In the autumn of 1872, he consulted me about pains in the abdomen, flatulence, and dyspepsia; he became jaundiced, and it soon became evident that he was suffering from malignant disease of the liver. He lingered until December 25th of that year. As the man had lived two years and eight months with an artificial anus, I was anxious to see what changes time and the operation had effected. Strong opposition was made by the friends to a *post mortem* examination. However, the consent of a part of the family having been obtained, I made a hasty inspection with the kind assistance of Mr. Barr, house-surgeon of the Dispensary, and during the temporary absence of the demurrers.

POST MORTEM EXAMINATION, December 26th, twenty-six hours after death.—The body was emaciated; the abdomen tumid. The peritoneal sac contained some serous fluid. The omentum was adherent by about half its inferior margin. The sigmoid flexure of the colon was enormously distended, and its coats hypertrophied. It projected out in front of the other intestines, and extended to the right side. It was at least about four inches in diameter, and about two and a half feet long. It contained a large amount of semifluid clayey feces. At about the junction of the colon with the rectum was the stricture. It appeared as if the gut had been tied with a string. There was some little external thickening. The stricture allowed the index-finger to pass through it, so that another finger passed *per anum* could touch it. The artificial anus appeared granular and congested. There was no induration. There was a limited fold of mucous membrane at the lower edge of the opening extending into the bowel; but the communication with the sigmoid flexure was as free as with the descending colon. The colon, with the exception of the sigmoid flexure, was contracted and almost empty. The rectum was contracted and empty. The liver was enlarged, hard, and congested. It was extensively infiltrated with cancer, which also appeared in white patches on its surface. Cancer was not found in the other viscera.

REMARKS.—It is evident that the feces passed from the descending colon direct into the sigmoid flexure, and there lodged until their accumulation caused the bowel to contract, or a voluntary or semivoluntary effort to be made for their expulsion. The large size of the sigmoid flexure would lead one to suppose that the bulk of the feces were retained for some time, and that the reservoir was never entirely emptied. It seems strange that the rectum should have been so completely "blocked" during life, that the stricture would allow nothing to pass, and yet that after death the finger should pass easily. There must have been some muscular spasm. To all appearance, the man might have been a useful member of society for many years, but for the unfortunate advent of malignant disease.

REMOVAL OF A FOREIGN SUBSTANCE FROM THE MALE BLADDER BY LITHOTRITY.*

By WILLIAM CADGE, F.R.C.S.,

Surgeon to the Norfolk and Norwich Hospital.

IN January 1871, a young engineer, aged 25, was sent to me by a medical friend under the following circumstances. A few evenings previously, while pursuing his studies by the help of a stearine candle, he noticed that the candle had "roped" down on one side, so as to form a long stick, like the slender wooden handle of a steel-pen. Detaching it from the candle, and moulding it between the thumb and forefingers of each hand, so that it resembled a straight bougie, he foolishly passed it down his urethra to a considerable extent. The warmth of the body probably softened it, so that on withdrawal it separated like melted glass, leaving several inches in the urethra. This gradually found its way into the bladder, and he said nothing about it for nearly a week. By degrees it began to cause some uneasiness; he had pain when running or walking fast, or when the bladder was empty. When the bladder contained urine he had no inconvenience, and the urine was clear and healthy.

Supposing that the material was real stearine, I found that its fusing point was 124 deg.; but having been once melted, as this had, its fusing point became 147 deg., so that there was no hope of melting it by any heat the bladder could bear. At the temperature of the blood it became soft and pliable, and quite insoluble by any possible agent. I had, therefore, no hope of removing it, except by mechanical means.

I examined the bladder carefully with a common sound, and also with a lithotrite, but could not detect or seize it. After a time, I tried again under chloroform, but could recognise nothing but a healthy bladder. Remembering that the specific gravity of stearine is less

than that of water, I could not of course expect to find it, like a stone, at the bottom of the bladder; but neither at the top nor bottom, neither with the bladder full nor empty, nor with any kind of instrument, could I meet with any foreign body. With such a soft and smooth substance I did not expect to elicit any sound; but with a fairly sensitive touch, and abundant experience in manipulating the human bladder under all conditions, I did expect to detect the enemy; and, not finding it, I began to suspect that the amount of it was smaller than the patient asserted it to have been, and that possibly it had been voided.

