at home hæmorrhage went on every day till his doctor (Dr. Faris, of Ennis, co. Clare) bled him. The hæmoptysis then stopped and did not return till the present occasion. He was further warned by Dr. Faris that he ought to get bled from time to time; but not being anxious to be bled, he had said nothing about the matter. I opened a vein in the arm and allowed a litre and a half (48 ounces) of blood to flow. The patient sat in a chair during the whole time; he showed no sign of faintness or weakness, on the contrary he said that he felt better and better. The face gradually assumed a more healthy hue, and the pulse fell to 80. By the following morning the pulse rate had sunk to 68, and in a few days the *râles* had quite disappeared from the chest, and the very small amount of expectoration procurable a couple of months later was entirely free from tubercle bacilli and elastic fibres. A couple of days after the venesection the patient was going about as usual but feeling much stronger, and from that time he made an uninterrupted recovery. The patient left Davos in the spring of 1892, not having had any return of lung trouble. I have recently heard that he still continues in good health. In this case the amount of blood removed was extremely large; but I do not think that an equally good result would have been secured by a smaller quantity.

CASE II.—The second case is not less interesting. A young man who had influenza and pleurisy in 1890 had a large hæmorrhage (about a pint according to his own statement) in May, 1891, and again in June another hæmorrhage, about a teacupful. These hæmorrhages were quite unexpected, and came on when the patient was seemingly in good health. In the autumn of 1891 the patient came to Davos. The physical signs showed slight flattening and dullness over the upper portion of the right lung, and under the clavicle the breathing had a somewhat cavernous character. Hardly any *râles* were present; the temperature was normal; the pulse quick, about 112, small, but of very high tension. In October, 1891, that is, a month after the patient came to Davos, a small quantity of blood, about a tablespoonful, came up. The pulse had increased in frequency, ranging between 116 and 124, and was always small and hard.

On October 13th again a small quantity of blood appeared, the patient having at the same time a very plethoric aspect. I then removed 16 ounces of blood from the arm. The pulse at once fell from 120 to 88. The patient was a little faint during the bleeding, but very shortly after it was over he said that he felt a great deal better, the chest feeling freer, and that in every respect he was more comfortable than before the bleeding. Later, he said that in going up and downstairs and in going about he was stronger, and that he had more breath. About a month after the venesection, November 9th, the patient again coughed up $\frac{1}{2}$ ounce of pure blood.

On November 26th, the pulse had gradually risen in frequency to about 108, and had again become hard and of high tension, while the patient's face had regained its plethoric look. I told the patient that in all probability he would before long have another hæmorrhage. As he was not particularly anxious to be bled, I kept the bowels freely moved by sulphate of magnesia. There was no material change till the middle of December, when from 2 to 4 ounces of blood came up regularly every morning for five days, the temperature being normal for the first three days, and then rising to about 100 or 101 without sinking at all to the normal. I then removed 6 ounces of blood from the arm, and, except for a very small quantity of blood in the sputum two days later, there was absolutely no recurrence of hæmoptysis.

During this attack moist *râles* became widely diffused over the whole of the upper lobe of the right lung, and appeared also about the second and third interspaces on the left side. The temperature only gradually fell to normal, and the *râles* persisted also for a couple of months. About the middle of February the high tension pulse and the plethoric look foretold a probable return of the hæmoptysis, and, with the patient's consent, I again removed some blood from the arm; this time 4 ounces. The quick hard pulse fell from 120 to 96, and, as on previous occasions, became full and soft. From this time on the patient continued to improve, and, though the disease had not become quiescent, it continued steadily to diminish in activity until the patient left Davos in the spring, since which time I have not heard of him.

Now in both of these cases the bleeding into the lungs was in all probability responsible for the most serious part of the damage. In the first case, in which 48 ounces of blood were removed to the manifest benefit of the patient, there can be little doubt that if the blood had not been drawn from the arm, it would soon have found for itself a channel out of the overfilled vessels. A rupture would have occurred at the weakest point—namely, in the damaged lung, and a series of copious hæmorrhages would have taken place until the vessels had been sufficiently relieved; but in this process a considerable amount of mischief would inevitably have been done. The bronchial tubes would almost certainly have become filled with blood clots, and the result would have been an inflammation favourable to the extension of the tuberculous process. The pyrexia accompanying such a condition has a prejudicial effect on the organism; and the anæmia consecutive to fever is by no means so transient as the anæmia due to a direct hæmorrhage.

