The plans are here about one thirty-fourth natural size, the smaller details on a somewhat larger scale. Originally the water was allowed to flow continuously from a boiler heated by lamp flame. It has since been found that this is superfluous, and that the water is, in addition, on account of the existence of currents, unequally warmed and renewed. On this account it is the present custom to renew the water but three times daily, and regulate its temperature in the mean time by fresh additions. As the tubs are made to hold a large quantity, 6.75 hektolitres, and are surrounded by a wooden frame covered with cross-pieces and blankets, loss of heat is slight, and the addition of fresh water but little needed. The determination of the temperature is left mostly to the patient's feelings, and these indicate, as a rule, about that of the body. At first, water at about 30° C. feels much too warm, then too cool, and must soon be raised to about 35° or 37° C., which is afterwards adhered to. Patients remain constantly in the bath, and are only raised from it for use of the bed pan or urinal. They can thus pass days, weeks, and even months uninterruptedly, while all their functions and nourishment, as much as the disease makes it possible, go on normally.

The only somewhat disagreeable complication affects the palmar and plantar surfaces, which, similarly to those of washerwomen, shrink, become white and folded, and at times cause frequent and sharp pain. This tends to subside after applying any fatty substance, and will disappear spontaneously in from two to five days. The epidermis of the rest of the body suffers no important changes. In individual cases a papulous eczema occurs on those parts subject to frequent changes from wet to dry, principally the arms and sides of the thorax. This sort of water eczema heals without treatment.

The danger of drowning, although appearing at first thought to be considerable, is slight, and in spite of the frequent use of the beds, such an occurrence has never been known. Strong and self-dependent patients awake the moment their mouths touch the water. Weak or disabled ones may be kept from sliding down by a folded cloth passed under their shoulders and arms. In private practice an ordinary or portable bath tub may be used.

Instead of using, as is the present custom, the ordinary hair mattress, it would be much more cleanly and antiseptic to use a rubber-covered mattress attached to the frame.

THE TREATMENT OF FRACTURES OF THE EXTERNAL CONDYLE OF THE HUMERUS.¹

BY GEORGE W. GAY, M.D.
Visiting Surgeon, Boston City Hospital.

FRACTURE of the external condyle of the humerus, extending more or less deeply into the elbow-joint is often difficult to treat in such a manner as to prevent deformity and impaired motion. Dislocation of the head of the radius forwards causing it to impinge upon the shaft of the humerus in flexion of the forearm is a common occurrence, and unless corrected, flexion can never be made beyond a right angle, and seldom quite to it. Another complication not infrequently met with in this injury is dislocation of the radius and ulna

¹ Read at the meeting of the Surgical Section of the Suffolk District Medical Society, March 7, 1888.

backwards and outwards, thereby preventing flexion beyond a very slight degree.

To prevent the forward displacement of the radius I have made use in several instances of the ordinary internal angular splint set at an acute angle. One case, that of a child, was treated without any splint by reducing the dislocation, and placing the forearm at an acute angle and securing it in position by adhesive straps and bandages. The result was satisfactory, but I do not recommend the method for general use, as pain and other mischief might readily follow the treatment, unless great care was taken to avoid it. It is impossible for anterior displacement to take place with the arm put up at a moderately acute angle, as there is no room for the head of the radius to slip on to the anterior surface of the humerus. The angle need only be acute enough to preclude the possibility of a forward displacement of the radius.

The lateral dislocation of the radius and ulna can be controlled very satisfactorily by means of lateral angular splints, one on either side of the arm. These splints, together with the anterior, or as it is usually called, the internal angular splint, applied to an arm, afford a very complete support to the elbow-joint. The bones are held firmly in position, the joint is well supported and with the arm in a well-fitting sling the patient is usually as comfortable as can be expected.

I have never treated this class of injuries to the elbow in a straight position, and cannot see any advantages to be derived from the method. Should any ankylosis result from the injury it is far better that the forearm should be at or near a right angle, as this position enables the patient to do very much more than any other in the way of dressing, eating, etc.

The broken arm is examined every three or four days. Gentle passive motion is used after ten days, and it is varied in degree according to the indication. Care is taken not to light up a fresh inflammation by this measure, as more is lost than gained by so doing. The joint often improves in mobility for a year or more, hence a too hasty opinion should not be given in these cases.

In conclusion, I would urge upon the younger members of the Society the importance of making the first examination and dressing with the patient under ether. A more careful diagnosis can thus be made and a better position can be secured for the broken bones. Guard against an anterior dislocation of the head of the radius with the fragment of the external condyle, and also of a backward or lateral displacement of both bones of the forearm. The arm once placed at an acute angle, and properly secured in that position, it is hardly possible for either of these complications to occur.

TUBERCULOSIS OF THE PERITONEUM; EVACUATION OF ASCITES BY LAPAROTOMY; CURE.¹

BY J. W. ELLIOT, M.D.

THE patient was a delicate-looking girl of fourteen years, with red hair. Her mother brought her to me on account of an enlargement of the abdomen. This enlargement had been noticed about a year previous, and had steadily increased. The child had lost health and strength, but complained of nothing else.

¹ Read at the meeting of the Surgical Section of the Suffolk District Medical Society, March 7, 1888.