He went on for a month or two, still feeling sure that the foreign body was there, but not suffering much, except when he ran or walked briskly, or allowed the bladder to empty itself; then he had pain and irritation along the urethra. I desired him to take effervescent citrate of magnesia, and this had a curious effect. After a few doses, the urine let fall a considerable quantity of white flocculent deposit, the like of which I had never seen, and which at first sight I hoped might be the stearine, in some way disintegrated by the urine and the salt. This happened time after time; it only required one or two spoonfuls of the citrate, and this curious deposit surely occurred, and ceased when the medicine was discontinued; but I found that it was entirely a phosphatic deposit; it disappeared with heat and nitric acid, and exhibited the well known crystals under the microscope.

He left Norwich and went to reside in Somersetshire, and one day he passed a spiculum of the candle, very slender, nearly an inch in length, and studded with minute calculous crystals. Small atoms of uric acid and phosphatic stone were occasionally passed with the urine, and he had gradually increasing vesical irritation.

He returned to Norwich in August for further investigation. While he was under chloroform, after careful searching with a common sound, I detected something which gave a rough feel, and almost a sound when touched, lying at the bottom of the bladder towards its right side, where it seemed to be fixed: it was not a very distinct sensation. I dare not have performed lithotomy on such slight evidence of a foreign body; still I thought it was there, and, noting exactly its situation, I introduced a No. 9 lithotrite with a narrow blade. Almost at once I seized some soft material, which by pressure seemed to mould itself into the instrument. Holding it firmly, but still gently, I withdrew the lithotrite. It required some tractile force to make it leave the bladder; I even felt a doubt whether I had not got a fold of mucous membrane in the blades; but I held to it, and gradually it yielded and came away. It was a portion of the candle, filling the whole length of the blades of the instrument, and extending an inch from the tip, where it had clearly separated by a fine tail from another portion still in the bladder. At a second and a third introduction of the lithotrite other pieces were removed, each about the length and size of the male blade of the instrument, and all studded over with uric acid crystals; then the urine escaped, and I deemed it advisable to do no more at that sitting. Considerable cystitis followed, and he was sharply ill for a few days. He voided fragments of calculous matter, and two or three other pieces of candle; then the cystitis ceased, the urine cleared, and he felt greatly better. Putting the pieces together, they measured about six inches. I have no doubt that the foreign body had become entangled and fixed in the mucous membrane of the bladder at the point indicated, and that it was detached and disintegrated, and chiefly removed by the lithotrite.

Again he left Norwich, but in about a month he wrote to say that twice since the operation the flow of urine had suddenly stopped. Each time he drank freely of weak brandy-and-water, and each time he succeeded in passing a piece of candle encrusted with stone. All irritation then quite subsided, and he has remained up to this time perfectly well.

ABSCESS OF LIVER AFTER TYPHOID FEVER.

By GEORGE CHATER, Esq., Tenby.

SARAH, wife of Drum-Major Conel, 2nd Battalion 9th Regiment, aged 26, was first seen by me on May 23rd, 1873, and recommended to come into the cottage hospital, Tenby, as soon as possible. On May 28th, she was admitted, and a more unpromising case could hardly be received into the wards. Her skin was sallow, harsh, and dry; tongue coated with a brown fur. She had constant thirst, with disposition to vomit, attended with distressing pain in the right side and abdomen, sometimes of a tearing, at other times of a dull aching character. There was very great emaciation, and she had had no sleep or rest for many weeks past. The bowels were at times constipated or very much relaxed. She described her life as a "continued misery", and entreated that something might be done to give her ease, if possible. The pulse

* Read before the annual meeting of the East Anglian and Cambridge and Huntingdon Branch.

ranged from 140 to 160, and the temperature from 102 to 103. An enormous enlargement in the region of the liver, extending below the line of the umbilicus to the crest of the ilium on the right side, to midway between the ensiform cartilage and the anterior spine of the ilium on the left, could with ease be traced through the abdominal walls. She measured round the waist 42½ inches, although rather a slight figure in her natural condition.