Many interesting points are suggested by the record of these two cases. I refrain from discussing them, but would draw special attention to the fall in the pulse rate, which, in every instance, followed the blood-letting. In conclusion, I would enumerate the chief conditions that must be present in a tuberculous patient before venesection can be considered advisable:

1. The patient must be plethoric. 2. The pulse must be marked by high tension. 3. The general health must be

good, and the patient free from marked constitutional symptoms of tuberculous disease, such as night sweats, high temperature, and debility. The presence of inflammatory pyrexia would not, however, contraindicate bleeding. 4. The case is usually marked by recurrent hæmorrhage. 5. The disease is usually, but not necessarily, in an early stage.

I may further mention that in the type of case I have in view the hæmorrhage is generally preceded either by a sense of fulness in the head and general feeling of heaviness, or by a feeling of unusual well-being. In the first of these conditions the hæmorrhage is likely to be followed by a sense of relief, in the second case by prostration. Where a sense of heaviness precedes the hæmorrhage, there is probably a high degree of plethora. Where the hæmorrhage is preceded by a sense of well-being, the plethora is probably only relative—that is to say, the blood pressure is only what could easily be resisted by healthy vessels, but is too great a strain for vessels weakened by disease.

TYRING THE PATELLA FOR FRACTURE OF THAT BONE.

By GEO. E. TWYNAM, M.R.C.S.ENG., L.R.C.P.LOND.,
Honorary Surgeon, Prince Alfred Hospital, Sydney, N.S.W.

OF the various methods of dealing with fractured patella, the simplest and the one that most nearly fulfils the requirements laid down by Mr. Barker in his lecture is one the results of which, at any rate, have not been made known. Eighteen months previous to Mr. H. A. Butcher's proposal of passing a wire round the two fragments,¹ I had already operated by that method.

CASE I.—In this case there was a skin wound across the joint with transverse fracture of the patella. I used a large perineum needle fixed to the handle at right angles. The point was entered unarmoured through the wound on the outer side of the upper fragment and passed round it, keeping as close to the bone as possible. The quadriceps tendon was traversed from side to side, and the point of the needle brought out at the angle of the wound on the inner side of the joint. It was threaded with stout silver wire and withdrawn. The lower fragment was then dealt with similarly, the ligamentum patellæ being pierced from side to side. The needle was then threaded with the other end of the silver wire and withdrawn, thus surrounding the fragments with the wire. The joint was cleansed and all blood clot washed out; the fragments were pressed together and the wire was drawn tight, twisted off, and the end hammered to the outer side of the upper fragment. The leg was put on a back splint and slung at an angle of 60°. It healed perfectly without a rise of temperature, bony union taking place. She left the hospital in five weeks with the leg in plaster. She returned to have the plaster removed, but never reappeared until I wrote to her. When seen in May, 1892, about sixteen months after the operation, the leg was straight and absolutely stiff, but the line of fracture could not be detected. I determined to break down the adhesions under chloroform, which I did completely after using a very great deal of force, but the patella remained intact. Since then passive motion has been kept up, and she can bend the leg to more than a right angle and kneel on it without any pain when scrubbing.

CASE II.—A man fractured his patella, and was treated in the old way by strapping and splints, with the result that he had one inch separation of the fragments. He went to Melbourne to have the bone wired, but operation was refused because the lower fragment was so small. He slipped and tore the pieces asunder on August 18th, 1892. The swelling was allowed to go down and then the fragments were brought together as in the previous case; two small nicks being made in the skin for the needle to enter. The operation was done on August 31st; all support was taken off on September 9th, and he was advised to bend the knee gently. He was moving about the ward by September 13th, but as the wire caused a little irritation he had to rest in bed for a few days. He was walking about the ward by October 1st, and left hospital on October 12th, walking better than he could ever do before he slipped the second time. In this case the fragments were drawn as close together as the intervening fibrous tissue would allow, and at the time of operation it could be felt puckered up between them, but when he left it had smoothed down. It will be interesting to see whether it may eventually ossify now that it can no longer be stretched.

