five grains; liquor of potassium, half a drachm; peppermint water, one ounce and a half; three times a day. He continued this medicine until his discharge, the only addition being an occasional dose of aperient medicine, and changing his diet for the ordinary house diet.

Without recording the daily reports, I may say that the improvement was slow, but gradual and decided. After three weeks he could walk a little, and in two months he was able to feed himself with the right hand; but the gums afforded a very clear indication of the improvement, gradually becoming cleaner, paler, and losing the blue margin, which margin had disappeared entirely in August. At that time the legs had quite recovered their power of motion, and he could raise his arms and hands so as to make them meet over his head, and with some difficulty he could write his name.

On the 1st of November, he was discharged. He could write very legibly, and the right hand was perfectly useful; but the left hand was very slightly dropped, which I believe was in consequence of his not having used it as much as the other.

The interest of this case belongs to the effect of the iodide of potassium. He begun with five-grain doses, and had them subsequently increased to eight grains.

Catarrhal symptoms supervened, but the medicine was persisted in, and five grains of soap-and-opium pill given every night, for a few nights, which obviated all inconvenience.

This salt passed off rapidly by the kidneys, and was tested by the addition of a little boiled starch, and a few drops of *impure* nitric acid, which last is necessary to decompose the hydriodic acid. This gave a deep blue colour.

To ascertain the presence of lead, Dr. Gladstone analyzed a specimen a month after his admission; the result was as stated in the following letter:—

May 21st, 1853.—My dear Sir,—I have examined the urine of the patient in Edward's ward which you sent to me. It was, I believe, the product of twenty-four hours. I had it evaporated to dryness and heated to redness, so as to incinerate all the organic matter. The mass was boiled with nitric acid, and filtered, with a view to the solution of any lead that it might contain, and to its subsequent precipitation by sulphuretted hydrogen; but finding that the excess of nitric acid and the large quantity of nitrate of soda were likely to interfere with the formation of the sulphuret, I converted the salts into chlorides, getting rid of the large excess of acid by boiling. Upon passing the gas through the solution, I now obtained, certainly no precipitate from the clear liquid itself, but a few white specks that had been diffused through it became perfectly black. Had a minute quantity of lead been converted into the chloride, it would have unquestionably been in solution; but I can readily conceive that a little sulphate of lead, which had been dissolved at first by the strong nitric acid, was precipitated afterwards, and produced those black specks when brought into contact with the sulphuretted hydrogen. It was far too small a trace to examine further; thus I cannot declare positively that the urine contained lead; yet from the difficulty of accounting for this black sulphuret under such circumstances in any other way, I am almost morally certain of it.

Believe me, my dear Sir, yours very truly,

Dr. Goolden.

J. H. GLADSTONE, M.D.

On the 31st of October the urine was again examined by Dr. Dundas Thomson, from whom I received the following report:—

"The specific gravity of this urine (collected during twenty-four hours) was 10·12. In seven pints and a half no trace of lead could be detected; the fluid portion being quite free from lead, and the sediment, when assayed, affording no indication of the presence of that metal.

"St. Thomas's Hospital, Oct. 31, 1853."

"R. D. T.

I wish to observe that I never witnessed so extensive a degree of muscular paralysis in any case of lead poison. The remedy had a fair trial over many months, and the blue margin of the gum disappeared before the muscles acquired the power of motion. No splints were used, or any other remedy, except galvanic currents. The recovery of muscular power was proportioned to the use of the limbs, the right arm and hand being much in advance of the left, and the legs recovered before the arms. And I have no doubt that as the protenuret of lead, is rendered soluble by the iodide of potassium, it requires the agency of the nervous current ejected by volition to cause the absorption of the poisoned fibre, and the substitution of the new fibre capable of contracting, in order that the muscles may re-acquire their healthy contractility.

ON TETANIC SPASM AND ITS TREATMENT BY CHLOROFORM.

By WM. HARDING, Esq., M.R.C.S.

THE history of tetanus, as shown by the writings of the fathers, from the time of Hippocrates, and the records of the existing age, presents to us one of the most formidable and fatal diseases to which humanity is subjected. Rarely has the acute form ever been cured by the surgeon, and doubtful is it whether many of the multitudinous agents that have been hopefully employed for its relief are truly entitled to the credit of being beneficial. In its chronic form tetanus has often been recovered from, the symptoms gradually subsiding or receding before the influence of treatment. The history of a very few cases exists in which a cure followed the division of a nerve by the knife; with rare exceptions, however, the operative treatment has been unsuccessful. Yet, notwithstanding the unfavourable aspect which the statistics of tetanus assume, it is one of those diseases on which enthusiastic observers have looked hopefully, and concerning which prudent reflection has ventured to prognosticate the certainty of a more enlightened future, and the probability of a cure. Nor does this sanguine hope rest altogether on a baseless foundation, for, unlike the majority of fatal diseases tetanus presents after death no pathognomonic lesions of structure necessarily irremediable, and the vital organs are probably only secondarily affected; moreover, it occurs for the most part in the prime of life, in the vigour of healthful manhood,—to those who at the time of its abrupt invasion were enjoying healthful ease, and before the elasticity of health has been enfeebled or destroyed by "cormorant, devouring Time."

The pathology of tetanus has engaged the attention of laborious dissectors, who have diligently worked out the morbid changes, with the hope of being able to refer the symptoms developed during life to some pathological condition visible after death. They have recorded with minuteness the structural alterations, but the connexion between these alterations and spasmodic rigidity of the muscular fibre is indeed but little evident; and probably it is expecting too much to look to the scalpel of the morbid anatomist for an elucidation of the nature of a disease whose primary impulsive force is invisibly buried in the anatomy of the nerve fibre; for though it be true that the expression is given to the muscle, it is equally true that the nerve is the starting point, being first the excited, then the excitor. As far as muscular fibre is concerned, tetanus is purely a functional disease; it is but an increased action of the normal function of the part, overpowering and deprived of the controlling power of the will. Now, the pathological changes discoverable after death appear to have reference to the vascular system, which holds, as it seems to me, only a tertiary position among the phenomena of the disease: the first being a perversion or alteration of the nervous influence, the cause of which may be invisible; the second, the true expression of the disease, given in the excessive and involuntary contraction of the voluntary muscles, and visible only during life; the third, the alterations in the vascular system, occasioned by, and consequent upon, the preceding morbid phenomena; and if this theory be correct,—that is, if the phenomena of deranged action in tetanus may be reduced to rule, and shown to follow the order of succession noted—viz., nerve fibre, muscular fibre, bloodvessels, the corollary follows, that increased vascularity, congestion, and serous effusion, must be a consequence, not a cause, of tetanic spasm: being subsequent to the expression of the disease in the muscular fibre, they cannot be the exciting cause, and to show the contrary would be to make cause sequent to effect, which is absurd.

A correct appreciation of the value, position, and order of morbid changes in tetanus is most desirable; the want of it has led to an erroneous belief in the inflammatory character of the disease, which belief has been strengthened by the evidence of true inflammation having been observed in cases where the injury to the spinal cord was direct; the fact, however, proves nothing; it shows only that it has accompanied the spasm, being in itself probably nothing more than a consequent on direct violence applied. This inflammatory idea, moreover, receives a fair negation in the fact that idiopathic inflammation of the medulla, either of the acute or chronic form, is not necessarily accompanied by tetanic spasm.

In determining the value of vascular changes, it may be very difficult to draw correctly the line of demarcation, and show what is, and what is not, evidence of inflammation; the transition is probably too gradual to admit of it, but it is not difficult to show that many vascular changes are quite unconnected with the inflammatory process. A mere turgid state