A report on some cases of operation : (division of stricture of the urethra and rectum, amputation at the hip-joint, excision of the condyle of the lower jaw, excision of the knee, ovariotomy, encysted urinary calculus, tracheotomy) : treated for the most part in Addenbrooke's Hospital, Cambridge, and in the year 1855 / by George Murray Humphry.

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A REPORT

OF

SOME CASES OF OPERATION:

(DIVISION OF STRICTURE OF THE URETHRA AND RECTUM; AMPUTATION AT THE HIP-JOINT; EXCISION OF THE CONDYLE OF THE LOWER JAW; EXCISION OF THE KNEE; OVARIOTOMY; ENCYSTED URINARY CALCULUS; TRACHEOTOMY.)

TREATED FOR THE MOST PART IN

ADDENBROOKE'S HOSPITAL, CAMBRIDGE,

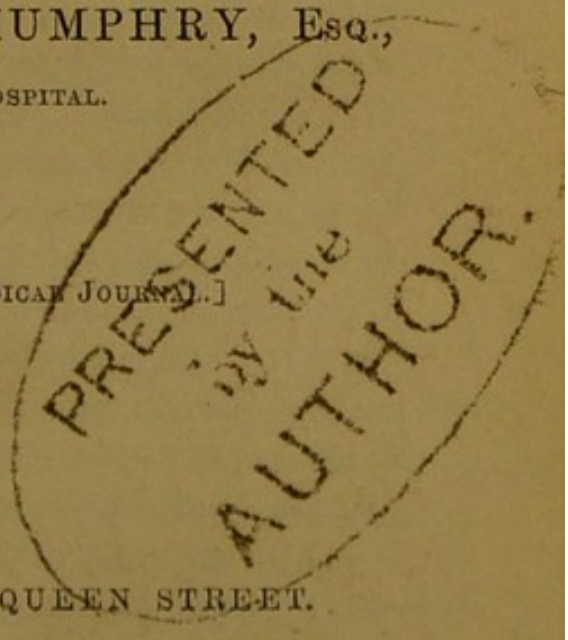
AND IN THE YEAR 1855.

BY

GEORGE MURRAY HUMPHRY, Esq.,

SURGEON TO THE HOSPITAL.

[*From the* ASSOCIATION MEDICAL JOURNAL.]



LONDON:

T. RICHARDS, 37, GREAT QUEEN STREET.

M.DCCC.LVI.

CASES OF STRICTURE, IN WHICH SYME'S OPERATION WAS PERFORMED.

Case 1. Wm. Buck, aged 55, a strong healthy man, was received into the hospital on the morning of April 22nd, 1855, in extreme agony from retention of urine. Nearly forty years previously, he fell across a plank upon his perinæum. He was then admitted into the hospital; and Mr. Okes found it necessary to cut into the perinæum, for the purpose of emptying the bladder. He had experienced difficulty in making water ever since. In April 1846, I opened his bladder from the perinæum, in consequence of retention, with swelling in the perinæum, and impassable stricture at the bulb; and afterwards took much pains to treat the stricture in the usual manner. The wound healed; the stricture was gradually dilated; and he was discharged, with directions to pass No. 8 bougie at regular periods. This he neglected, and had been under my care two or three times subsequently for the relief of the stricture and its accompaniments. Lately, the difficulty of making water had been gradually increasing, and he had been unable to pass any urine at all since the morning of the 20th. The surgeon at his home and the house-surgeon at the hospital had failed in their attempts to introduce a catheter. He begged that those attempts might not be renewed; but that the operation, which had before relieved him, should be at once performed. There was no evidence of distension of the bladder; no unusual dulness on percussion above the pubes. Still, pressure in that situation increased his pain and urgent desire to make water. There

was some indurated swelling in the perinæum; and his agony was so great that I determined at once to yield to his solicitations. When he was under the influence of chloroform, I tried to pass a catheter. Not succeeding, I made an incision on the left side of the perinæum, as for lithotomy; and soon opened a cavity containing muco-purulent fluid, having a urinous odour. No urine followed; and I could discover no communication with the bladder. Accordingly, I carried on the incision in the direction of the membranous part of the urethra. When I had cut, as I thought, deep enough, I passed a straight silver catheter into the wound, which, under gentle pressure, went on several inches in the direction of the bladder: indeed, I was confident that it had entered the bladder; but no urine made its appearance. After a short time, some tenacious thick mucus oozed through it, followed by urine; the whole quantity being less than a pint. The man was relieved; and thick bloody urine continued to flow through the wound. On the 25th, I with much difficulty passed a small catheter through the stricture into the bladder, and secured it there. On the 27th, having substituted a small staff for the catheter, I extended the perinæal wound by means of a bistoury passed through it into the groove of the staff, and cut quite through the stricture, after the plan, though not quite in the exact manner, recommended by Mr. Syme. The staff was then withdrawn, and a large (No. 12) gum-elastic catheter, passed through the urethra into the bladder without the slightest resistance, was secured there.

After this operation, he was much more comfortable. The urine flowed freely through the catheter, and quickly improved in character. In three days, the catheter was removed, and passed at intervals, which could always be done with perfect ease. Sometimes it was allowed to remain a few hours. He left the hospital June 8th. The wound was then quite healed. He could make water in a good stream, as well as ever in his life, better than he had done for many years.

Dec. 31st. Passing to-day through the village where he lived, I called upon him. He tells me that he is perfectly well, able to pass water better than he has done for forty years.

Case II. David Saunders, aged 45, had for many years suffered greatly from stricture, consequent on gonorrhœa; and had been treated for it by other surgeons, and by myself in the hospital more than ten years ago. The orifice of the urethra was scarred by chancres. There were one or two slight strictures in the anterior part of the canal, and a very tight one at the bulb, admitting No. 1 catheter with difficulty. It was a tough as well as a tight stricture, which former treatment had failed to cure. Encouraged by the very successful result of the former case, I determined to perform Syme's operation. Accordingly, on May 18th, 1855, I passed through the stricture the small grooved staff employed by the professor, and made an incision in the median line of the perinæum. The groove of the staff was soon reached, and the bistoury carried along it for an inch or more through tissues which seemed to be indurated. A large gum catheter was without difficulty passed by the urethra into the bladder, and secured there. It was removed on the 21st, and passed again with ease on the 24th. After this he had an attack of ague, which did not seem to have any direct relation to the local malady, and yielded to treatment by quinine. On June 14th, the catheter not having been passed for several days, some resistance to its entrance was found at the seat of stricture. It yielded to slight pressure; and the catheter was allowed to remain a couple of days. The wound did not heal very quickly: indeed, to promote the closure of the sinus left by the operation, I directed him to pass a catheter frequently, for the purpose of drawing off the water. This object was attained before he left the hospital, in the middle of July. On December 4th, he told me that, though the stream of water was not quite free, it was better than it had been for years. He continued to pass a bougie occasionally.

Case III. George Brittan, aged 30, had suffered under

stricture, consequent on gonorrhœa, above ten years; had been under my care in the hospital four years ago, but soon got bad again after his return home. Latterly, his sufferings had been very great. His difficulty in making water was always extreme, and often he was for hours quite unable to void a drop. Hearing of an operation for the cure of the disease, he came into the hospital, anxious to undergo it. The stricture at the bulb was so tight that, although he had rested in the house for a couple of days, it took me nearly an hour to insert No. 1 catheter into the bladder. After two days I withdrew it, and immediately passed Syme's staff through the stricture, and cut through the perinæum upon it, carrying the bistoury along it some distance through the stricture. Finding, however, that a large gum-elastic catheter would not easily traverse the urethra, I concluded that the stricture was not completely divided. Accordingly, the staff was reintroduced, and the incision extended so as to make sure of attaining the object. The catheter now entered easily, and was secured. For several days there was a good deal of venous bleeding from the wound, as well as from the urethra; and some trouble from clots forming in the bladder. I suppose that it proceeded from the vessels of the bulb. It weakened the man, and resisted the ordinary measures; but stopped at last under the influence of gallic acid and opium. The catheter was removed after two days, and introduced again occasionally without difficulty. The wound having quite healed, the patient was discharged Sept. 25th, a month after the performance of the operation. He came to the hospital Oct. 27th, and told us that he could make water as well as ever in his life, in a full stream, with force enough to go some yards. He had not passed an instrument since he left.

The result of these three cases is so entirely satisfactory, that I shall have no hesitation in resorting to the operation in other suitable instances; and recommend those surgeons who are prejudiced against it to give it a trial. In each of these cases the stricture was very bad; and the

ordinary treatment, perseveringly employed for some time, had failed to afford a cure. In two, life was imperilled by the disease; and in one of the two, it had twice been necessary to cut into the bladder to give vent to the urine. In these two, the cure is quite complete; and there is every probability of its being permanent. In the other case, great improvement has been effected.

This operation, which deserves to be ranked as one of the great improvements in modern surgery, has been received with mistrust, and has encountered great opposition; chiefly, I think, because the theory of it has not been well understood. It has generally been supposed that, if a stricture be cut, the new medium, which unites the divided edges—the cicatrix in other words—will have such a tendency to contract, that, even though they be held apart for a time, it will soon draw them together, and close up the canal as narrowly and as firmly as before. In short, the contractile tendency of cicatrices has been overestimated and too much dreaded. The notions of its force, and the apprehensions of its ill effects, have been derived from the too exclusive examination of those scarcely normal examples of cicatrices—the cicatrices after burns, for instance—where, owing to some particular cause, such as a damaged state of the tissue or slow healing, a large amount of coarse, imperfect, contractile, fibrous tissue, has formed in the cicatrix. A little observation of the product of the healing processes conducted under more favourable circumstances would have corrected these views, and shown that, commonly, the contraction of cicatrices is, by no means, so great as usually represented. Thus, the scar of a simple wound does not often cause any puckering of the adjacent skin; the scar of an issue is as large, or nearly so, as the portion of skin destroyed by the caustic; the cicatrix, which fills up the gap left by the removal of the flap transplanted by a taliacotian operation, is, if nothing has interfered with the healing, soft, supple, without marked contractile propensities, and its area is about equal to that of the flap whose place it supplies. It is well known that

when a portion of skin is removed, either by caustic or the knife, the elasticity of the surrounding tissues draws them apart, and widens the breach; and it would seem that the contractile property of the repairing medium, provided it be formed in a natural manner, is about sufficient to counterbalance this elasticity, and restore the parts to their proper relative position. If the surrounding parts offer little resistance, as in the case of the scrotum, or eyelids, the contracting force of the newly forming medium is often sufficient to draw them together, and may even cause deformity. But where the contraction does more than this, where it goes on after the healing is completed, and is able to overcome much resistance, it will, as a general rule, be found that there has been some difficulty in the reparative process, and that the cicatrix is, in consequence, tougher, coarser, and thicker than natural; in fact, more or less nearly allied to the plastic products of inflammation in other qualities, as well as in that of possessing a contractile tendency.

We know well, also, that extensive incisions and lacerations of the urethral canal in lithotomy, the extraction of calculi, and other operations, are very rarely followed by any contraction of the passage. That contusions of the urethra, by falls upon the perinæum, are so followed, in many instances, is probably explained by the inflammation and effusion of contractile lymph in and around the urethra, consequent on the bruising, rather than by the mere cicatrisation of the torn parts.

In the operation at present under consideration, the divided edges of the stricture are held apart by the presence of a full sized catheter retained in the bladder. The reparative medium connecting the divided edges, and restoring the canal, is formed around the catheter, and, provided the healing goes on favourably, analogy would lead us to expect that the cicatrix will be soft and supple. Any contractile tendency which it may possess, being overcome by the pressure of the urine, will, we may hope, be insufficient to restore the stricture.

The successful result of the operation depends, therefore, if these views be correct, upon the proper constitution of the newly formed cicatrix, and is likely to be marred by any causes which, interfering with the healing processes, induce inflammation, lead to a surplus formation of lymph, and engender a cicatrix more tough and contractile than natural. For this reason the operation should be done carefully, with as little bruising of the passage as possible; and unnecessary disturbance of the parts with catheters afterwards should be avoided.

It is essential, of course, that the stricture should be completely divided. It is generally at or near the bulb; still it is not always easy to tell its exact situation; so the incisions should be made sufficiently free to leave no doubt of their having been effectual. The easy passage of a large catheter into the bladder is a good test of this. If any obstruction be felt, it should be withdrawn, the staff again introduced with care, and the division of the stricture completed, as in case III.

The operation has been objected to for three chief reasons, besides the dangers attendant upon it, which, in a moderately healthy subject, cannot be great. First, the passage of an instrument through the stricture is essential to its performance; and this cannot always be done. Secondly, when this has been done, the great difficulty has been overcome, and a cure may be effected without an operation. Thirdly, there is the fear that the contraction of the cicatrix, consequent on the operation, will reproduce the stricture.

