by fluid at its lower part, while the upper yielded the usual sound on percussion. The enlargement bulged slightly in each iliac region, and fluctuation was felt as high as the umbilicus. The slightest separation of the labia vulvæ discovered a red tumour, also fluctuating. It was formed of a membrane, an extension, in fact, of the hymen along each side of the vagina to the meatus urinarius, which was considerably elongated by stretching; the membrane being pushed by fluid behind it into a convex form, so as almost to protrude between the labia. The vagina was effectually occluded.

October 14th. Previously to division of the membrane, the catheter was used, and about two tablespoonfuls of urine were withdrawn. A small trocar being then introduced with some difficulty, owing to the thickness and toughness of the membrane, a very dark fluid of syrupy consistence issued; and, the trocar being withdrawn, a common curved bistory pierced the membrane at its posterior part. Its point was made to pass out near to the meatus urinarius, and the intervening length, one inch and a half to two inches, was divided at one stroke. The membrane, at least a line thick, and elastic, gave a snapping sound at the moment of its division, and three or four pints of the fluid gushed in a broad stream across the wash-hand basin, and beyond the bed. A broad strip of lint was inserted through the lips of the wound, a short distance into the vagina.

October 16th. She was free from all complaint. The patient wondered that she was still to keep her bed. A good deal of the dark fluid issued on moving. A very slight tenderness was felt on pressing at the left iliac region, not more than might be well accounted for by the change to collapse of the peritoneum and other parts, lately so much distended.

October 17th. The tenderness was gone. Some castor oil, taken yesterday, not having acted, she took this morning a pill of calomel and colocynth, followed by small doses of an aperient mixture every two hours; and, these failing, had an enema in the evening. After free action of the bowels, I was sent for at night, and found her under the symptoms of violent peritonitis.

October 19th. Leeches, fomentation, blister, and opium, had failed to relieve my patient; and she died this afternoon, about forty hours after the onset of peritonitis.

The after treatment of the operation had been the injection of tepid water, and the introduction of a tent of compressed sponge.

October 21st. *Post mortem* examination, made about forty-eight hours after death, with the assistance of my friend Mr. Macaulay, whose are the following notes:—

Externally, the body was well developed, the abdomen was slightly distended. Internally, on laying open the abdominal cavity, the peritoneum was found inflamed and thickened. Large patches of fibrine, the result of recent inflammation, were adherent to the convolutions of the bowels. On turning down the lower flaps of the abdominal parietes, a quantity of dark fluid, the same as that discharged from the vagina, gushed out from the pelvic cavity. This fluid was removed in considerable quantity, probably a pint and a half. After clearing it away, the uterus was found much enlarged, flattened, and firm, of about three times the size of a virgin organ. The Fallopian tubes and ovaries, on both sides, were enormously enlarged, capable of holding about a pint of fluid each. Both of these ovarian tumours had ulcerated openings with ragged edges, through which the contained fluid had passed into the abdominal cavity. The peritoneal surface of the bowels was generally in a state of inflammation, especially those portions in and near the pelvis. The vagina was carefully examined. The incision made for the discharge of the fluid was found sufficiently large to admit the finger into the passage, which appeared lax from recent distension. The finger also passed easily into the cavity of the womb, the cervix being undistinguishable, apparently obliterated by long continued distension by the retained fluid.

CASE II. 1859. E., also in her eighteenth year, fully developed, well nourished, even florid, had had monthly ailment without discharge, and gradual increase of size. A thick, fleshy septum extended, as in the last case, from the internal commissure of the vagina to the meatus urinarius. It fluctuated with fluid behind it, and elongated the meatus. The only differences between the two cases were, first, that in the present one retention of urine had required Mr. Denton, to whom I am indebted for introduction to the case, to use the catheter on several occasions, probably when recent effusion had increased the elongation of the urethral aperture; and secondly, that here the abdominal enlargement did not extend to its left side, which was free from fulness, flaccid, and resonant on percussion. Perhaps the not very rare congenital defect of absence of an ovary obtained in this case.

January 9th. After introducing the catheter, a free opening was made exactly in the same way as in the last case, and nearly three pints of the same kind of fluid, with flakes of mucus, gushed forth. Lint was inserted as before.

January 10th. On separating the labia, a small quantity of blood-red discharge escaped, and a coagulum about the size of a horse-bean.

January 16th. For the last three days there had been highly purulent discharge; about an ounce was shewn as having passed yesterday, and two drachms this morning.

February 2nd. The discharge was now only sero-purulent, and catamenia were reported as having been present for a day.

March 18th. Her sister called to report full catamenia, finished about a week ago.

May 23rd. She was in good health; the catamenia were normal. A ring of the fleshy membrane remained. It was firm, but readily admitted the finger, and seemed dilatable enough not to interfere with future function of the vaginal tube.

REMARKS. From these cases we derive fact and speculation bearing importantly upon the organs involved. Upon their physiology; for the distended state of the ovaries as well as Fallopian tubes, points to and confirms the catamenial function of the former. Upon their practical surgery; for the possibility of laceration or ulceration occurring, even after the removal of distension, must ever be kept in view when proposing to operate, and tempted to expect a happy result.