She is the mother of three children, all living, the last born at the barracks, Shorncliff, where her husband's regiment was quartered, on May 19th, 1872. Her labour was natural in every way, as she informed me. About a month after her confinement, she had a severe attack of typhoid fever, attended with constant diarrhoea, degenerating into dysentery with bloody slimy motions, lasting, with little if any intermission, to the middle of August—the last three weeks passed in bed, by order of the medical officer in attendance upon her. During the last three or four weeks of her illness, she complained of stitches in the right side, which never left her; but at this date, according to her own statement, no swelling could be seen or felt. The stitches, as she calls them, gradually gave place to dull aching pains in the right side of the abdomen, and profuse perspirations, alternating with cold chills, sometimes twice in twenty-four hours. About the end of September 1872, the pain in her side and back had increased in severity, and extended to the right shoulder, side of the neck, up to the angle of the jaw on the same side. From her account, she was visited by various medical officers at Shorncliff, receiving every attention that kindness could suggest. The exact date of the commencement of the swelling in the side is doubtful. I think it must be placed somewhere about this time, as in the third week of October a decided fulness on the right side was evident, which continued to increase gradually, accompanied by hectic, etc., until my attention was called to the case by Surgeon-Major Carey, 23rd Regiment, then stationed at Pembroke Dock and Penally Huts (May 23rd, 1873). I should state that the woman had been passed from Shorncliff to the residence of her parents near Tenby, three or four weeks before I visited her. I had known her from childhood, and she expressed a wish to see me.

On May 30th, assisted by Mr. Lomax (Sheffield), then staying at Tenby, Surgeon-Major Carey, Mr. Lock, etc., I introduced a fine trocar in a line with the tenth rib and to the right of the gall-bladder, and drew off eleven ounces of sanguineous brown purulent matter, with evident relief to her sufferings, particularly the feeling of distension, of which she complained so much, "as though something must burst in her inside." It was agreed that she should take fifteen-grain doses of hydrate of chloral every three hours, to procure sleep, if possible. Opium had been tried, but had given so much distress from the vomiting it excited, that, at my first interview with her, she requested me not to give her opium, as the doctor had told her she could not take it. After the third dose of chloral, she slept; and, when I visited her in the evening, she expressed herself easier and inclined to sleep—a marked change, after the incessant vomiting and sleeplessness. At 8.30 P.M., she asked for something to eat. Hitherto the vomiting had been so distressing and persistent, that every kind of nourishment was rejected almost as soon as taken. Everything we could suggest or she could think of had been tried in vain up to this time. She now took some sparkling Burgundy and dry toast with a relish, and kept it down. Two hours after the operation, the bowels acted. The urine was natural and free from deposit.

May 31st. She was much in the same state, exhausted and restless. Pulse 140; temperature 101½. As the chloral appeared to be less efficacious than at first, and the pain and feeling of distension were returning with as great if not greater severity than before the operation, I ventured to give half a grain of morphine; but the first dose obliged me to abandon the remedy. Sickness of the most distressing and persistent character set in. Sparkling Burgundy with ice was ordered as freely and as often as she could take it; and, at the expiration of about three hours, I had the satisfaction to notice that some of it was retained upon the stomach. She requested to have the effervescent citrate of magnesia, to quench her thirst. She had tried it before, with advantage in controlling the sickness.

June 3rd, 11 A.M. The patient was sufficiently restored to undergo a second operation. Upon this occasion, I had the benefit of being assisted by Mr. Lomax, Surgeon-Major Carey, Mr. Lock, etc. Before the operation, the girth was 42½ inches. I passed a common hydrocele trocar and cannula into the abscess a little below and to the right of the usual position of the gall-bladder, and by slow degrees drew off 104 ounces of sanguineous brown pus, having a most peculiar odour. She bore the operation better than I could have expected (the operation lasted forty-five minutes), and expressed herself much easier. A severe pain above the crest of the ilium on the right side, brought on by the vomiting after the dose of morphine, no longer troubled her.—