The last objection, which is a theoretical one, I have already endeavoured to answer theoretically. The more important argument from experience is, I believe, in favour of the radical nature of the cure, if the operation be thoroughly and properly performed.

With regard to the first objection, I confess that I am disposed to agree with the statement of Mr. Syme, that, provided the stricture permits a flow of urine, it almost always admits of being permeated by a small catheter,

cautiously and perseveringly used; especially if the patient be allowed to rest in bed for a day or two before the attempt is made. In case III, which was of the worst kind, I was nearly an hour in overcoming the difficulty, and reaching the bladder. It might probably have been done quicker, but I prefer, in such cases, to give time; and endeavour gently to insinuate and press on the instrument, rather than use much force.

The second objection has the most weight; because there is no doubt that, by the persevering use of bougies, most, if not all, bad strictures may be cured. Only a short time ago I met a man, aged 66 years, whose bladder I had been obliged to puncture above the pubes two years before, on account of retention, caused by an impermeable stricture of many years standing. Subsequent dilatation of the stricture by bougies had been effected, and he told me that he was quite well, and could pass water as well as ever in his life. He still continued to follow the directions I had given him to introduce the bougie once a week; which, on former occasions he had neglected. Nevertheless, we know practically that, owing perhaps to the inattention of the patient, the bougie often fails to afford more than temporary relief, and that, in hospital practice particularly, the real cures bear but a small proportion to the cases treated.

I think that Mr. Syme has conferred a great boon upon the public by forcing this operation upon the notice of the profession, and believe that its merits will ensure its more general adoption.

In conclusion, I cannot forbear just directing attention to a fact of extreme practical importance in Case I. It is this: although the retention was most urgent and agonising, and would probably have proved fatal, there was no evidence of distension of the bladder, and less than a pint of fluid escaped when that viscus was opened. I have met with the same thing in other similar cases, when the bladder was thickened and inflamed, and, consequently, did not admit of dilatation.

THREE CASES OF STRICTURE OF THE RECTUM TREATED BY INCISION.

Case 1. W. H., aged 30, a healthy looking man, was admitted Dec. 17th, 1852, with the usual symptoms of stricture of the rectum. Of these the chief was great difficulty in passing motions, which were never larger than a tobacco-pipe. Sometimes they were loose; at others, nothing passed without the aid of medicine. The stricture was situated about two inches from the anus, with a sharply defined edge encircling a narrow orifice that would not admit the tip of the finger. Several warty excrescences surrounded the verge. There was a fistulous opening in the perinæum, discharging feculent matter; and the presence of the same matter in the urine, with dirty purulent discharge from the urethra and pain in making water, proved that a communication existed between that canal and the rectum.

He said that, about seven years ago, when serving as a soldier in India, he had an attack of dysentery. Shortly after his recovery, he was troubled with "piles". A difficulty in passing the motions soon followed, and increased till a twelvemonth ago, since which it had continued about the same. The piles were cut in 1848, which, he thought, aggravated his symptoms. He stated that he never had syphilis.

For some weeks I persevered with the cautious use of the bougie; but, making little or no progress, I determined to divide the stricture with the knife. Accordingly, having passed my left forefinger through the narrow orifice, I in-

troduced a blunt-ended bistoury upon it, and freely divided the stricture and adjacent wall of the rectum on one side, including the sphincter ani. This was followed by very great relief. He was soon able to pass the motions with ease, and continued so much better that, in the latter part of February, he was discharged for a time, at his request. In April he returned, stating that he was still able to pass motions without difficulty or pain; but the fistula in the perinæum remained, and there was still a brownish discharge from the urethra. Accordingly, I laid open the fistula into the bowel. In June he had nearly reacquired the complete control over the sphincter; though, when the motions were loose, they sometimes escaped. He had no difficulty in passing the evacuations, and the discharge from the urethra had ceased. Still there was some contraction of the bowel in the situation of the stricture.

I have not been able to hear any more of this patient.

Case II. A stout woman, aged 35 years, admitted in January 1855. She had syphilis ten or twelve years ago, and suffered from pain and difficulty in defæcation, with discharge from the anus, for eight or nine years. About three years ago, a gathering formed, burst beside the bowel, and left a fistula. Others had subsequently formed and burst. There were several integumental excrescences about the anus. The finger found the lower part of the bowel uneven and indurated, and encountered a tight stricture about two inches and a half above the anus. The left side of the buttock was indurated; and there were three fistulous orifices; one, four inches behind the anus, through which the probe entered the bowel a little above the external sphincter; a second, three inches to the side of the anus; and a third, more in front. The probe introduced into these did not enter the bowel.

Jan. 27th. When the patient was under the influence of chloroform, I laid open all the fistulæ, tracing their course with the probe as I cut along, to be sure of following them out. Two entered the bowel below the stricture; the third was continued up alongside the stricture. As I

could trace it no further, I pressed my finger through the stricture; and, pushing the bistoury alongside it in the ischio-rectal fossa, from the termination of the fistulous track, completely divided the stricture, and laid open the bowel in its lower three or four inches. The incisions requisite to effect all this were very extensive. One vessel bled freely, and was secured by a ligature. A slight attack of erysipelas followed. It did not last long, or extend far. When it had nearly subsided, I introduced my finger, and, finding the passage quite clear, inserted a small speculum vaginæ, securing it there for twenty-four hours by a bandage. Two days afterwards, I passed a large rectum bougie into the colon. No other treatment was adopted, except the occasional introduction of the bougie by herself. Gradually the wounds healed; she acquired the power of retaining the motions, and has not from the time of the operation experienced any difficulty in passing them. She reported herself quite well when I saw her about a month ago.

Case III. S. H., aged 35 years, a delicate woman, admitted in July 1855, had suffered six or seven years from stricture of the rectum, which had gradually become worse, in spite of the ordinary treatment resorted to on several occasions. Each introduction of the bougie was followed by so great an increase of irritation, that its use was discontinued, and she derived more benefit from cold water clysters than from any other means. Her distress from discharge, frequent worrying action of the bowels, and straining to void the motions, was so great, that she was quite incapacitated for work, and obliged to live by herself. The aperture of the anus was granulated; the lower part of the bowel rather indurated; and the stricture, about two inches above the anus, was so tight, that I could scarcely find the orifice. Encouraged by the case last narrated, I passed my finger through the stricture, when she was under the influence of chloroform, and, guiding a bistoury upon it, cut through the stricture. I endeavoured to insert a tube into the bowel, but relinquished the

attempt on finding that it had a tendency to pass into the exposed cellular tissue, where the stricture had been divided, instead of continuing its course in the bowel. Unfortunately, the bowels continued in a highly irritable state, and the frequent passage of the motions caused much pain and purulent discharge. These symptoms were combated, to a certain extent, with opium; but the case did not go on so satisfactorily as I could wish. I made no attempts to pass bougies after the operation, because the introduction of my finger, on one occasion, increased her pain for some days. She gradually recovered; and though she still suffers a good deal from slimy discharge and irritation, consequent on a diseased state of the lower bowels, she is able to pass the motions with much less difficulty.

Remarks. I was induced to resort to the operation in these cases because of the very indifferent success which has attended the treatment of strictures of the rectum by bougies, in my own hands, and, I may add, in the hands of those whose practice I have had an opportunity of observing. I was further encouraged by the reflections on the contractile properties of cicatrices, conveyed in the report on the division of strictures of the urethra, in the last number of the Journal. The result of the proceeding is certainly such as to encourage me to its repetition. In Case II, which was a very bad one, the stricture being tight, of long standing, and complicated with numerous and extensive fistulous tracks, the cure appears to have been complete. In the other cases, although the result was not so entirely satisfactory, the passage of the motions was rendered more easy than it had been before the operation.

The experience derived from these three cases suggests the following hints for the future, when it is proposed to resort to the operation. First, having secured, if possible, the complete evacuation of the bowels by means of aperients and clysters, to prevent their action for some days afterwards by the administration of opium. Secondly, to make a free division of the sphincter ani as well as of the stricture. I think it would have been better in case III if this had

been done. Thirdly, to endeavour to insert a tube into the bowel after the division of the stricture. The small-sized, tubular, vaginal speculum, expanding at one end in a funnel-like manner, which was used in case II, answered very well. It was confined by a bandage, and a cork, removeable at pleasure, supplied the office of the sphincter. There will be less difficulty in placing and retaining the tube, if the sphincter have been divided. In case III, where that had not been done, the extremity of the instrument would, if pressed on, have run into the cellular tissue, external to the rectum. I need scarcely say that care must always be required to prevent this occurrence.

All the simple, that is, non-malignant strictures of the rectum that I have met with, have occupied the same position as in these cases; namely, two or three inches above the anus; and all, with the exception of the first of the cases here given, have been in females. Often the disease was traceable to some vaginal irritation, which, in several instances, was dependent upon gonorrhœa or syphilis.

TWO SUCCESSFUL CASES OF AMPUTATION AT THE HIP-JOINT.

Case I. — Burd, aged about 35 years, met with a severe compound fracture of the right thigh, near the middle, from a wheel passing over it. Mr. Welch, of Saffron Walden, who saw him soon after the accident, did not think that the main vessels were injured, but considered the injury of so severe a nature that he recommended amputation. The man would not submit to this. The limb was accordingly done up with splints and bandages. For the first three or four days, though restless, he was thought to be doing well. Soon after this, it became apparent that mortification had set in. The entire limb below the fracture sloughed, and was separated by the efforts of nature, with little assistance from the surgeon. All this took place without much constitutional disturbance. Unfortunately, the sloughing of the skin extended up the limb higher than the fracture, so that a large uncovered surface was left.

On Nov. 28th, 1854, about six weeks after the accident, I went over to Chesterford to see the patient, at the request of Mr. Welch, who was of opinion that amputation at the hip-joint would be necessary. The bare broken extremity of the bone projected half an inch from the end of the stump: it was surrounded by a great granulating mass, overlying the muscles and other soft parts, which was bounded by the cicatrising edge of the integuments. The latter, for the most part, did not reach to within six inches of the end of the stump. The man, though not unhealthy

in appearance, was blanched, and had a quick pulse. He took a large quantity of nutriment, meat, wine, porter, etc.; digested it well, and seemed to thrive upon it. The granulations looked healthy. The stump was large in comparison with the corresponding part of the other thigh, but was not tender; and he could move it at the hip.

The discharge was considerable. It was scarcely to be expected that the health would long hold out under such circumstances. There was little hope of cicatrisation proceeding over this extensive surface, so as to close the stump: already it was advancing less actively than it had done. The patient was anxious that something should be attempted to secure the healing of the part, and willing to submit to any measure that we should propose. I agreed with Mr. Welch that it would be the best plan to remove the part at the hip-joint, as this was the surest means of obtaining a sufficient covering of integument. Moreover, the operation in that situation could be performed more quickly than through the upper part of the thigh bone; and the risk from hæmorrhage, which constituted one of the great dangers in the feeble state of the patient, would be diminished proportionately, or nearly so. Accordingly, on Dec. 17th, I went to the patient's house, and removed the stump at the hip-joint. Dr. Webster administered the chloroform; and Mr. Welch, Mr. Bailey, and Mr. Carver, rendered such efficient assistance, that very little, not above four or six ounces, of blood was lost. We placed the patient with his hips projecting beyond the edge of the table. The horse-shoe tourniquet was applied, with one pad upon the external iliac artery; the other upon the back of the ilium, so as not to be in the way of the incisions. This, being tightened and held in its place, prevented the flow of blood through the artery. The stump was raised a little; the point of the knife was inserted an inch below the spine of the ileum, passed across the hip-joint, and protruded a little below and to the side of the anus. The inner flap was then cut by carrying the knife downwards and inwards. Mr. Welch followed the knife with his

fingers, grasped the artery between the fingers and thumb, and raised the flap. The hip-joint had been opened, and the head of the thigh bone exposed, by this first cut. A little further division of the capsule enabled Mr. Carver, by rotating the stump, to throw the head of the femur from its socket; enough to expose the ligamentum teres, which was divided, and the bone completely dislocated. The hinder part of the capsule, and the tendons running to the digital fossa, were then cut, so as to allow the knife to pass behind the great trochanter, when the flap from the buttock was quickly formed. During this time, one gentleman with a sponge pressed upon the lower part of the anterior flap, so as to prevent bleeding from the obturator and other arteries; while another, kneeling in front of the patient, followed the knife with a sponge behind the trochanter, so as to compress the gluteal and ischiatic vessels. In this way the hæmorrhage was almost entirely prevented, and we were able to proceed at leisure to tie the vessels, taking those upon either flap which first bled as they were uncovered. The femoral was about the fifth tied; the sciatic bled briskly when uncovered; the gluteal less than I expected. We took great pains to secure the vessels in the immediate neighbourhood of the acetabulum, the neglect of which has been the cause of fatal hæmorrhage in other cases. Forty-three ligatures were applied. The patient was now rather faint, so we covered up the wounds for half an hour, when he became warm, and his pulse good; and, as there was no bleeding, the edges of the flaps were approximated by sutures. A pad was placed under the hinder flap, and secured there by a bandage passed round the pelvis.