CASE III.—A stout woman who fractured her patella by muscular action. In this case I operated before some of the members of the Medical Congress, who gave the operation the above name. The procedure was just the same, but one of the possible troubles was shown. The wire was not passed deep enough through the ligamentum patellæ, so that when the ends were pulled on it tore up on to the front of the lower fragment. It was repassed, and then the fragments were in good apposition. All support was taken off on the eighth day; she sat up in the ward on the eleventh day. She left the hospital, walking easily without any support, on the twenty-first day. She has since shown herself with a perfectly good joint, for she can put the foot under the chair while sitting, and goes about her household duties.

CASE IV.—The patella was fractured by muscular action, but the line of fracture was irregular. It started from the upper and outer angle in-

¹ BRITISH MEDICAL JOURNAL, April 30th, 1892.

wards and downwards to a point about two-thirds down on the inner side of the bone, but in an irregular zigzag manner, so that it left a piece of bone not more than a quarter of an inch wide, in parts attached to the inner part of the quadriceps tendon. The same operation was done. The splint was removed on the eighth day, and he left hospital on the seventeenth day, walking well without support, and able to bend the knee to a right angle.

In all except Case II bony union has taken place so far as can be detected.

The operation is really a modification of Kocher's, only it is subcutaneous. As the result of personal experience there are a few points worth mentioning in its performance:—

1. The ordinary perineum needle is a little short, as the point in passing round the last quarter of bone tends to spring away from it. I have had a needle made which comes down straight for $\frac{3}{4}$ -inch, at that part where the needle proper joins the handle at right angles—this answered admirably in Case IV.

2. The needle must be entered opposite the widest part of the patella in order to keep close to the bone.

3. The wire must be nearly pure silver, and stout.

4. The needle should be carried deep enough into the ligamentum patellæ and the quadriceps tendon, and also keep clear of the deeper layers of the skin, which is a difficulty with an ordinary needle, and caused the trouble in Case II.

5. Care must be taken that the wire does not kink on the inner side when being drawn tight. This is best prevented by crossing the ends and seizing them in two pairs of forceps, and drawing evenly with both hands, whilst the fragments are pressed together by an assistant.

6. The nick in the skin should be made in the length of the limb. It facilitates hammering down the knot.

Mr. Barker gives three essentials for operations for fractured patella. This procedure meets them as nearly as possible. 1. Infection of the joint: Done aseptically (as these were) it is as safe as any operation can be, for the wire is carried outside the joint capsule, and any tear in that is bridged over, and so the edges are brought together and can unite. In his own operation the joint is pierced. 2. Subsequent separation of fragments: The force used in Case I was greatly in excess of any ordinary force applied to a leg, but yet the union remained perfect, for unless the wire breaks the fragments cannot be torn apart. 3. Residual stiffness: In Case I this was due to her neglect of directions, but it can be overcome as I have proved, whilst in the other cases there is practically no stiffness after a few weeks.

This operation takes but a few minutes, does not interfere with the interior of the joints, and the knot of the wire lies in such a situation that it cannot be knelt on.

A joint distended by blood must be aspirated, but that is common to all operations on this bone.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, ETC.

SPECIFIC GRAVITY OF URINE IN DIABETES MELLITUS.

SINCE Sir E. Sieveking drew attention in the BRITISH MEDICAL JOURNAL, a few months ago, to the fact that a small quantity of dextrose may be present in urine, where the specific gravity is only 1010, letters on the subject have frequently appeared. That dextrose may occur in urine, the specific gravity of which is below normal, is well known. Schmitz, in a paper entitled "My Experience of 600 Cases of Diabetes Mellitus" (read before the Medical Society in 1884), stated that the specific gravity was frequently as low as 1013 to 1015, and Sir W. Roberts, in his work on urinary and renal diseases, says the density of the urine may sink to 1015. Cases, too, have been reported in the BRITISH MEDICAL JOURNAL where the specific gravity was 1010, and even 1005.