3 P.M. She took her wine freely, and had asked for something to eat, as she felt hungry. She selected for herself a mutton-chop and potatoes. I consented with some hesitation, and she ate it with a relish unknown for months past.—4.30 P.M. She was prostrate, but cheerful. Pulse 116; temperature 100. The bowels were freely relieved, and, all things considered, she was as well as I could expect. I had persuaded the patient to keep the cannula in the wound as long as she could bear it, promising to take it away if it caused her much distress. At 7 P.M., I was obliged to withdraw the cannula, and introduced a No. 5 flexible catheter with a small wooden plug to exclude the air. By this, the second operation, she was diminished in girth 5½ inches, as nearly as we could judge. As she wished to try to sleep without medicine, I left her in charge of a careful and attentive nurse, with directions for her to take all the nourishment she could during the night when awake.

June 4th. She had slept at intervals during the night, was free from pain, and cheerful. I withdrew the catheter, which was blocked up, and with considerable difficulty introduced a second. A small quantity of matter, about three ounces, made its escape through the second instrument. At 8 P.M., she complained so much of tenderness and of a dragging sensation in the region of the liver, as she said, occasioned by the instrument, that most reluctantly I was obliged to withdraw it. Four ounces more of most offensive matter escaped through the catheter before I closed the wound.

June 5th. She had passed a better night, and at intervals had taken a fair supply of beef-tea, wine, etc. Pulse 118; temperature 100½. The fluid was evidently increasing in the region of the old swelling. She had a decided rigor at 3 P.M., followed by hectic and profuse perspiration, and was very much prostrated thereby. At 8 P.M., the pulse had risen to 126; temperature 103. The appetite was bad; she had increased thirst, and a certain painful sensation in the locality of the last rib when she attempted to make the slightest change in her position, apparently from increasing distension of the abscess. Otherwise, she complained only of feeling exhausted and inclined to doze.

June 6th. She was much the same,

June 7th. She had passed a tolerable night, and, when quite still, said she was free from pain. Pulse 140; temperature 103½. There was increased fulness in the hepatic region; great prostration following a rigor, with perspiration, etc.—4 P.M. There was disinclination to take nourishment of any kind, on account of her fear of sickness. She was ordered to take her wine, jelly, etc., as often as she could, and to suck small pieces of ice from time to time. The bowels acted in the morning. The urine was rather copious than otherwise.

June 8th. She was not so well, and complained of increasing fulness in the right side, and a feeling as though something must give way.—1 P.M. She had another rigor, etc., succeeded by rapid and feeble pulse, 160. Temperature 103½. She could take no food or liquid of any kind, ice excepted.—9 P.M. The prostration was very great. Pulse 165. She had an attack of vomiting, brought on during my visit by attempting to take a small quantity of sherry wine. Nothing was rejected but mucus and saliva. No food of any kind had been taken during the last twenty-four hours. By her own request, citrate of magnesia was again ordered, and, after an hour or more, the sickness subsided; but the prostration was so great, and the pulse so rapid and feeble, that I almost despaired of her surviving the shock. At 9.30 P.M., I left her hardly conscious, but inclining to sleep.

June 9th, 10 A.M. Her condition was most critical, the swelling evidently extending into the right lumbar region. She could not bear the slightest movement, the sickness returning if she attempted to change her position. I told her that only one thing could be done to relieve her, and that was to evacuate the matter again. She consented. At 1 P.M., I again introduced the trocar and cannula as nearly as I could in the same spot, and drew off sixty-four ounces of most offensive matter (the bowels had acted prior to the operation); and requested her to keep the cannula in the wound, if possible. She appeared relieved; the pulse fell from 156 to 128. Considering the desperate condition of the patient, she bore up surprisingly.—4 P.M. The pulse had fallen to 112. Temperature 99½. She could take her wine freely in oatmeal-gruel (her own suggestion), with no return of sickness. In the evening, I withdrew the cannula, of which she complained as hurting her, and substituted a No. 6 elastic catheter, through which six ounces of most offensive matter escaped. Having secured the instrument in the wound, I left her to sleep, without medicine of any kind.