Two hours after the operation, his pulse was good. There was some disposition to sickness, attributable probably to the chloroform; this continued for two days, and subsided gradually. The progress of the case, under the management of Mr. Welch, was most satisfactory. Partial union took place by first intention. Some dirty fœtid pus, tinged with blood, was discharged after a few days: this soon

ceased, and nothing occurred to interfere with the speedy and complete union of the flaps. I heard a few weeks ago that he was quite well and strong.

Case II. Richard Fuller, aged 27, a healthy man, blanched and thinned by confinement and disease, was admitted into the hospital June 23rd, 1855, with an ulcer as large as a cheese-plate on the outer side of the left thigh; its upper edge being four or five inches below the trochanter. It was flat, with a coarsely granular surface, which presented a red colour, interspersed with small whitish spots. The discharge was thin and bloody; the edge smooth, not everted or raised, but decidedly indurated. At the middle was a deep depression, extending down to or into the thigh bone. Sixteen years previously, he suffered a severe injury at this part by a thrashing machine; the skin being, he said, torn up a great way, and the ulcer left was a very long time in healing. It appears, however, to have done so quite soundly. A year ago he thought he hurt the cicatrix, by chafing it with a sack of beans he was carrying. At any rate, about that time a sore commenced, which had been gradually increasing up to the time of his admission. There was no enlargement of the inguinal glands.

The ulcer presented the general characters of a cancerous or epithelial disease, and the cursory examination made upon his admission left on my mind no doubt of that being its nature. On the morning of the 25th, I found him agonised by most painful and severe cramps in the thigh, which had come on during the night, and were evidently caused by the giving way of the bone at the part where the ulcer extended down to it. Upon the gentlest handling of the limb the muscles were thrown into action, and he shrieked out with pain. We determined, therefore, at once to remove the limb, through the upper part of the thigh bone, and to extend the operation if it should seem desirable. As the ulcer reached high up on the fore part of the thigh, and the cicatrix higher still, it was necessary to make the incisions very close to the pelvis, especially in

front. The pad of the horse-shoe tourniquet was placed above Poupart's ligament. Thrusting the knife from the outer side, a little below the great trochanter, I cut a short flap from the fore part, and then made a longer one behind, sawed through the bone, and tied the vessels. We next examined the thigh bone. At the middle it was quite destroyed; its place being occupied for about two inches by a firm white cancerous mass. A section of the bone showed the disease extending some distance up the interior. It was not certain at what part the disease ceased; for in places, above its apparent termination, were spots in which a white soft substance had been infiltrated between the separated laminæ of the bone. In its whole length the wall of the shaft seemed to be more porous and vascular than natural; a condition which is not uncommonly met with when a part of a bone is the seat of cancer. In the knee-joint we found the cartilage removed, in an irregular and remarkable manner, from the inner side of the outer condyle. The bone thus exposed, though smooth and covered by synovial membrane, looked dark. It was evident, therefore, that no part of the thigh bone which had been removed was in a very sound state; and my colleagues, Mr. Lestourgeon and Mr. Hammond, agreed with me that it would be the best plan to take out the remainder, now that it could be so easily done. Accordingly, with a long scalpel I carried the incision along the front of the bone to the joint, cut through the fore part and sides of the capsule, and, grasping the end of the bone with the strong forceps made for such purposes, turned the head out of the socket. Having divided the ligamentum teres and hinder part of the capsule, I carried the amputating knife behind the bone, and cut outwards through the posterior flap already made, so as to reduce it to proper dimensions. There was some difficulty in securing the gluteal artery. By the time the operation was done, the man was very faint; for a time pulseless. However, he gradually revived. We took great pains to secure the vessels sufficiently, and waited some minutes to see if there was any bleeding. The

flaps were united by sutures, and supported by a bandage, with a pad on the lower one.

No unfavourable symptom occurred till the fifth day after the operation, when hæmorrhage took place. The blood flowed quickly, but stopped when Mr. Carver, the house-surgeon, who was quickly upon the spot, compressed the femoral artery. Mr. Lestourgeon and Mr. Hammond were summoned in my absence. They opened the stump and found a good deal of blood and pus. The bleeding had then ceased; and, being unable to discover its source, they left the stump open, with some lint in it. The patient was very faint, and the prospect by no means bright. However, the next morning he had rallied. Suppuration took place; the lint came away after a time; no further bleeding and no other unfavourable symptom occurred; the wound slowly healed, and the patient was discharged cured in September.

January 11th, 1856. The Rev. Mr. Mortlock, in whose parish he lives, writes me word that he is in full health and activity.

Remarks. These were favourable cases for the operation. The patients were both healthy men, advancing towards the prime of life. One had just shown the vigour of his constitution by passing through the tremendous ordeal of traumatic mortification and separation of his limb. This, it is true, had weakened him greatly, and he is indebted for his life, not a little, to the very efficient assistance, which prevented much loss of blood. The other man was in better condition; and his greater strength was needed to withstand the longer—it may be called the double—operation, as well as the subsequent hæmorrhage.

When we consider the extent of parts divided, and the shock consequent thereon, the dangers of loss of blood at the time, and of subsequent hæmorrhage, besides the extensive suppuration that may follow—each of these causes having, in many instances, proved fatal—we cannot wonder that the statistics of the operation are discouraging, and

that it is regarded with disfavour by many surgeons. Nevertheless, there can, I think, be no question that it is a justifiable operation, one which the surgeon may be in duty bound to perform; I am glad, therefore, to be able to add two to the list of successful cases. We may reasonably entertain the hope that the advantages possessed by modern surgeons, in chloroform, in the improved Assalini's or Liston's forceps for securing vessels, and in the better modes of treating the wounds and the patients which now prevail, will not be without their effect in diminishing the dangers of this necessarily formidable proceeding.

EXCISION OF THE CONDYLE OF THE LOWER JAW.

CASE. A healthy young woman, aged 21 years, with dark hair and florid complexion, was admitted as an out-patient in January 1854, on account of a peculiar distortion of the face. The chin was thrust to the left side further than would, under natural circumstances, be practicable. This was caused by displacement of the lower jaw, the left median incisor tooth being opposite to, or a little beyond, the lateral incisor of the upper jaw, and the whole lower alveolar arch, with its teeth, being, in a proportionate degree, lateralised. Moreover, the jaw was placed obliquely; the right ramus and angle being on a plane lower than the left. When she endeavoured to rectify the position, the chin and left ramus were advanced forward, so that the corresponding teeth were brought nearly into opposition to one another; but then she was "underjawed." There was some fulness about the right side of the cheek, in front of the ear. The condyle of the jaw was a little more prominent than natural, and apparently a little in advance of its proper position. She could open her mouth as wide as ever, and close it again without pain, the movement being attended with a dull crepitus in the right jaw-joint, perceptible to herself, and to the finger placed over the part.

Two years previously her mother observed that her face was a little twisted. Gradually the distortion had increased, unaccompanied by any pain. She had perceived the sensation of crepitus, above mentioned, about ten months. Was not aware of having ever suffered from rheumatism; and the

only injury she could recollect was a fall, fifteen years ago, when her forehead was cut open rather severely.

It was not easy to make out the exact nature of the case. But it seemed pretty clear that the distortion was caused by some enlargement of the right condyle of the lower jaw, which was situated on, or in front of the ridge bounding the fore part of the glenoid cavity. Thus, the right ramus had become depressed below its proper level, and an obliquity was given to the jaw. In her attempts to rectify the obliquity, the left condyle was advanced into a corresponding position with the right, and the whole jaw thrown forwards. It was probable that this alteration of the condyle was accompanied with some change in the glenoid cavity; but of this there was no means of judging for certain.

For a year she continued in regular attendance at the hospital, being very anxious for some remedy. After several blisters, iodine was perseveringly applied, without any decided benefit. Indeed, it was scarcely to be expected that much benefit would result either from external applications or from medicines. During the summer she was in London, staying with a friend, and saw several surgeons, who made no suggestion. The deformity rather increased; and the affection was a source of great annoyance; not simply by the disfigurement it occasioned, which was no slight detriment to an otherwise comely face, but also by the disagreeable crepitating sensation experienced during mastication, and by its rendering her unable to catch the food between her teeth. In the latter part of October she asked whether it could be remedied by any operation, and expressed her willingness to submit to anything that offered a fair chance. Having considered the matter a good deal, I proposed to excise the condyle of the jaw on the right side, in the hope that the bone might then be brought into a better position, and a new joint formed, which would be free from crepitus. It was an uncertain expedient, and necessarily involved some risk of injury to the facial nerve. My colleagues thought it too doubtful to be recommended to

the patient, who was acquainted with the result of our consultation. Still she persisted in the wish that some attempt should be made to relieve her by operation.

Accordingly, after a further period of two months, during which the disease made some progress, I made a curved incision from the side of the orbit across the zygoma to the ear, passing a little below the temporo-maxillary articulation, and a little above the line of the orbicular branch of the facial nerve; and a second incision from the termination of the first, directly upwards, in front of the ear, across the zygoma again, cutting carefully to avoid the temporal artery. The flap thus made was reflected, and, by a little dissection, the condyle was brought into view. Sufficient space being gained for a narrow saw to be passed down in front of it, I was enabled to cut it through from before backwards. This took some time, the condyle being thick, the bone hard, and the space to work in confined. When it was done, the condyle was seized with strong forceps, and turned out of its place, the remaining connexions being severed with the knife. It was much altered in shape, widened and flattened, having an uneven knotty surface, covered by structure presenting the appearance of fibro-cartilage. I found the interarticular cartilage lying in the back part of the glenoid cavity, misshapen, thick, hard, and knotty. The surface of the glenoid cavity was uneven; and, judging from the information conveyed by the finger, I concluded it had undergone changes similar to those in the condyle. When we examined the bone, we found that the saw had passed through the condyle, and that the jaw could not be brought into good position, because, as it appeared, a sufficiently large portion had not been removed. So I again applied the saw, and cut through the neck of the bone, removing the whole condyle with the attached end of the pterygoid muscle. This enabled us to bring the jaw into much better position. The two rami were on a proper level, and the incisor teeth were behind the line of the upper ones. My expectations had thus far been realised by the operation. The flap of skin

was replaced, and maintained in apposition by four points of suture; and a bandage was applied under the skin, to keep the jaw in its place. The facial nerve and temporal artery had escaped injury.

The wound healed up quickly and soundly: the jaw remained in very good position. The deformity was, therefore, almost entirely removed, and the girl was soon able to masticate her food without difficulty or inconvenience—I need scarcely say, not a little gratified by the improvement that had been effected. Nine months afterwards, she continued to be quite well.

Remarks. The disease in this case was evidently that known by the name "chronic rheumatic arthritis", which not uncommonly fixes itself upon some one joint, the hip more particularly, and leads to removal of the articular cartilages and alteration of the shape of the ends of the bones; that alteration consisting generally in flattening of the convexities and expanding of the circumferences of the heads, and in widening of the sockets. It is also productive often of a knotty condition of the end of the bone, which may become covered with a sort of fibro-cartilage, as in this case. Frequently all trace of cartilage disappears, becoming rubbed away or absorbed; and the chafing of the apposed bony surfaces upon one another gives them a smooth, polished, "porcelain-like" appearance. It is not usually attended with acute pain; nor is the pain increased immediately by movement: indeed, it often diminishes or ceases if the movements be continued. Hence the patient commonly goes on using the joint. At the same time, the qualities of the synovial fluid being altered, and the structure of the cartilages being impaired, the latter are unable to resist the effects of the friction, and disappear, leaving the ends of the bones covered only by an uneven, imperfect, fibro-cartilaginous substance, which affords an insufficient protection, or quite exposed and chafing upon one another. The chief effects of the disease are, therefore, such as result from a continuance of the movements of the joint when the natural provisions against friction are imperfect or gone.

Our museums contain many specimens of the results of "chronic rheumatic arthritis": indeed, it is a disease of the pathology of which we see and know more than of the treatment. The sufferers are often, in other respects, in the enjoyment of good, even robust health; and they very commonly prefer to endure the inconvenience of the malady rather than submit to any tedious ordeal of treatment. Probably some decided form of local counterirritation is more likely to do good than any other means. I have seen much benefit derived from a seton and an issue.

The temporo-maxillary articulation is well known to be less often the seat of disease than most other joints. When it is affected, the malady in general bears the characters of "chronic rheumatic arthritis"; and incipient indications of its presence may be observed in the crackings and other uncomfortable sensations of a similar nature, which are not uncommonly experienced in one or both joints. These cause great annoyance while they last; but, happily, they for the most part subside after a time spontaneously, or yield to attention to diet and the general health. In one gentleman now under my care, they have resisted treatment for a long time; the joint, moreover, is stiff, and aches in the morning. It is seldom that the affection proceeds to the extent witnessed in the young woman whose case I have described. It is satisfactory to know, when it does so, that the treatment adopted in her case was so completely successful.