The pathology also of unsuccessful cases is illustrated; for the occurrence of peritonitis, named by Dr. Simpson, Jones, and Sieveking, and others, receives its explanation; while speculation is still afloat to explain in what way the openings in the ovario-Fallopian bag are effected, whether by ulceration or laceration. In the present case, a distinction between the ovary and tube was not made out, and the openings certainly had the appearance of being "ulcerated;" but the "ragged edges" scarcely certified the fact; and the non-appearance of blood cannot, perhaps, be held conclusive against the possibility of laceration. That either ulceration or laceration should occur after removal of the tension seems a mystery; yet the suddenness and violence of the peritonitis and death, as well as the appearances on dissection, proclaim the mystery to be a fact. In a successful case of this operation, narrated by Dr. Upshur, of Norfolk, U. S., and reported in Ranking's *Abstract*, vol. XVIII, p. 222, it is stated that the flow of fluid was accompanied by "regular uterine contractions, which continued for twelve hours;" but the exit for the fluid being free, it is difficult to conceive that these contractions are the means of bursting or ulceration in parts more internal.

A case of this operation is given in the *Provincial Medical Journal* of December 10th, 1845. It occurred in the practice of Mr. Derington of this town, and is reported by Dr. Barclay. It was successful, and the only bearing it has upon the present paper is somewhat to contradict the rarity of the malformation. This, however, is admitted by all who have written upon the subject, and is established, one is entitled to say, by the fact that Rokitansky gives but a mere intimation of its existence, and that Fergusson's judicious and full treatise on *Operative Surgery* names not the means of its removal.

I have to hope that no one will confound occlusion by this hypertrophied hymen with the more common union of the labia themselves by a mere webbing of cuticle, frequently seen in newly born infants and young girls, which I have only once found to remain so late as seventeen; and which is removable by tearing with a probe, without the loss of even a drop of blood.

ON UNUNITED FRACTURE.

By W. J. MOORE, Esq., H.M. Indian Medical Service, Bombay Establishment; formerly Senior Resident Surgeon at the Queen's Hospital, Birmingham.

[*Concluded from page* 520.]

THE continued use of long acupuncture needles, is, I think, a method of greater efficacy than any of those yet named.

M. Rayer pointed out that, when he excited irritation in the fibro-cartilage of the ear of a rabbit, the part was first softened, a yellow matter was next deposited in its texture, and finally, true ossification produced. M. Cruveilhier, likewise, observed different portions of periosteum, ligament, or cartilage, pass into ossiform state under the influence of stimulus. Miller, therefore, applied this knowledge, and the principle of subcutaneous sec-

tion to the treatment of false joints; he proposed that a strong needle, having been passed obliquely down to the part, should have its edges (cutting) freely moved about in all directions, so as to destroy the bond of union and investment of the ends of the bones.

I have not found it necessary to have the needles made with cutting edges, and I have also to state they require to be introduced many days in succession. During the whole period the limb must be kept immovable in some kind of apparatus, which, without exercising undue pressure, is well adapted for the purpose required. The needles should vary in length according to the limb, be round in shape, and as thin as is compatible with strength. They should be introduced daily from several points to the seat of fracture, and in performing this operation a rotatory movement should be employed. They should be moved slightly on the ends of the bones, and it has seemed in some cases to facilitate the cure by causing a mild galvanic current to pass through the limb, *viâ* the needles, for a considerable time daily. The introduction of the needles is not attended with much pain, and from their small calibre they will not be likely to injure arteries or nerves. By this means the connecting matter of the false joint is brought into a state of vascular excitement; the proper condition for the formation of bone. A very slight amount of pain, or throbbing, is greatly felt about the time union commences.

This procedure, combined with appropriate constitutional treatment, will, I think, be found adapted for the cure of most cases of recent non-union; but it must be continued sufficiently long, and the parts be kept firmly *in situ* during the whole period.

M. Lenoir (*Mémoires de la Société de Chirurgie de Paris*, 1851), of Paris, has also used acupuncture needles for the cure of ununited fracture successfully; but he introduced five between the bones, and left them some days, until they produced inflammatory action.

Dr. Brainard (*Chicago Medical Journal*, January 1859) has lately reported, in the *Chicago Medical Journal*, fourteen cases of cure by the use of a kind of needle; but his method differs very essentially from the one described above. He thus describes his proceedure:—"My practice is, at present, to commence the treatment by two or three perforations of bone, through a single opening of the skin, using an instrument of small size, and repeating the operation every ten days or two weeks." "In cases of non-union of the tibia, radius, or ulna, when the ends are in contact and the movement slight, I use a perforator no more than two or three *millimètres* in breadth; in other cases, an instrument an inch and over in breadth."

Lest I should be thought to have given this paper an unnecessary length, I shall quote the opinion of two eminent surgeons on these cases. The one writes:—"I cannot say there is great encouragement for the performance of any operation for ununited fracture, and I think a comparison of the results of numerous cases will confirm this opinion." The other says: "There is indeed so much doubt as to the result of any known treatment for the cure of false joints, that the surgeon gives ready attention to any proposal which shall hold out a prospect of a satisfactory result."