It is important to know, in the cases reported, whether the specific gravity was taken in a sample of the 24 hours' urine; but this, if I remember right, is not stated. A healthy man's urine, examined shortly after a large draught of fluid has been taken on an empty stomach, may sink in density to 1002 or even lower.

Fehling's solution, according to Sir W. Roberts, can detect specific gravity of dextrose per fluid ounce, so that traces of dextrose, sufficient to give an unmistakable reaction with Fehling's solution, may be present without the amount of solid matter being increased to the extent of markedly affecting the specific gravity.

Where it is a question between traces of dextrose and other bodies sometimes found in urine in quantities large enough to produce a small reaction with Fehling's solution, the fermentation test, as a corroborative one, is not sufficiently sensitive. This is owing to the fact that urine can absorb about its own bulk of carbonic acid, and therefore unless between two and three grains of sugar to the ounce is present, no accumulation of gas in the top of the tube takes place.

HULL.

EDWARD O. DALY, M.D.(Oxon).

UMBILICAL POCKET.

THE following case from my notebooks of nine years ago may be of interest. A gentleman, aged 34, consulted me for periodical attacks of slight stomach-ache followed by a little discharge from the navel. He had consulted another medical man, who told him he had a slight rupture at the navel. On examination, I found a patent umbilicus leading to a skin pocket containing a yellow mass, which the patient stated had been there for years. The mass was readily detached by a little careful probing, and proved to be composed of felted hairs and sebaceous material. The pocket was about 2 inches in diameter and $\frac{3}{4}$ inch deep, with an opening of $\frac{1}{2}$ inch. No hernia was present. The patient was a man of cleanly habits in other respects, accustomed to take much exercise, and habitually wore a home-made belt of flannel, from which the hairs were derived. He was directed to syringe the pocket regularly with cold water.

Finsbury Circus. F. RUFENACHT WALTERS, M.D., M.R.C.P.

CASE OF DIAPHRAGMATIC HERNIA.

A.R.H. was born on October 9th, 1892; labour was rapid, but there was difficulty in extracting the placenta. The child was a large one and looked puffy and oedematous, though there was no pitting on pressure anywhere. This condition passed off after a day or two, and the only curious feature of the case was the shortness of the breathing, well described by the mother as being "like the breathing of a dog." Fits of intestinal pain were peculiarly distressing to the child. On November 8th, 1892, in the forenoon, he was seized with a suffocating fit from which he rallied, but in another, one hour afterwards, he died.

Necropsy, twenty-one hours after death: On removing the sternum and costal cartilages (without opening the abdomen) the first thing to be seen was a large mass of small intestine which almost filled two-thirds of the right pleural cavity. The right lung was crowded into the apex of this cavity and almost wholly collapsed. On passing the fore-finger into the lower part of the cavity, a large opening was found in the diaphragm through which the finger passed into the abdomen along side the gut. There was no strangulation. If the gut had been removed, two fingers would have passed easily. Several inches of gut were then pulled up through this opening with very little traction. It was evident that the formation of gas in the intestine had forced the gut into the pleural cavity, and so suffocated the child.

Auckland, New Zealand.

T. HOPE LEWIS, M.R.C.S. L.S.A.

A PSYCHOLOGICAL LABORATORY.—A Psychological Laboratory has been established at Yale College, where Professor Ladd has for years lectured on physiological psychology. The new laboratory has been placed under the direction of Dr. E. W. Senplure, a pupil of Wundt. It consists of fifteen rooms, three of which, including an "isolated" room, are given over entirely to research. The isolated room is a small room built inside another room; four springs of rubber and felt are the only points at which it comes in contact with the outer walls. The space between the walls is filled with sawdust as in an ice box. The room is thus proof against sound and light, and is expected to afford an opportunity of making more accurate experiments on certain mental conditions than have yet been attempted.