There was reason to believe that the glenoid cavity was enlarged and altered in a corresponding manner to the condyle of the jaw; but, considering the nature of the disease, we had every reason to presume that it would cease to progress in the one articular surface after the other had been removed. The condition of the patient at the present time sufficiently verifies this expectation.

THREE CASES OF EXCISION OF THE KNEE-JOINT.

Case 1. Eliza Hobbs, aged 20 years, a light complexioned, not very healthy looking person, had suffered from disease of the left knee for more than six years. The synovial membrane was first affected, and subsequently the other structures of the joint. She was under my care in the hospital three years ago, when the disease was so severe that we feared amputation might be necessary. However, it gradually fell into a quiet state, and she went to her home to wait the effect of time. She returned in October 1854 with her general health improved. But the lower limb was useless, indeed burthensome; for though the disease in the knee had ceased, and the swelling had subsided, the joint was left in so mutilated and impaired a state that she could not bear upon the limb, or move the leg upon the thigh, or even lift it from the bed. Passive movements could be effected in a limited range, but these gave pain. The patella was fixed; the whole extremity flabby, though not much smaller than the other. There was little hope of the limb being brought into a useful state by any ordinary treatment, because some displacement of the ends of the bones had taken place, causing deformity of the limb. The inner condyle of the femur projected on the inside of the knee, and could be felt to be knotty from bony deposit upon it. The leg was inclined outwards from the knee to the ankle, forming an obtuse angle with the thigh. It was also a little bent and rotated outwards. I contemplated

amputation; but the girl was very anxious that some attempt should be made to save the limb. My cousin, Mr. Frederick Humphry, now practising at Brighton, was going round the hospital with me and saw this patient. He told me that he had seen good results from excision of the knee, and recommended me to try it in this case. Having thought over the matter, I proposed the operation to my colleagues, who agreed in thinking it worth while to give the operation a trial in a case of this kind, although they, like myself, were not much prepossessed in its favour.

October 27th. I made a transverse incision over the patella, more than half round the joint, and short cuts upwards and downwards at right angles to it at either end; reflected the flaps thus made, and cut into the knee-joint, dividing the lateral ligaments. The patella had acquired close connexions with the outer condyle; and in the endeavour to separate it, and press it on the outside of the joint, with the view of saving it, the ligamentum patellæ was torn up from the head of the tibia. I thought it best, therefore, to remove the bone. The joint was then bent, the adhesions between the bones, which were of fibrous nature, and the crucial ligaments, being at the same time divided with the scalpel. The ends of the bones being now sufficiently uncovered, I sawed about three-quarters of an inch off the condyles of the femur, and a thinner slice from the tibia. Placing the cut surfaces together, I found that the leg was inclined a little outwards. This was rectified by sawing off another thin oblique slice from the inner part of the cut surfaces of the bones. Some of the articular arteries required ligatures. Finally, the limb was bandaged upon a straight splint, with a pad under the head of the tibia to raise it; and proper apposition was secured by the pressure of broad lateral splints.

No unfavourable symptom followed. Not the slightest fever, and scarcely any inflammation at the knee. The discharge found its way through the bandages, which I seldom disturbed—not more than once in a fortnight or

three weeks. In January, the wound being healed all but one small orifice, and the union of the bones being tolerably firm, the limb was encased in a gum-chalk bandage, and the patient went home. In September she returned, the part having been painful and inflamed. There was a sinus extending three or four inches up the fore part of the thigh. This I laid open in its whole length, but could discover no evidence of diseased or exposed bone. The wound healed up, and she again went home. There was pretty firm osseous union between the bones, and every probability of her being able to walk upon the limb.

Case II. Edward Wells, aged 47 years, was admitted April 19th, 1855. He was a native of Barbadoes, and a sailor. He broke his right patella transversely by a fall upon the deck six months ago, the knee coming in contact with an iron ring. He was taken ashore and treated in the hospital of Rio Janeiro. In three weeks, as his vessel was about to sail, he got up with crutch and stick, and went on board. No medical treatment could be there obtained, and he continued to go about with a crutch. Subsequently, he sought relief in various places; but finding none, and the limb being useless, he came into the hospital for the purpose of having it removed. The fragments of the patella were four inches apart. The lower one was a little nearer to the tuber tibiæ than natural; the upper one lying above the condyles of the femur. There appeared to be no direct connecting medium at all, the articular surface of the femur lying immediately under the skin. He could bend the leg, but had no power whatever to extend it; consequently, walked with a crutch and stick, scarcely using the right leg. Examining the left patella, I found that it also had been broken across, the fragments being moveable upon one another, though in close contact. This was caused by a fall on the slippery deck fourteen years ago. The knee was cupped and bound up for a fortnight; after which he went about; the joint feeling only weak for a time. Of late years he had felt no inconvenience from it, and was not aware that the knee-cap had ever been broken.

I had an apparatus constructed for the purpose of fixing the limb in a straight position, hoping that he would be able to walk with this assistance, and that gradually the part might acquire more strength. However, the upper fragment of the patella and the adjacent part of the thigh was so tender, that it would bear no pressure, and he became very impatient for some more decided treatment. Accordingly, I proposed to excise the joint, which, being agreed to by my colleagues, and assented to very willingly by the patient, was done on May 4th.

It being desirable to remove the fragments of the patella, which could be of no use if left, and which might interfere with the after treatment, I determined to make crucial incisions, instead of those practised on the former occasion. The first was transverse, more than half way round the joint, over the interval between the tibia and fibula. This was crossed by a longitudinal cut from the upper edge of the superior fragment of the patella to the lower edge of the inferior. The four angular flaps thus marked out were reflected, and the two fragments of the patella were dissected away. In doing this I found that both the latter were quite shut out from the cavity of the joint. The hinder and lower surfaces of the upper one were connected by tough fibrous tissue to the fore part of the femur, above the condyles, and there was no tissue at all constituting a direct medium of communication between the fragments. It would have been hopeless, therefore, to have made any attempts by treatment to enable the quadriceps to act upon the tendo patellæ. Having removed the fat from the front of the joint, and divided the lateral and crucial ligaments, I sawed off nearly three quarters of an inch of the condyles of the femur, and a thin slice of the upper end of the tibia. The bones were secured in good position by splints behind and on either side, well padded, as in the last case.

No unfavourable symptoms followed. Suppuration took place; and, after a time, the discharge gradually diminished. On June 19th, the wound was nearly healed, and

there was pretty firm union between the bones, though he could not raise the limb from the bed. On Sept. 21st, the wound had long been soundly healed, and the bones firmly united. He could raise the limb from the bed, and bear some weight upon it; could move about very well with crutches, and there was every probability of his being soon able to walk without them. On this day he left the hospital, and I have heard no more of him.

Case III. Wm. Childs, aged 12 years, a pale, but not unhealthy child, was admitted with the knee bent to a right angle. Indented cicatrices of sinuses, which had evidently extended deeply, told of former serious disease. At the present, all acute symptoms had passed away; there was no swelling, and no pain; but the joint had been destroyed; no movement could be effected, and the limb was rendered quite useless by the contraction. I first determined to try whether the joint could be brought into better position without any operation. Accordingly, when he was under the influence of chloroform, extension was commenced steadily and carefully. I found that the joint yielded without much difficulty; and, having straightened it, we fixed it upon a splint bound to its hinder part. Having been kept thus for several weeks, it was done up in gum-chalk bandage, and he was allowed to bear upon it a little. The progress, however, was not satisfactory. The joint gained no strength. The limb was quite unable to bear the weight of the body. No movement could be effected. There was some swelling and tenderness. The contraction began to recur, and it was evident that the limb would remain a useless one, unless some more decided treatment were adopted. It appeared a favourable case for excision, which I performed August 31st, 1855. The external incisions were crucial, as in the last case. The patella was firmly ankylosed to the femur, and was accordingly left. The tibia and femur were united by firm fibrous tissue, which was partly divided by the knife, partly torn in flexing the joint. A small portion of each bone was removed.

and the limb placed in a straight position, supported by splints.

The operation was not followed by any febrile disturbance or bad symptom. Suppuration took place in the usual manner, and subsided as the healing of the wound went on. The latter process was completed in little more than a month, and in about two months there was firm union between the bones. A gum-chalk bandage was applied, and he went home.

Remarks. Although it is a common thing for severe operations upon bones, such as those for necrosis, to be followed by very slight constitutional disturbance, I was nevertheless surprised, and I am sure other persons who witnessed these excisions of the knee-joint were also surprised, at the very slight amount of febrile or other unfavourable symptoms which ensued. The incisions were extensive, and the operations altogether presented rather a formidable appearance; yet the condition of the patient afterwards was not in either case such as to give me a moment's uneasiness. There was no fever; no more inflammation and suppuration than desirable; and the healing processes went on steadily and quickly. This favourable progress may be attributed partly to the age of the patients; partly to the external wound being large, the divided bones being in close relation to it, so that there was ready vent for purulent and other products. I was surprised also at the rapidity with which firm union between the bones took place, particularly in the man's case where the bones were sound. Indeed, the *immediate* results of the operation in these three cases were most satisfactory, beyond my expectations. There is every reason to believe that its *ultimate* advantage in the preservation of a useful limb will be proved by time.

The object of the operation being to lead to a solid union between the tibia and femur—in short, to reduce them to one bone—there cannot be any great advantage gained by leaving the patella. The attempt to do so must render

the operation more difficult, and must often fail, as it did in Case I. Moreover, it seems probable that the presence of the patella after the operation, by covering in the front of the wound, and preventing the free escape of purulent and other fluids, may do harm.

OVARIOTOMY: TETANUS DURING RECOVERY: DEATH.

Case. Mrs. Wyatt, aged 27 years, of Barrington, a short, spare woman, rather delicate, but apparently healthy, was the mother of three children, of whom the youngest was nearly two years old. Her labours had been natural, and her health generally good. Fourteen months ago she perceived a tumour on the left side of the abdomen, at the lower part. It increased, and she thought herself in the family way. The term of pregnancy passed away; the catamenia recurred, and the abdomen continued to enlarge. Accordingly, she consulted Mr. Metcalfe, of Melbourn, who, recognising the nature of the case, and thinking it a proper one for the operation of ovariotomy, asked me to see her. I did so in the middle of June 1855, and found the abdomen as large as, or larger than at the full period of pregnancy, measuring thirty-one inches in circumference. The enlargement was caused by a soft, fluctuating tumour, which, there could be little doubt, was ovarian. It could be moved from side to side, or rotated in such a manner as to render it probable that there were no adhesions, at least, no extensive adhesions, to any fixed part of the abdomen. Still there was a suspicious firmness about the umbilicus, the course of which it was impossible to ascertain. Around the upper circumference of the tumour was a resonant line, which we thought indicated the position of the colon. We feared this might be retained there by some adhesion of the omentum on the fore part of the tumour. The surface of the tumour could be perceived through the

abdominal parietes to present three superficial grooves; the indications, we thought, of division into three or more compartments or cysts. The uterus was natural and moveable, occasionally prolapsing. I quite agreed with Mr. Metcalfe that the size and mobility of the tumour, the apparent freedom from adhesions, the rapidity of its growth, and its consisting probably of a cyst with after-growths, or of more cysts than one, and the age and present good health of the patient, rendered this a peculiarly appropriate case for the operation. It was accordingly proposed to her by him; the danger of the operation, and the probable fatality of the disease without it, being laid before her. She consulted with her friends, and made up her mind to undergo it. I paid her another visit early in July, and found the size of the abdomen had increased about an inch: this second examination confirmed the view before taken.