June 10th. I reintroduced a larger sized catheter. Four ounces of matter escaped, but, if anything, it was more offensive than ever, although I took the precaution to plug the end of the catheter, to prevent air from entering the cavity of the abscess. She passed a tolerable night. There was no rigor; the appetite was improving; and there was less thirst.

June 11th. I removed the second catheter, and introduced No. 8, through which sixteen ounces of the same offensive matter escaped (under the microscope, composed of albumen coagulated, blood-corpuscles, and pus-globules in large quantities). Before the operation on this day, the pulse, from 135, temperature 100½, fell to 115, and temperature 99½. She asked for some chicken and a glass of wine. By careful manipulation, the last catheter could be introduced the whole length, twelve and a half inches, and seemed to traverse the region of the liver in the direction of the left kidney, so far as I could judge by trials at this time and afterwards, without any pain, except at the opening through which the catheter was passed.—9.30 P.M. She was in a calm sleep, and had taken a mutton-chop and glass of wine for supper. On this day, for the first time, she expressed a hope of recovering, and of once again seeing her children.

June 12th. Nine ounces of the same kind of offensive matter escaped. The tongue was clean, and the bowels acting regularly. Pulse 109; temperature 99. The appetite was improving.—9 P.M. I withdrew the last catheter, which was obstructed, and introduced a No. 12. Sixteen ounces of the most offensive matter passed—twenty-five ounces in the last twenty-four hours. She felt better, and free from pain of any kind. She felt hungry, and wanted her supper, which she wished to be cold roast-beef and bread and butter, with a glass of wine. I almost invariably gave a glass of wine before the withdrawal of the plug from the catheter, both morning and evening. At this date, I noticed that the matter, after it had passed into the utensil, had a more flocculent appearance, as though the internal lining of the abscess were beginning to detach (under the microscope, it presented all the characters of albumen). Pulse quick, 130; temperature 100.

June 13th. She had not had so good a night; had slept about four or five hours. I drew off at 11 A.M. twelve ounces, at 9 P.M. ten ounces. Pulse 120; temperature 100. She took her food and wine with a zest.

June 14th. She had had a good night. At 11 A.M. I drew off ten ounces, in the evening three ounces, not so purulent, but having a yellowish brown colour, and less offensive. On this day, we measured her waist, and marked a reduction of rather more than eight inches in the circumference. Her friends were struck with the improvement in her appearance.

June 15th. Four ounces and six ounces passed. Pulse 100; temperature 99. She now looked forward to seeing her husband again, and her children, who were to come and see her one at a time. She continued to improve during the next five days. On the 21st, there was so much pain in the bowels, particularly the right side, with disposition to vomit, accompanied with great prostration and coldness of the lower limbs (no diarrhoea), that I began to fear perforation of the abscess into the peritoneum or intestine. She could not bear the slightest pressure. Only one ounce of yellowish bilious-looking matter passed through the catheter in the morning, and three ounces in the evening, of a like character. I ordered her to take ten minims of chlorodyne every half-hour, and sparkling Burgundy as freely as she wished during the day. After the fourth dose of the chlorodyne, she expressed herself better, and inclined to sleep.

June 22nd. She passed a most offensive greenish yellow motion from the bowels, very much resembling the matter passing from the catheter in her side. She was evidently better, and again inclined to take nourishment. The pulse fell from 144 to 99 during the day, and the temperature was 98. Six ounces and a half only of flocculent yellow matter passed during the last twenty-four hours.

June 23rd. She was much the same.

June 24th. She had had a bad night; complained of pain in her head, and described it "as though it ran up from her belly".—10 A.M. I drew off eleven ounces and a half of greenish-looking matter (with little if any smell), by which she seemed relieved; five ounces and a half ounces in the evening.

June 25th. She had vomited in the morning about three ounces of most offensive matter, in appearance very much like matter from the abscess. As there had been no action of the bowels since the 23rd, I ordered her a soap-and-water enema, which brought away a copious evacuation of most unhealthy faeces. From this time onwards, with occasional slight interruptions, she continued to progress. The discharge from the abscess gradually diminished, and by the end of August little else than pure bile flowed from the wound; so that on September 5th I withdrew the catheter entirely, and on the 10th of the month she returned to her native village. During the last month or five weeks, she gained flesh rapidly, and, when she left the hospital, must have weighed many pounds more than I had ever known her to do before. Visitors were asking if Conel could be the same woman. The total amount of discharge by measure was 558 ounces during the fourteen weeks she was a patient in the hospital. The only medicine taken

regularly during the last seven weeks was vinum ferri in teaspoonful doses three times a day.