I found the abdomen greatly distended. The enlargement was uniform. Fluctuation was evident, and hard masses were to be felt at various points. On percussion, the left flank was dull, while the right was tympanitic: there was dulness over the whole of the rest of the abdomen. The percussion note did not change on change of position.

There was a chronic vaginitis. The uterus was small and in normal position. Douglas's fossa was not bulging into the vagina. There was an anæmic heart-murmur and amenorrhœa for three months. I made the probable diagnosis of ascites due to tuberculosis of the peritoneum, and for further evidence drew off some fluid, which was sent to Dr. Gannett for chemical and microscopic examination. He reported that the fluid was undoubtedly ascitic, and suggested tuberculosis of the peritoneum, although he had failed to find the tubercle-bacillus. I advised laparotomy, with evacuation of the fluid, in the hope of curing the disease. A month later the abdomen was larger, and both loins were found tympanitic, while the rest of the abdomen was dull on percussion, and change in position did not change the percussion note. This evidence caused some of the gentlemen who saw the case with me to consider it a thin-walled ovarian cyst.

On December 12, 1887, I opened the abdomen and evacuated two pails full of ascitic fluid. The peritoneum was thickened and adherent to the subperitoneal fat. The omentum, intestines, and all the organs were studded with small, hard, grayish-white lumps, which felt like shot (tubercles). The intestines were drawn up by the diseased mesentery and held in the upper abdomen, so that they did not present at the opening, nor did they fall into the pelvis after the fluid was evacuated, but air was sucked in to fill the vacuum.

The omentum was rolled up and contracted into a long mass of tissue of the size and shape of a large sausage. The ovaries and tubes were not enlarged, but were studded like the rest of the organs with tubercles. A small amount of bloody fluid was left in the pelvis, as it seemed to form about as fast as it could be sponged out.

The abdomen was closed without drainage. The operation lasted twenty minutes. Recovery was uninterrupted, the wound healing by first intention. The patient went home at the end of three weeks.

Dr. R. H. Fitz, who was present at the operation, kindly examined a bit of the peritoneum microscopically, and reported that the case was peritoneal tuberculosis. Dr. Sears found a tubercle-bacillus in one of the sections of the hardened fragments.

Four months after the operation the patient was examined at my office. She had grown fat and rosy, and said that she was perfectly well. The abdomen was flat and soft, all the hard masses having disappeared. There was no ascitic fluid present. In short, the patient seemed to be cured.²

In looking over the reported cases of laparotomy for tuberculosis of the peritoneum, I find that almost all the operations have been done either as exploratory operations or from a mistake in diagnosis. It is only within the last year or so that the operation has been deliberately undertaken for the purpose of curing the disease. Dr. Cabot's second case and this case of mine are among the first reported where, the diagnosis being made, the operation followed for the

purpose of cure, and cure resulted. This, it seems to me, is an important step forward in abdominal surgery.

So far as I am able to learn, this disease appears clinically in three forms: In the first form there is a hard, circumscribed mass of tubercular tissue at one or more points in the peritoneal cavity, *without any ascitic fluid*. There is one such case reported, where a semi-solid mass was felt in the region of the ilio-cæcal valve, which was supposed to be malignant disease, but, on opening the abdominal cavity, the cæcum and vermiform appendix were found rolled up in a hard mass, and studded with tubercles. This patient recovered entirely, although this form of disease is not usually improved by the operation.

In the second form there is an encapsuled ascites usually just above the pelvis, and the diagnosis is difficult. Like other varieties of encapsuled peritonitis, there is a tumor, evidently fluctuating, but without a definite outline, with only a vague sense of limitation.

In the third form there is free ascitic fluid, with occasional hard masses to be felt.

Out of twenty-nine cases collected by Fehling,³ twenty-one were encapsuled ascites. Of these, fifteen were cured (eight over one year previous), six died. In five cases there was free ascitic fluid; of these, two were cured and two improved. He also found that out of forty cases collected, only two were men. He reasoned from this that, considering the frequency of genital tuberculosis in men, one would expect at least an equal frequency of peritoneal tuberculosis in men and women; therefore, he thought that peritoneal tuberculosis was probably secondary to tuberculosis of the Fallopian tubes in women, although it often seemed to be primary.

Some cases have recovered spontaneously; some have died of phthisis very soon after the operation.

Why recovery takes place after the operation is still a mystery. Ahlfeld⁴ reports a case of what appeared to be tubercular nodules on the peritoneum, where the patient died one and one-half years later of cancer of the uterus: at the autopsy the tubercles had disappeared, and only adhesions were found in their place.

We need more reported cases to be able to judge what proportion will be ultimately cured, but the immediate relief alone is sufficient to indicate the operation.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.

G. H. MONKS, M.D., SECRETARY.

MEETING, March 7th, 1888. In the absence of the chairman of the Section, Dr. J. J. MINOT was, on motion, chosen to preside.

Dr. O. K. NEWELL read a paper on

THE SURGICAL USE OF HEBRA'S CONTINUAL BATH OR WATER-BED.¹

Dr. D. W. CHEEVER said: I am very much interested in this subject. I remember a good many years ago, hearing that the late Dr. Hamilton, of New

¹ See page 491 of the Journal.

² Centb. f. Gynæcol., No. 45, 1887.

⁴ Centb. f. Gynæcol., No. 48, 1887.

³ Five months after the operation the patient remains perfectly well.