We waited till the catamenia had passed away, and on July 18th the operation was performed; the bowels having been freely relieved on the 17th and 18th in consequence of a dose of castor oil. She was placed in a reclining posture at the foot of the bed, the legs hanging over. A catheter was introduced, to make sure that the bladder was empty. I made an incision, about three inches long, between the umbilicus and the pubes, through the linea alba, into the abdomen. Allowing the bleeding to cease a little, I introduced my finger, and could find no adhesions. Then enlarged the wound to about four inches. The sac bulged into the wound, and I thrust a trocar into it. As the fluid escaped through the canula, the sac presented more and more through the wound; and, presently, during a fit of sickness, the whole was ejected from the abdomen, the parietes of the abdomen collapsing behind it so as to close up the wound and cover in the bowels, rendering very slight pressure sufficient to prevent their protrusion. The fluid continued to flow through the canula; and while the cyst was being emptied, its walls were supported to prevent any dragging. The pedicle was found to be three or four

inches wide; a thick tough mass, which seemed to be the hypertrophied round ligament, lying at one edge, and the enlarged Fallopian tube at the other. Moreover, there were several masses near the pedicle, which felt like the uterus. To ascertain the nature of these, we cut open the sac, and found them to be composed of round clusters of secondary cysts growing into the interior of the sac from its wall. There was only one large sac; the depressions which led us to suppose there might be more than one being caused by thickening of its wall, and by ridges projecting from it into the cavity. The pedicle was tied in three portions near to the sac (each ligature drawn as tight as I could), and cut through about a quarter of an inch from the ligatures. The end of the pedicle was allowed to remain in the wound, and secured to a roll of lint, so as to prevent its retiring into the abdomen. Some small bleeding vessels in the abdominal wall were secured. The wound was closed by means of sutures passed through the hinder part of the sheath of the rectus and linea alba, close to the peritoneum, and by others through the skin. A compress of lint was placed over the wound, and a flannel many-tailed bandage over the body. She vomited again during the latter part of the operation, and felt sick afterwards. In other respects, she was very comfortable, more so than before we began.*

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* The cyst was thick. Its interior was vascular, with numerous small creases and pits, caused probably by the sudden evacuation of the fluid. There were also several falciform bands in its interior, which had caused the furrows on the surface, and given us the impression of its being trilocular. Growing into it from the lower part, where the pedicle had been attached, were several cysts and cystic masses; also, thick tough bands and thin membranous septa, which were probably the remains of cysts that had burst. On the walls of the great cyst were also several round or oval holes, communicating with cavities extending under the lining of the cyst, and having smooth walls. These were also probably secondary cysts, which had burst through the orifices into the interior of the sac, and collapsed. They looked like ulcers in its wall.

The fluid of the large cyst was like thin coffee. It contained blood globules, abundant cholesterine scales, molecules, delicate granular cells, spherical and elongated. Also, coarsely granular cells or masses of various sizes, looking as if they were formed by the mere aggregation of molecules. The wall of the sac was in many places coated with a thin pellicle of soft brownish substance, with silvery glistening surface. This pellicle was composed, almost entirely, of cholesterine, with brownish molecular masses or cells, and molecules of light specific gravity. The smaller cysts contained a mere glutinous, transparent, pale fluid, with cholesterine scales and some delicate cells.

The divided ends of several large arteries and veins were seen in the pedicle.

July 19th. She had not suffered much pain, and slept in the night and this morning. Consequently, only two grains of opium were given—one last night, and one this morning: we having agreed that it should not be given if there was no pain. At 5 P.M., her skin was rather hot; face a little flushed, but expression good. Tongue rather dry; thirst; pulse 106. The body was tender, and she complained of some pain, not always in the same place. She passed about three-quarters of a pint of rather high-coloured water this afternoon, for the first time since the operation.

℞ Calomelanos gr. i; opii gr. ss. M. Sumatur 3tis horis.

July 20th. Has suffered a good deal of pain, which comes on in paroxysms, and is followed by sickness, after which she is rather easier. The abdomen distended, tympanitic, and tender. Pulse 116; smaller and softer. Tongue rather dry. Countenance more expressive of distress, and sunken. Urine passed twice; rather high-coloured. Any slight cough or movement gives pain.

℞ Sumat opii gr. iss. Applicand. acetum cantharidis abdomini. Ung. hyd. femori infricend.

July 21st. The opium repeated at 1, at 9, and at 1 in the afternoon. She had some sleep, was easier, and looked better this morning. Abdomen rather less tense, and less tender. Still the sickness continued, and she was a good deal annoyed with flatulence. No passage of wind or fæces by the bowels. Pulse under 100, soft. Skin comfortable. In the evening I found her distressed by the feeling of sickness, faint and low. Countenance more haggard. Pulse 80, small, not quite equal in volume, or regular. Hands cold, and feet not so warm as they should be. Gave a little brandy and water, and then injected one pint of warm water, by the tube of stomach pump, into the colon; this gave no pain, but ease at the time. There was very little pain or tenderness in the body. The acetum cantharidis was reapplied. Cold water has remained in the stomach better than anything.

The glyster did not return; nevertheless, the ease ex-

perienced during its administration continued. After that time she had neither sickness nor pain; the swelling of the body subsided, the appetite returned. The bowels acted spontaneously. Indeed, she became so well, that, having seen the wound (which looked very well) dressed, a piece of rag only being placed over it, I took my leave on Thursday, July 26th. It appears that on that day she felt a little stiffness of the jaws; but supposing it to be a slight cold, she did not mention it. This increased; and late in the evening of July 27th Mr. Metcalfe came over to me with the unwelcome tidings that tetanus had commenced. I found her a good deal altered; face thinner and more drawn, with the peculiar contraction of the forehead and eyebrows characteristic of this disease. She could only partially protrude her tongue, owing to the inability to open the mouth; and complained a good deal of stiffness and tightness about the jaws and throat. No other part was affected. The abdomen was soft. Pulse about 80. The bowels had acted once spontaneously on the 25th—the only time since the operation; we therefore gave her a pill containing croton oil—to be repeated if necessary.

July 28th. The affection was more marked. In the morning she could not protrude the tongue far, and bit it in the attempt to withdraw it. In the evening could not open the mouth to protrude it. The muscular spasm was confined, or nearly so, to the parts about the jaws and throat; though now and then, in the course of the day, other parts were affected. The bowels not having acted, we gave a clyster of warm water and salt, which returned soon after with a small quantity of fæces. The case not being one of much acuteness and pain, we thought it the best to confine our efforts to support the system by nutrient enemata, and gave no medicine. In this we were confirmed by the inability to swallow. She was a good deal annoyed by mucus accumulating in the throat, and the difficulty of getting rid of it.

On the morning of the 29th, as spasms of frequent occurrence affected the neck, trunk, and abdomen, Mr. Metcalfe

added two grains of morphia, and two of extract of belladonna, to the enema then given. She was easy during the day; for the most part asleep, though frequently awoke by the spasms, which took place with varying frequency. In the evening she was evidently thinner and weaker. Skin perspiring. Pulse about 120. Mouth quite closed. She was drowsy, but quite conscious when she awoke, suffering no pain, or but little, even during the spasms. There was no difficulty of breathing, no dilatation of the pupil. The disease was still apparently not very severe, but its effect upon her was very marked. We gave four grains of extract of belladonna and four of extract of cannabis, dissolved in chloroform, with a pint of beef-tea, by the bowel. She became weaker during the night, and died at nine the next morning.

On examination, we found the end of the pedicle (a little sloughy, of course, where the ligatures were applied) lying close behind the wound, which afforded a ready vent for any discharge. The immediately adjacent intestines were coated with a small quantity of reddish lymph. There were no other indications of peritonitis. The mesentery, drawn down to the wound, and adherent there, was healthy. The colon was generally rather distended, with points of contraction here and there, but no obstruction. The pedicle had consisted of the entire broad ligament, and was tied near to the uterus; the remaining portion was perfectly healthy, not even more vascular than usual. The uterus also was quite healthy. The right broad ligament was rather vascular, and the ovary was nearly twice its natural size, containing four small thin-walled vascular cysts, with watery fluid in their interior.

There is every reason to conclude that, but for the unfortunate occurrence of tetanus, this case would have gone on well. It is possible, though, for reasons given below, not by any means certain, that, at some subsequent period, the condition of the opposite ovary might have proved a source anxiety.

Remarks. Some years ago I studied the records of this

subject carefully, and made an analysis of all, or nearly, the reported cases of the operation of ovariotomy, for the purpose of making up my mind as to the propriety of performing the operation, and of ascertaining whether, by a judicious selection of cases, more favourable results might not be obtained. I will briefly state the conclusions at which I then arrived.

The number of instances of the operation that I collected were 105. Of these, in 50, or less than one half, it was attended with success. In 39, or more than a third, it proved fatal. In 16 it was found impracticable, or useless, Such results are far from satisfactory. When we consider the nature of the disease, that it is not of immediate, nor even of certain, danger to life, and that the unrecorded cases are not likely to be more favourable than those I collected, we are, on the whole, compelled by these statistics to form no very favourable opinion of the past results of the operation.

The operations appeared generally to have been conducted with much caution, and every attention had been paid to the means likely to ensure success. The causes of death (peritonitis being the chief), and the mistakes in diagnosis, were likely to occur again; and it seemed to me that a diminished rate of mortality was to be expected for the future, only, or chiefly, from a more careful selection of cases, and of the kind of operation to be performed.

I found that the age from 30 to 40 was by far the most favourable; the proportion of fatal results bearing a relation to the deviation above or below that period. The number of deaths above 45, amounting to 9 out of 13, being such as to discourage the attempt to remove an ovarian tumour after the patient has passed the middle age.

The nature of the tumour was found to have a very marked influence on the result of the operation, as appears from the following table. In many of the cases it was not stated, or stated too vaguely, for the information to be made use of.

	Recovered.	Died.
Simple cysts - - - - - - -	16 ..	6
Cysts with after-growths—multilocular cysts. Some described as cysts with solid matter; and two containing hair and teeth - -	13 ..	9
Solid tumours, called fibrous, scirrhous, or solid or fluid, or solid with cysts - -	7 ..	10

The increase of the rate of mortality, in proportion to the solidity of the tumour, was very remarkable. When we add to this the facts, which were fully proved, that solid tumours are more likely to affect both ovaries, to be adherent,* to be associated with ascites; that they are, further, more difficult of diagnosis from tumours of other parts,† and are commonly of a slower growth, consequently less quickly fatal if left to themselves, there can, I think, be no question as to the propriety of refraining from any attempt to remove them.

Excluding the instances in which the tumour was solid, and the age of the patient above 45, the successful cases bore a proportion of somewhat more than two to one; an average which, I have no doubt, may, with cautious management, be expected in future, and which is, I think, sufficient to justify, and even to recommend the proceeding.

With regard to the kind of operation, experience fully proves, what reason would suggest, that the danger is proportionate to the length of the incision. The major operation, as it is called, involving the exposure and handling of the bowels, with greater chances of hæmorrhage, has been much more fatal than the minor, when the comparison is made between nearly similar cases. Indeed, if the small incision, that is, an incision of three or four inches, will suffice, and if, by evacuating the contents with the aid of a

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* Of the sixteen instances in which the operation was discontinued on account of extensive adhesions, the tumour is stated to have been solid in six; composed of multilocular or compound cysts in two; of simple cysts in three.

† In each of the seven cases in which the tumour was found not to be ovarian upon opening the abdomen, it is stated to have been solid. Of these five died, one recovered, and in one the tumour, a fibrous growth from the uterus, was successfully removed.

trocar, the cyst or cysts can be withdrawn, and the pedicle tied, there can be no reason for extending the wound.

The question of the liability of both ovaries to be the seat of disease is a very important one in estimating the value of an operation for the removal of one; and it is much to be regretted that this had not been more frequently borne in mind by those who have given the descriptions of the *post mortem* examinations. From the collation of a great many cases, I found that, though both ovaries were liable to be affected with solid growths, and with those numerous small cysts which so often form about the periphery of the gland, yet that the large cysts, the multilocular cysts, and the cysts with after-growths, were, in by far the greater number of instances, confined to one organ. If, therefore, a cure be effected, there would seem to be every probability of its being permanent. I do not remember to have read of any case in which the disease manifested itself in the other ovary after one had been removed; though it is quite possible that such cases have occurred. In several instances, the catamenia are reported to have returned regularly; the patients continuing to enjoy good health, and some have borne children. In my own patient, it has been stated, there were several small cysts in the remaining ovary; but it is by no means clear that these were of the same nature as that of the large sac removed, or that they would ever have attained to great size.

TWO CASES OF ENCYSTED URINARY CALCULUS.

LITHOTRITY THRICE, LITHOTOMY FOUR TIMES BY THE LATERAL, ONCE BY THE RECTO-URETHRAL INCISION, ON ONE PATIENT: LITHOTRITY AND LITHOTOMY TWICE, ON THE OTHER.

Case I. John Ayres, aged 51 years, a healthy looking labourer, was admitted, October 5th, 1849, with the usual symptoms of stone, of about five years duration. I removed an oval, lithic acid calculus, weighing nine drachms one scruple, by the lateral operation. He recovered quickly and left the hospital quite well.

January 23rd, 1852. About two months ago he returned to the hospital with symptoms of stone. He said he had been quite well till within the preceding three weeks, during which he had suffered under the old trouble. He was quite positive that from the time of the operation to the period mentioned he had no pain or other symptom. I questioned him particularly about this, and he was clear upon it. As he had previous experience of the complaint, and was, therefore, in all probability, watchful in reference to a return of it, I thought he might be relied on as a tolerably accurate observer of his own symptoms, and determined to try lithotrity. He was in good health, and his bladder was not very irritable. I could not be sure of the size of the stone from an examination with the sound, but thought it was a small one; accordingly, soon after his admission, I used the litrotrite, cautiously and gently; and seized and crushed a calculus several times with great facility. Many fragments were passed afterwards with a good deal of pain.