I shall now proceed to detail briefly the cases to which I have referred.

CASE I. S. B., a young woman of 32, came under my care in May 1850, as an out-patient of the Queen's Hospital, having an ununited fracture of the left radius and ulna, rather below the junction of the upper and middle thirds. The accident producing the injury happened some four months previously, and the arm had been treated by an ignorant bone-setter, at that time resident in the mining districts of South Staffordshire. The broken ends were found quite movable on each other, so as to rival the wrist-joint in extent of motion. The limb was free from pain, but quite useless for any kind of even slight employment. Rubbing the ends together was first tried, followed by a careful adjustment and retention by splints; but at the end of three weeks no appreciable difference existed. The needles were then introduced (three in number) daily for nearly three weeks, the limb being kept motionless in gutta percha moulding. At the end of that period, there was evident consolidation commencing. The use of the needles was continued every other day for upwards of another week, and at the end of two months after first using them, I was enabled to place the arm in soap plaster, and allow her to commence using the hand. The consolidation in this case eventually became perfect.

CASE II. E. J., rather a scrofulous looking lad, about 15 years old, was brought to the Queen's Hospital, July 1850, for the purpose of having his arm examined. I found an ununited fracture about the centre of the radius. It appeared he received an injury some months before, which had been considered a sprain, and his parents now sought advice for what they thought weakness of the arm. The needles were used in this case every, or every other, day for nearly a month, and I had the satisfaction, in double that time, of allowing him to use his arm, perfectly united. I should add, that he took cod-liver oil during the latter part of the treatment.

CASE III. J. P., a strong looking labouring man, came under my treatment for fracture of the metacarpal bone of the middle finger. The usual plan of a ball of lint in the palm was adopted; but on the seventh day, under the influence of liquor, the hand was used in a pugilistic encounter. He then had an attack of *delirium e potu*, and when I again saw him no union had taken place. It was again bandaged up and allowed to remain at rest some weeks; but as the desired result was not obtained I introduced the needles, and succeeded in effecting a perfect cure.

CASE IV. M. W., a woman about 50, had the misfortune to break her humerus, and, without any assignable cause, the bone refused to unite. In this condition, she applied at the hospital in March 1851; and, as I had reason to know the arm had been well treated by retentive apparatus, I proceeded to introduce the needles. In three weeks the parts began to consolidate; but she met with another accident about this time which delayed the process. Eventually, by perseverance with the needles, aided by galvanism, for some twenty days longer, she regained the full use of the arm.

CASE V. During the early part of 1852, I had a man under care who could not raise the arm, owing to a long ligamentous union, consequent on fractured acromion. I carefully introduced the needles from time to time, until, apparently, ossific union resulted, the parts being kept bandaged during the period. After the treatment, the man could raise his arm nearly as well as that of the opposite side.

CASE VI. J. P., a coloured man, was in the accident ward of the Queen's Hospital during the spring and summer of 1851. He was admitted with a fractured thigh, which I reduced, using the straight splint and perinæal band. Chiefly owing to the man's restlessness and impatience of restraint, it was some time longer than the average before union began to take place. When this did commence, the dresser who had charge of the case, by some unlucky accident, allowed the leg to fall on the bed, and fractured the thigh apart. Much difficulty was again experienced in procuring union, which, however, was at last brought about by the use of the needles, which I introduced daily for some weeks.

While progressing in this satisfactory manner he imprudently took undue advantage of his condition, and essayed to walk round the ward. As might be expected, the newly ossified part again gave way, and from this time (partly owing, perhaps, to the man's health having suffered from so long a residence in hospital; but chiefly from his restlessness and continued experimentalising) all endeavours failed in procuring union. He was treated with seton, and, eventually, Mr. Knowles amputated the thigh.

CASE VII. In July 1856, being in medical charge of the *Punjaub*, a large steam frigate belonging to the Indian Navy, I. E., able seaman, came under my care for an ununited fracture of the forearm. The patient was a strong, healthy, young man, of 23, and met with his injury while steering ship in a gale off the Cape of Good Hope. No surgeon being on board, the nature of the injury remained undetected; and after a very short period of rest the master of the vessel, under the idea the man was skulking, forced him to return to duty. He rested his arm as much as possible, and having a quarter-master's rating, was enabled to do this, to a considerable extent, during the remainder of the voyage. When, four months afterwards, he came under my care, I found there was want of union of both radius and ulna; but the mobility of the fragments of the latter bone was much greater than the former. Rubbing the ends of the bones together, and careful application of splints, was first tried; but these means not succeeding, I used the needles. Dr. W. Williams, of the Bombay Medical Service, was kind enough to aid me in the treatment of this case, and we had the satisfaction of making his arm, as he expressed it, "stronger than ever it was." The fact that he regained full power over the limb, I had frequent opportunities of observing, having seen him pulling the oar and working the gun tackle with great zeal during the Persian war, which happened immediately afterwards.