I place this case on record as the only one that has occurred in my practice, and one of the few that have been published, where the success was so decided and the prospects so unpromising.

ADDITIONAL REMARKS ON A NEW MODE OF HOSPITAL CONSTRUCTION.*

By HENRY GREENWAY, M.R.C.S., Plymouth.

[Continued from BRITISH MEDICAL JOURNAL, May 11th, 1872.]

PATIENTS will require practically (on account of the two corridors) a much larger space than they could do with in a general ward, which increase partly makes the plan more costly. In comparing cost, however, advantages must be considered; namely, those already mentioned in my former paper, and there would be fewer deaths and more rapid recoveries; and I maintain that I give more than a *quid pro quo*. It should be remembered that many existing hospitals, in consequence of decorations, etc., cost as much or more than the estimate for my plan.† Besides, if the adoption of my plan be the means of saving life, extra cost, if within reasonable limit, ought not to be regarded. It would be just as idle to compare the cost of a chronometer with that of a common watch not to be depended on. Extra cost of administering would be very small. Of course, the patients could not be attended to with such rapidity as in a large ward, where the nurse or surgeon walks from bed to bed. But, after all, the main point is—What is best for the patient? I also consider the plan of having patrols will tend to increased watchfulness on the part of the nurses, just as a sentry is more alert while pacing his beat. There would be no difficulty in the matter of ventilation. The compartments being made of glass, it will be seen when they require to be washed.

The cases *specialty* requiring this plan of hospital are—wounds, whether caused by operation, accident, or disease; infectious diseases, and obstetric cases. Thus cared for, it is believed that hospital erysipelas, pyæmia, and gangrene (the pests in the surgical wards of our existing hospitals) would seldom or never occur, and would not spread through the building, as the wound of one patient would not be exposed to air tainted by the wound of a neighbouring patient, and the compartments themselves would not be a source of evil. It is believed that all wounds (some more than others) injuriously affect the air of a room either immediately or ultimately, if the walls be porous, and that they (the wounds) are very prone to absorb the organic particles thus suspended.

In a general medical ward some patients suffer, and even die, by being exposed to the same ventilation and temperature which may be considered necessary for other patients. This would not occur in my plan of building, where the ventilation and temperature of the different compartments may be varied as circumstances may require. With complete isolation there will be the chances of a patient, not considered seriously ill (and therefore not specially watched), but taken suddenly worse, being unable to summon the nurse by bell, or of the emergency being unnoticed by his neighbour, or by the nurse when casting her eye through the range of compartments, or even when acting as patrol; all this might possibly but very improbably happen. On the other hand, there is the *certainly* of patients, congregated in a general ward, occasionally proving hurtful to one another; and there is, in any form of building, the chance of negligence on the part of the nurse. I have said that patients in various compartments may require air of different temperature. This want can be economically met by placing on or removing from the hot-water pipes felt jackets. As a further means, already adopted, for regulating the warmth of the patients, blankets may be added to or withdrawn from the bed.

My plan of hospital construction has, by some surgeons, been considered unsuitable for connection with a medical school, on account of the inconvenience which students would suffer when following the surgeon from one compartment to another. My reply is, that the primary object of a hospital should be the *patients' welfare*, and whatever interferes with the attainment of that must yield. Once let the public imagine that any hospital, or portion of one, deemed perfect for cases (especially wounds) requiring isolation, and therefore tending to save life, is objected to by a surgical staff on the score of its being inconvenient for students, we may be quite certain a cry will be raised demanding the

* The result of discussions on my former paper. The manuscript, together with drawings and model of the proposed hospital, were placed in the Annual Museum of the British Medical Association, August 1873.

† The estimate, per bed, in 1871, was £150. It would now, most probably, be somewhat higher.