I repeated the operation twice, each time seizing the calculus easily, and breaking down many pieces. The operation was attended with a good deal of pain, though done very carefully; and he suffered a great deal afterwards; particularly after the last operation, which was followed by swelled testicle, and by so much local and general disturbance, that the man wished to have no more of this procedure, but to undergo the old operation. At one time, after the passage of a large rough fragment, he was so far relieved as to induce us to hope that the whole of the stone had come away; but the symptoms soon returned with as great force as ever. He suffered very severely, and experienced such acute gnawing pain in the perinæum, that I feared some ulceration might be taking place. The examination of the perinæum and rectum, however, gave no evidence of anything unusually wrong. The urine was ammoniacal, alkaline, and contained many crystals of triple phosphate, with mucous or pus globules. The sound quickly came in contact with a calculus which we judged to be friable, or composed of fragments. I determined to accede to his request. He looked rather pale, and was evidently lowered by the confinement and suffering he had undergone. Still his condition was not bad. I operated this day, cutting, in great measure, through the old cicatrix. I thought the finger made its way through the deeper parts rather more easily than usual. I could feel the stone, or rather stones—for I was surprised to find several—with my finger, and had no difficulty in grasping and removing five in succession. They were of about the size of beans, and had facets, resulting from mutual pressure. There were also fragments, some of which were removed by forceps; others by the aid of the scoop. I took a good deal of pains quite to clear the bladder, and believed I had succeeded. The finger could not reach every part, so I used the straight sound, diligently and carefully; threw warm water into the bladder with a syringe; and then examined again repeatedly.

In the evening no water had passed, so I introduced my

finger into the bladder, when a few ounces escaped, smelling strongly. He was much easier than before the operation.

After this the urine did not pass, or passed only in small quantities, by the wound. It soon found its way by the urethra, and from the first continued to be voided in great measure by that passage. The wound healed up quickly: no unfavourable symptom occurred, and the man, being apparently quite well, was discharged February 9th.

June 16th, 1854. He had now been in the hospital again for a fortnight, on account of a recurrence of his complaint, from which he had suffered two months; having been perfectly well up to that time since the last operation. His sufferings had been very great. The urine was ammoniacal, with a thick white sediment, containing pus-corpuscles and abundance of crystals of triple phosphate. I lithotomised him again on this day for the third time, cutting through the old cicatrix. The deep parts did not yield under the finger more easily than usual; in short, I perceived no distinct peculiarity traceable to the former operations. I had not much difficulty in grasping and extracting the stone, which was loose in the bladder. I could feel with my finger that it was loose before I introduced the forceps. Yet when withdrawn it was of somewhat conical shape, the tapering end being truncated as if it had been broken off. It gave me the idea that it might have formed part of an hour-glass-shaped calculus. Accordingly, I searched diligently for any remaining portion, but could not find it with finger or sound. I also injected water into the bladder. Some small fragments I removed with the scoop. The bladder felt corrugated as to its mucous membrane, the folds being large and thick. My finger would not reach over the entire extent, so I used the sound very carefully. The stone weighed forty-four grains. In the evening he was doing well.

June 20th. There were no unfavourable symptoms. I to-day passed my finger through the wound into the bladder to prevent its healing too quickly, and to afford an escape for fragments that might remain. I could feel

none such. In addition I injected with syringe nearly a pint of warm water into the bladder.

July 20th. He recovered quickly, and said he was quite well, having no pain, or difficulty in micturition. There were still crystals of triple phosphates and pus corpuscles in the urine. I therefore gave him small doses of nitric acid, twice daily; and he promised to come again in a month.

When he did come at the appointed time, there was some uneasiness about the bladder; enough to make me fear a return of his trouble.

January 6th, 1855. His pain increased; and as he felt quite sure that it resulted from stone, he came to the hospital ten days ago. The sound came in contact with a calculus in the hinder part of the urethra, and would not enter the bladder. He brought a rough fragment, about as large as a pea, which had passed through the urethra since he left the hospital. He cheerfully submitted, for the fourth time, to the operation, which I performed on January 5th. The staff was stopped by the calculus; but while he was under the influence of chloroform, before I began the operation, it slipped into the bladder. Still we could feel that it was in contact with the stone. I cut in the old cicatrix; the tissues were more resisting than usual. Having opened the urethra, I could feel the calculus, and extracted it with a small pair of forceps. It was a small rough fragment, like that which had passed through the urethra. I then introduced a straight sound through the wound into the bladder, and with it discovered a calculus there. I was, therefore, obliged to extend the incision into the bladder; and introducing my finger, could feel a rough soft calculus behind the prostate, a little to the right of the median line. Examining carefully, I found it was attached to the bladder by a pedicle, which seemed to penetrate the coats of the bladder, and be connected with another mass beyond. In short, it was quite evident that it was a calculus of the shape of an hour-glass; one part being in the bladder, the other in a sac, and the intermediate narrow

portion lying in the neck of the sac, which was very narrow. Mr. Lestourgeon examined and perceived the same. I hoped, by using the forceps gently, to bring it nearer the prostate, and more within reach, so as to render it possible to extract the sacculated portion. But the part in the bladder, being doubtless of recent formation, was quite soft, and crumbled away, leaving only the small rough stump of the calculus sticking up in the neck of the sac. This I could only reach with the extremity of my finger; and sometimes it became covered by the mucous membrane, so that I could not feel it at all. I tried to seize it with a small pair of forceps; I was obliged to guide them to the spot with the finger, which, of course, in so confined a space, rendered it difficult to open and close them. With the scalpel I extended the incision in the prostate, still could not grasp the stone; or if I did, the neck broke off, or the forceps slipped. The finger and other instruments in the rectum gave no help. With a probe-pointed bistoury I endeavoured to enlarge the opening into the sac, but it was so far distant, the prostate being rather large, that I could not use the instrument with certainty and success. Neither could I pass blunt instruments into the sac for the purpose of trying to turn out the stone; because when they were pressed against the part they pushed it away from my finger, which was my only guide, and often I was some time before I could find the fragment of calculus again. Mr. Lestourgeon tried to grasp the stone, but could not succeed. Even if it had been grasped with the forceps it probably could not have been drawn from its bed. So after I had washed out the bladder, and removed as many fragments as I could find, having kept the patient on the table fifty minutes, I thought it prudent to desist from further attempts, reflecting that sacculated calculi are said sometimes to cease to give trouble; and that if he experienced a return of symptoms, another kind of operation must be undertaken. The second incision in the prostate was followed by a smart flow of blood; this ceased when he was placed in bed. An hour after, he was comfortable. In

the afternoon he had a chilly fit, followed by warmth, and some perspiration. A return of the same next afternoon. No pain or tenderness of body. Urine flowed freely through the wound.

January 10th. He had had no unfavourable symptom referable to the operation. The urine passed through the wound. It being ammoniacal, I introduced a gum elastic catheter through the wound into the bladder, drew off some urine with tenacious mucus, and injected a mixture of nitric acid and water. This was repeated three or four times; but on each occasion caused so much pain that I was obliged to discontinue it, and give the dilute nitric acid by the mouth; fifteen minims three times a-day. Some small fragments of phosphatic calculus had been passed by the urethra.

He recovered quickly, without any unfavourable symptom occurring, and went home, continuing to take the nitric acid drops. On the 16th of June, 1855, he came, fearing that there was a stone again, because of a return of some of his symptoms, though they were not nearly so severe as before. One of the symptoms was an aching under his right shoulder-blade, which he had felt each time the stone was gathering. I introduced a sound, examined carefully in the standing and recumbent posture, but could not discover a stone, till I passed my finger into the rectum and pressed up the right side of the bladder, behind the prostate. This being done, and the end of the sound turned down towards the part, the stone was evident to the touch and the ear. The sound elicited was sharp, as of a hard stone; and the sensation communicated to the finger gave the same idea. The finger in the rectum discovered a lump in this situation: but it was not very distinct. He made up his mind again to come into the hospital, and was admitted June 20th. On two occasions we sounded and found the stone by the manœuvre just mentioned. On the second occasion I was conscious of the staff rubbing against a calculus as it traversed the prostate. His health was good, and he was anxious to be relieved of his trouble before the suffering

caused by it became so great as on former occasions. We discussed the nature of the operation that should be performed. It was useless to repeat the lateral method; for there was no better prospect of its succeeding than on the last occasion. Either the high operation, or the urethro-rectal would give a better chance of removing the stone. The advantages to be expected from the former did not seem a sufficient compensation for its dangers and difficulties. Accordingly, we decided to try the urethro-rectal incision, hoping that by cutting in the middle line, and dividing the sphincter ani, it would be possible to introduce the finger into the bladder far enough to guide instruments to the stone, and effect the necessary division of the sac in which it was contained, and the necessary proceedings for its extraction. Still we did not feel sure of the possibility of accomplishing this result. On the 5th of July he passed, by the urethra, an oblong rough fragment of calculus, rather larger than a pea, with a stalk, showing evidence of having been broken off from some other portion. It was like that removed in the third operation, though smaller. It was probable this had been broken off in the recent soundings, and had been felt in the prostate on the last occasion.

July 6th. The sound passed through the prostate without detecting any calculus; the stone in the bladder was found in the same way as before. When he was tied up, as usual, a staff introduced, and the influence of chloroform attained, the left forefinger was passed into the rectum; a straight bistoury was thrust into the perinæum, in the middle line, about an inch in front of the anus, carried into the rectum a little in front of the prostate, and brought outwards, dividing the intermediate structures. It was then inserted into the groove of the staff, and carried along it, dividing the fore part of the prostate. The finger, passed into the bladder, felt the extremity or neck of the calculus sticking up through the coats of the bladder, and tightly encircled by them; while an induration under the coats of the bladder, indicated that it extended to some depth and distance. It was more within reach of the finger than it

had been in the lateral operation, and I had good hope of removing it, though it was still at considerable distance. I could not insinuate my finger or finger-nail between the neck of the calculus and the edge of the mucous membrane encircling it, and could not use an ordinary bistoury freely enough; but managed to insert the end of a hernia knife, and with it incised the edge of the sac. Having done this two or three times, I was enabled to get the tip of my finger into the sac, so as to dilate it a little, and separated the calculus from it. I made many unsuccessful attempts to remove it with scoop and forceps. I felt the danger of rupturing the walls of the containing sacculus, which were probably thin, and the possibility of losing the stone in that manner; and was careful accordingly. Having extended the incision through the prostate, I guided a middle-sized pair of forceps down to the calculus in the cyst, and feeling the calculus with the end of them, opened them carefully, feeling it all the time; and after a few failures, having separated the blades widely, and at the same time pressed them on, succeeded in grasping the stone, and then extracted it without difficulty. It was as large as a walnut, with a truncated stalk, corresponding with the calculus removed on June 16th, 1854, and of that passed yesterday. It was hard and superficially lobed, as if there had been divisions in the containing sacculus.

At 5 P.M. I was sent for on account of his suffering pain above the pubes. There was a small quantity of bloody fluid only in the sheet. I directed warm fomentation; passed a large gum elastic catheter through the wound into the bladder, and left it there. Its entrance was indicated by the gush of about two drachms of urine. At 9 P.M. he was rather easier; a little urine had flowed through the catheter and beside it. At 11 P.M. the pain continued, and was severe about the navel. The abdominal muscles were rigid, and the abdomen tender. Pulse under 100. Twelve leeches and a fomentation were ordered; calomel gr. i, opii gr. $\frac{1}{2}$, 3tiis horis.

July 7th. He was easier in the morning, and had had some

sleep. The bowels had acted. The urine flowed through and beside the catheter. Towards evening the pain increased in spite of the continued application of fomentations, and the pills. He took only toast and water.

July 8th. He had a bad night; and though he was easier in the morning, I found him a good deal altered. Eyes sunken, and brows knit. Pulse 100. The belly still was rather tense and tender. Tongue dry. He got rapidly worse during the day. In the evening the hands were cold, and he died early on the morning of the 9th.

Examination of the Body, made the same day. A quantity of dirty brown serous fluid was found in the abdominal cavity, which looked as if urine were mixed with it. I accordingly searched diligently for some laceration of the peritoneum; but there was none. The colon was dilated; the peritoneum was vascular, and covered in parts, sparingly, with delicate rags of lymph. There was a good deal of inflammation about the cæcum. Removing it, we found the cellular tissue around, above and below it, in a filthy, almost putrid state—dark coloured, soft, and infiltrated with dirty dark fluid, in some places purulent. On the hinder part and left side of the bladder, there was purulent infiltration. The pelvic organs were removed; and, on dissection, we found that the orifice of the cyst in the bladder was situated just above the entrance of the right ureter. Its neck had been incised pretty freely in front. It was just large enough to hold the stone; and at its furthest part was a considerable opening, communicating with the adjacent foul infiltrated tissues. The adipose cellular tissue was closely adherent all round the sides and neck of this sac. Evidently this adhesion had taken place before the operation, and had prevented any infiltration of urine, blood, or other products, in this immediate situation. The same was the case close around the opening just mentioned. The edges of this opening were sealed down to the surrounding tissue, and covered in by lymph; so that they were not clearly seen, and scarcely looked as if they had been caused by a laceration so recent as the operation.

The part presented rather the appearance of there having been some ulcer in this situation, through which the scoop or forceps had been pushed. On this, however, I do not wish to insist, for I cannot be sure of it; and nothing is more likely than that the delicate sac should have been torn by the instruments repeatedly introduced into it during the operation, though I was not unmindful of the liability to this accident at the time, and endeavoured to avoid it.

There was a similar sacculus on the other side of the bladder, rather further from the orifice of the left ureter, formed by the protrusion of the mucous membrane between the muscular fibres; it contained no calculus, and the tissues around it were not indurated. The bladder was very little thickened or diseased. The prostate also was healthy. The incision had not been carried quite through it. The cicatrices of the former operations were seen on the left of the urethra. The right kidney was healthy. The left contained several small cysts; in other respects, it was healthy.

The hinder part of the right pleura was coated with a thin incomplete layer of soft white lymph, and was of deep dark colour, the same colour extending more than a quarter of an inch into the tissue of the lung, and gradually ceasing. There were no softenings. He had no cough or sign of this during life. A large firm clot was present in the right side of the heart.

Case II. Rev. G. P., aged about 45, a spare person, of rather sallow complexion, with scabrous harsh state skin, approaching to ichthyosis, consulted me Nov. 10th, 1854, with symptoms of stone. He said that he had twice undergone the operation of crushing the stone by Mr. Worthington of Lowestoft—the first time, about two months after he experienced the earliest symptoms of the disease; the last time, two months ago: that Mr. Worthington recommended lithotomy, but performed the other operation by the advice of Sir B. Brodie, who was consulted: that he did not suffer much from the operations, which were done under the in-

fluence of chloroform: that, after the second, Mr. Worthington could discover no stone; and, the symptoms being mitigated, he hoped that all had been cleared away. However, the pain never quite subsided, and latterly had increased. Both Mr. Worthington and Sir B. Brodie had some difficulty in discovering a stone. The urine contained much tenacious alkaline mucus, with pus-globules and triple-phosphate crystals. I could not discover a stone till he was laid upon the sofa, when, turning the end of the sound towards the right side of the bladder, I distinctly felt it. I judged it to be small, though, I thought, larger than a nut. I concluded that it had been increasing ever since the lithotrity, resulting probably from a fragment left after it; and that it was, therefore, probably as large as when the operation was first performed.

Nov. 16th. I passed the lithotrite, which entered with difficulty, owing to some contraction of the urethral orifice, which had probably occurred since the former operations. I had just previously felt the stone lying in its former position (viz., the right side of the bladder, apparently at some distance from the middle line), but I could neither feel nor seize it with the lithotrite: this I thought was owing to the curved portion of the instrument being too short to reach it. I injected the bladder with warm water; still no better result followed: so, after several trials, I gave up the attempt, and it was agreed to have recourse to lithotomy.

Nov. 21st. I went to his house, and removed the stone by lithotomy; it broke in the forceps, and was removed in two fragments, which made up a calculus about twice the size of a horse-bean, soft, and easily crumbling. I searched carefully with the sound, and injected the bladder, but could find no other fragments.

Mr. P. recovered quickly from the operation. The nurse brought me a specimen of urine when she came away: it was not decidedly alkaline, but there was a sediment, in which were pus-corpuscles—no crystals. At that time—a month after the operation—he was pretty well, suffering very little if any pain. He had taken about fifteen

minims of dilute nitric acid three times a day ever since the operation.

Soon after last note, this gentleman began to suffer symptoms of a return of his complaint. About the middle of March, he came over to Cambridge. I sounded him, and, after a little search, found a stone on the left side of the bladder. In a fortnight, he came again, and, sounding, I again found the stone in the same place. Passing my finger into the rectum, I could feel a lump beyond the left lobe of the prostate, in the direction of the left vesicula seminalis. This appeared to be connected with the calculus, which, so far as I could judge with the sound, was fixed at that spot. I took some pains to move it with the end of the sound, but could not. It occurred to me that the calculus, or rather a portion of it, might be contained in a sac here, a portion of it projecting into the bladder, as in Ayres's case; and that, if so, the sacculated portion had escaped notice in the former operation. I remembered to have felt a thickening and some induration in this situation when I examined by the rectum previous to the former operation; but I then thought it might depend upon some disease or enlargement of the vesicula seminalis.

There seemed to be no alternative but a second operation, to perform which I went to his house, April 13th, 1855. He was thinner and more low-spirited than at the time of the first operation; he suffered a good deal, and the urine let fall a turbid ropy sediment. The sound discovered a stone on the right side of the bladder, which, on the two former soundings, I had not perceived, although I searched carefully. I should say that the mucous membrane of the bladder was corrugated, which rendered the sounding a little difficult. The finger in the rectum discovered the lump before mentioned behind the prostate; and turning the point of the sound down in this direction, I could feel a stone there, though not so easily as when I last sounded: it gave us the idea of there being two stones, of which one was encysted behind the prostate. However, I could not be positive about this. Mr. Simpson, of Haver-

hill, assisted me in this and the former operation, and conducted the after treatment. I cut nearly in the cicatrix: this was shifted a little over the ischium, and the buttock on that side was rather less prominent than on the other. The tissues were rather tough; but there was no difficulty in reaching the bladder, where my finger at once discovered two stones, one loose, on the right side, and another sticking up behind the prostate, quite fixed, evidently the projecting peak of a stone which was imbedded in a sac between the bladder and the rectum. The stalk of the calculus occupied the neck of the sac, and was tightly embraced by a ring-like constriction of the coats of the bladder, between the sac and the cavity of the viscus. The loose stone was removed without difficulty. The impacted one gave more trouble. It was necessary to make the perineal incisions more free, so as to admit my finger more easily. With the finger I dilated the neck of the sac a little, but not enough to allow of the extraction of the calculus; so, with a probe-pointed bistoury, guided along the finger into the sac, I incised its narrow orifice towards the prostate; then, with forceps, grasped the stalk of the stone, which broke, a fragment coming away in the forceps. The finger was now passed into the sac, and found the calculus occupying it of considerable size, quite soft, and crumbled to pieces. To extract these fragments was a work of much difficulty, requiring the repeated introduction of forceps of various kinds, and the scoop. However, at last I succeeded in clearing out the cavity, with the exception of a few small gritty pieces which hung about the lining membrane of the sac, particularly at the neck, where it had been incised; these I found it impossible to extract, and hoped they would flow away with the urine. I washed the part out well with warm water, by means of a syringe attached to a catheter passed into the sac. I searched diligently for calculi in other parts of the bladder, but could find none. The corrugated condition of the coats rendered the search more difficult and less satisfactory than usual. The operation was necessarily very long, but during the greater

part of the time he was under the influence of chloroform, and there was not much blood lost. The chief bleeding took place when I extended the incision in the perinæum.

On the 15th, I passed my finger into the wound, and discovered two small fragments of calculus, which I removed with polypus-forceps. On the 16th, I discovered and extracted a larger piece. These were in the deep part of the wound. On the 18th, 20th, and 22nd, I passed my finger through the wound into the bladder, and could discover no fragments: also explored with sound, straight and curved. The latter I could turn down into the sacculus, and, with the finger in the rectum, could feel it in the sacculus. Also passed a sound by the urethra. Being ununable to discover any fragments, I allowed the wound to heal, which it soon did. In October, he told me that he had no pain, but had not reacquired the complete power of retaining the urine.

I saw this gentleman on Feb. 9th, 1856. He was in good health, and told me that he had not been troubled with any return of his complaint.

Remarks. It happily rarely occurs to us in the operation of lithotomy to find the stone encysted. When it is so, it forms a difficult, perhaps an insurmountable obstacle, to the performance of the operation. Nevertheless, an examination of the specimens in our museums proves that cysts of the bladder, as they are called—that is, pouches formed by a hernial protrusion of the mucous membrane between the muscular fibres—are no uncommon accompaniments of stone; indeed, they more frequently owe their origin to the presence of a calculus than to any other cause. They seem to be related rather to the irritation to which the bladder is subjected, and the straining attendant on and following the expulsion of the urine, than to any obstruction to its passage. Hence they are more common accompaniments of stone than of stricture. Hence, too, they are most frequently found associated with those calculi which are attended with the greatest amount of suffering, viz., the phosphatic. It is worthy of remark that, in each

of the two cases I have related, lithotrity had been practised. I cannot help feeling it more than probable that the irritation consequent on the process of crushing, and the subsequent passage of calculous fragments, was much concerned in the formation of the sacculi in these cases.

The sacculi are most often found behind the trigone and ureters, between them and the fundus. They may, however, occupy any part of the bladder, and may be quite out of reach in lithotomy. Their walls, consisting only of the mucous membrane, with some cellular tissue, and perhaps a thin layer of muscular fibres, are generally thin—consequently, easily lacerated in an operation: an accident almost sure to be followed by a fatal result. They do not seem liable to be occupied by calculi, unless small ones slip into them from the bladder. When this does happen, the stone becomes the nucleus of a formation, which in time fills up the sacculus, and may, as in the above two cases, project through the orifice of communication into the bladder, when it may increase to any size, thus forming a stone of more or less hour-glass shape.

I know no means, short of exploration of the bladder with the finger, by which it can be made out for certain that a stone is partly or wholly encysted. In Case I, I had no suspicion of such a condition till it was suggested by the appearance of the calculus removed at the third operation. In Case II, my apprehensions were strongly aroused by the stone being found always in the same position, and being apparently fixed there; while the finger in the rectum discovered, immediately beneath this spot, a lump having more prominence than would be afforded by a stone contained within the bladder. In the last operation performed in Case I, I had been assured of the fact by former experience, and had learnt the position of the stone: I could therefore lay my plans accordingly, and certainly found the recto-urethral incision enabled me to get at the stone better than the lateral operation had done. If the stone had been further removed from the prostate, the only resource would have been the high operation, which, al-

though I had been fortunate enough to have one successful case,* I was unwilling to resort to, so long as there was a prospect of removing the stone by the perineal incisions.

The difficulty of estimating the size and number of calculi through the information afforded by the sound will be acknowledged by all who are in the habit of making the attempt. The information derivable from the patient with reference to the duration of his complaint is also often very fallacious, especially among the poorer classes, who are singularly unobservant or forgetful of their symptoms. A remarkable illustration of this has been furnished during the present year by the case of a man from whom I removed, by the lateral operation, a lithic-acid stone, weighing twenty-one drachms; yet this man would barely confess to any symptoms of more than a month's standing. During that time they had been very severe, and a delicate coating of phosphatic deposit upon the stone indicated that there had been an inflamed condition of the bladder. Doubtless the acute pain of the last month had thrown a veil over the previous sufferings, which, in comparison with it, seemed scarce worth mentioning. In the case of John Ayres, I thought I might rely upon the positive assertions of a moderately intelligent labourer, who had on a former occasion been a sufferer from the complaint: yet there is no question of his being mistaken as to the duration of his symptoms, and of my having been led into the error of attempting lithotrity by placing too much reliance upon his narrative.

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* See Transactions of the Association, vol. xvii.

CASES OF TRACHEOTOMY: IN LARYNGITIS; FOR FOREIGN BODY IN THE LARYNX; AND IN TETANUS.

Case 1. Frederick Townsend, aged 4 years, a moderately healthy child, had been observed to be hoarse for a few days previous to Dec. 22nd, 1855. On that day, it was supposed that he had caught cold, as he had some cough and difficulty of breathing. The latter was thought to depend upon an obstruction in the throat; it increased in spite of medicines and treatment directed by a surgeon; and, on the evening of the 28th, I was requested to see him. I found him lying with his eyes half closed, breathing heavily and noisily; the noise proceeding, evidently, from the larynx. When he was roused up, the struggle for breath was greater, and the sides of the chest were drawn in by the violent action of the diaphragm. The eyes were staring, the expression anxious, and the colour of the lips livid. I was told that he had frequently very severe fits of choking, in which they thought he would die. These were very bad on the preceding night, had diminished a little during the day, but were again increasing in severity, so as to make his parents fear to encounter another night. During these strugglings for breath, the air passed through the larynx with a loud noise. The laryngeal sounds obscured all others in the chest, and rendered auscultation useless. The child often cried for water, and swallowed it without difficulty. The pulse was irregular. There was

nothing wrong to be seen in the throat. The disease was evidently in the larynx, and was gaining ground. The condition of the child was critical; his strength giving way, and would probably not hold out much longer. Accordingly I recommended that tracheotomy should be resorted to without further loss of time; and, the parents assenting, the child was wrapped up in a blanket, and conveyed to the hospital. Chloroform was administered by Mr. Carver. During the inhalation, a sharp attack of dyspnœa came on, and excited some alarm; however, it gradually passed off as the child fell more under the influence of the vapour. A large vein, along the anterior edge of the right masseter muscle, approached the median line at the lower part of the neck, and rendered it necessary to keep the incisions rather higher than usual. One or two veins bled freely, so that I waited a minute or two for the hæmorrhage to subside before opening the trachea. It had not quite subsided when the longitudinal incision into the trachea was made with the scalpel; but the entrance of much blood was prevented by the quick insertion of the silver tube. After the struggling and coughing which immediately followed the introduction of the tube, the child was very pale and faint, with drooping eyelids; and the inspirations followed one another at long and very irregular intervals. However, the pulse remained good; and, by the aid of ammonia and compression of the chest when the intervals between the inspirations were unusually long, the child soon revived, and breathed freely through the tube.

The tube used was a double canula, so made that the inner tube, which was the longer, could be easily removed, cleaned, and reintroduced, without disturbing the wound, and without pain to the child. This was required to be done several times during the night, in consequence of its becoming clogged with mucus. He drank some milk, had sleep, and next morning was very comfortable, breathing easily through the tube. On Jan. 7th, I removed the tube, and, as he breathed well through the larynx, I left it

out. The wound closed very quickly. On the 10th, he left the hospital quite well.

Case II. Mr. ——, aged about 35 years, rather stout, and of florid complexion, had, for nearly a month previous to my seeing him on Jan. 21st, 1855, suffered under the symptoms of some affection of the larynx, indicated by cough, difficulty of speaking, and difficulty of breathing. These increased in spite of the treatment employed, and had been accompanied lately with such severe fits of choking at night as to cause great alarm, and to induce the surgeon in attendance to suggest that an operation would probably be necessary. When I saw him, the breathing was noisy, as though the air were driven through a narrow tube; and difficult, more particularly when he exerted himself. The obstruction appeared to be in the larynx. He could speak only in a whisper, and was troubled with a dry, harsh, husky cough. There had been very little expectoration; no pain nor tenderness. He pointed to the larynx as the seat of the obstruction, and said he was sure he should be choked at night. He could not bear to lie down. Being unwilling to resort to operative proceedings at once, as the symptoms were not very urgent, and thinking it right to watch the case a little while, and endeavour quickly to establish a mercurial influence, I directed mercurial ointment to be rubbed well into both thighs; and a pill, containing three grains of calomel, with a quarter of a grain of opium, to be taken every three hours. He got through that night pretty well. On the night of the 22nd, he again had an attack of difficulty of breathing, so severe that his family thought he was dying. I was sent for; but, when I reached him, the attack had passed off, and there was no immediate urgency; so I determined to wait till the morning, and then run no further risk by delay. Accordingly, on the 23rd, I opened the trachea, and inserted a tube, through which he breathed very well. During the operation, several vessels bled, but ceased before I plunged the scalpel into the trachea. On one occasion, immediately after an incision, I heard a

short hissing noise, which convinced me that air had been drawn into a vein. It ceased almost in an instant, probably before my finger covered the spot. Soon after, he complained of a sensation of tightness across the chest, and was inclined to faint. However, the pulse was not much affected, and he soon recovered himself. From the time of the operation, the case went on well; the only trouble we had was from the tube becoming blocked up with mucus, which dried in it, in spite of our attempts to keep it clear; and rendered its occasional removal necessary. On Feb. 13th, I found that he could breathe and speak very well without the tube; so I took it out, and the wound healed up, the patient continuing quite well.

Remarks. I relate these cases, not because they present any features of novelty or unusual interest, but because I think that the operation of tracheotomy requires to be continually presented to the attention of the profession, believing that many cases which are lost might be saved by a timely resort to it, and that no other operation is to an equal extent deprived of its legitimate opportunities of doing good. We are continually hearing of fatal results which there is much reason to believe might have been averted by it, or of cases in which it was resorted to only when the patient was past hope. It is not in itself a dangerous operation, provided it be done with care, and provided it be done before the patient's strength is so exhausted by the disease that he is unable to bear the slight shock of the operation, and to expel through the tube the fluids that collect in the air-passages. I grant it is often difficult to decide whether the affection has arrived at such a point that the operation is absolutely necessary. But what I feel is this: when, in laryngitis, or other disease of the upper part of the windpipe or throat, the breathing has become difficult, particularly if fits of dyspnœa are superadded at night, or when the patient lies down, far greater risk is incurred by omitting than by performing tracheotomy. Provided the patient has a fair amount of strength, the operation will in all probability be successful; and the disease, if

it be of any ordinary kind, will subside spontaneously, requiring no further treatment. If, however, the operation be delayed till the patient's strength is exhausted by struggles for breath; till mucus has begun to collect in the air-tubes; till, in short, it is clear that he must die, unless some decided step be taken—then, indeed, tracheotomy may be called a desperate measure, which it may be the surgeon's duty to have recourse to, but which, if he considered only his own credit or the credit of the operation, he would gladly avoid.*

I do not see the necessity or the advantage of the trocars and other instruments which have been devised for making the opening into the trachea. A scalpel answers the purpose sufficiently well. It will be found a very great convenience to maintain the opening by means of a double canula, one tube sliding within the other, so that it may be removed and cleared of mucus without disturbing the wound or distressing the patient. For want of this contrivance, the gentleman whose case has been just related suffered a good deal, both from the clogging of the tube and from the pain of removing and replacing it, as well as from the attempts to clear it whilst it remained *in situ*. In the following case, the fatal result may be attributed chiefly, if not entirely, to the same cause.

Case III. One evening, I was summoned into the country to see a little girl, aged 3 years, the daughter of a medical man, whom I found struggling for breath, with blue lips and noisy inspiration; the noise proceeding apparently from some obstruction in the larynx. I learnt that, two months previously, soon after she had taken some broth, her father was attracted to the nursery by hearing

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* I must refer to an excellent lecture on "Tracheotomy in the Last Stage of Croup", by Dr. A. Trousseau, contained in the *Med. Times and Ga.* for Jan. 5th, 1856. It well deserves attentive perusal. It has always appeared to me probable that laryngitis and croup, though really distinct diseases, are, in the case of children, very often confounded, and classed together under the latter name; and that, consequently, tracheotomy, which must be less successful in croup, where the trachea and bronchi are apt to be blocked up with lymph, has fallen into unmerited disuse in laryngitis also.

her suffering under a seizure of dyspnœa, and felt convinced that there was some foreign body in the windpipe. Upon cross-questioning the servant who was present during the meal, he found that the child had suffered a slight fit of choking while swallowing the broth; but it had passed off, and no more had been thought of it. His suspicions were confirmed by an examination of the remains of the broth, which showed that it had been imperfectly strained, some pieces of bone being left in it. The attack of dyspnœa soon subsided; but ever since that time the child had not been quite right, not breathing or speaking with the same ease as formerly; and she was the subject of occasional attacks of dyspnœa, which, however, were not very severe. As she got no worse, the father began to hope that his apprehensions were unfounded. On the morning of the day on which I saw her, she had been out in the cold east wind. In the afternoon, the dyspnœa came on, and had increased up to the time of my arrival at 11 P.M. It was a question whether there was any foreign body in the trachea or larynx; but there was no question as to the extreme urgency of the symptoms, and the necessity of at once opening the trachea, which I accordingly did without loss of time. I divided several rings of the trachea; held them apart with forceps, to allow any foreign body to escape; and made search for it with a probe in vain. I was glad quickly to insert the tube, and finish the operation, for the child, who was beginning to be in a depressed state before I began, was now very faint and weak. However, the operation had given immediate relief to the breathing; the little girl soon rallied, fell asleep after getting rid of some mucus, and was breathing easily and looking well when I left early next morning. All went on well till about five o'clock in the afternoon, when, the breathing becoming impeded by the clogging of the tube with mucus, her father removed the tube. The difficulty of breathing was immediately increased, and the little child died before he was able to clear and reintroduce the tube. On examination, I found a rough fragment of bone, of considerable size,

sticking in the larynx, and obstructing the passage of air.

The chances of such a disaster were not to be again incurred. We had lately had a new set of tracheotomy tubes at the hospital. We sent them all back, and had double ones constructed. Dr. Trousseau observes, that the double canula is absolutely necessary; and he goes on to say, "Truly, when we see in what language Van Swieten insists upon the necessity of a double tube, we ask how this precept has been forgotten, and how, in spite of the recommendations of Dr. Bretonneau, we have ourselves remained several years without using it."

Case iv. A stout, moderately healthy woman, aged 50 years, was brought to the hospital May 19th, 1855, with the ordinary symptoms of tetanus, of eight days duration. The only external cause to which it could be attributed was a chronic ulcer, of the size of a half-crown piece, just above the right outer malleolus. The spasms affected the neck and body to a certain extent, but were much more severe in the lips, fauces, and larynx. When they were at their height, she could not breathe, owing to the firm closure of those parts. She struggled hard, and turned blue in the face. They came on whenever she dropped asleep or lay down; also whenever she attempted to expectorate the mucus which collected in the air-passages, and gave great trouble. As she was decidedly getting worse, in spite of the various means adopted to relieve her, I determined to try the effect of opening the trachea, which would at any rate remove the apprehension of choking, and might afford a more easy outlet for the accumulating mucus. This was done on the 21st, while she was under the influence of chloroform. Rather a severe spasm came on when she was recovering from the anæsthetic state. After this, there was no return for four hours. Previously to the operation, the intervals between the spasms had not exceeded a quarter of an hour. When they returned, they were less frequent, less severe, and unattended with difficulty of breathing. A good deal of mucus was voided

through the tube. On the whole, she was more comfortable, had some sleep, and took a pint of beef-tea, besides wine and arrow-root.

Soon the spasms returned with their former frequency; the progressive loss of strength continued; and the crepitations in the trachea, bronchi, and smaller air-tubes, with shortness of breath, indicated that disease was going on in the lungs. To meet these symptoms, acetum canth. and blisters were applied, to no purpose. She died on the 23rd. We found general congestion of the lungs, with circumscribed spots of solidification and interstitial suppuration. In one place was a collection of dirty turbid pus. There was also yellowish dry lymph upon the surface of the pleura on one side. No appreciable disease of the nervous centres was present.

Remarks. The operation did about as much as was to be expected in this case, by divesting the spasms of their most distressing feature—the stoppage of the breath; and had it been resorted to earlier, its good effects might have been more decided. There is no doubt that in tetanus and other allied affections the immediate cause of death is sometimes the suspension of respiration, by the spasmodic closure of the larynx. I have seen a tetanic patient die in this way. An opening in the trachea may, for a while, avert this result in some cases, may render swallowing less difficult, and afford a little longer time for the trial of other remedies. But no more than this is to be expected; and it must be a question whether for this it is worth while to subject the patient to the operation, even under chloroform. If we had surer means of combating the complaint, there would be some encouragement to adopt this proceeding, with the view of endeavouring to extend the patient's life, and give them a better chance of acting.

In this case I observed a circumstance, which is noticed in the lecture by Dr. Trousseau, above referred to,—viz., that the liquids which the patient took into the mouth passed through the glottis and escaped at

the opening in the trachea, through and beside the canula. I then thought it depended upon some peculiarity in the patient or the nature of her malady; but that physician and Dr. Archambault have noticed it in several cases, and believe that it has often been the cause of death after tracheotomy. They attribute it to the patient's having, in consequence of breathing through the canula, lost the habit of freely using those muscles which serve for the occlusion of the larynx, and those which push the food into the œsophagus. To meet the difficulty they forbid liquid food, giving thick soup, etc., and suggest the momentary closing of the canula with the finger whilst the patient swallows.

After writing the above, I received from a very intelligent surgeon in this neighbourhood a larynx with inflammation of the mucous membrane, and superficial ulceration, accompanied by the following history, which I give, with his permission, as it illustrates in a remarkable manner the danger of delay in such cases :—

"A man, fifty years of age, very active, healthy, and strictly temperate, attended his meeting three times on Sunday last, ate his supper as usual, and went to bed in perfect health. He awoke in the night, was chilly, and afterwards slightly feverish, but complained very much of his throat, with difficulty of breathing. He again slept until four or five in the morning. At six he jumped suddenly out of bed, apparently nearly suffocated. I saw him in about twenty minutes in bed, breathing with difficulty; the fauces looked slightly inflamed; no cough; pulse perfectly quiet. In fact, he said he felt perfectly well, with the exception of tightness over and below the thyroid cartilage. I should say the breathing was stridulous or croupy, and some degree of hoarseness. I looked upon it as a case of laryngitis, gave tartar emetic, which emptied the stomach, applied spirit of turpentine to the front of the throat, and ordered two grains of calomel to be taken every hour; at ten I saw him again, found him much the same, or perhaps a little better; an abundance of viscid

sputa about the fauces; at twelve, after talking with his friends, he was again seized with an attack similar to the one at six, called out for air, and died in a few minutes —about a quarter of an hour before I could get to the house, or I would have opened the larynx. Ought I not to have done so earlier ?"

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