very slightly depressing action on the patient. The vomiting once and for all completely ceased. The temperature was normal next morning, and only once again, on the third day and for a few hours, rose to 101° . On the second day (December 21st) there was a suspicion of the passage of flatus; on December 22nd, a certainty of it; on December 24th, the tongue became moist, and the bowels were opened at 3 P.M. and 4 P.M. The first motion, about 4 ounces, was similar to the vomit, the second consisted of mucus. Shortly following the evacuation there were sharp abdominal pains, and the tongue became a little dry. From this time on the bowels were frequently opened, and the patient rapidly got well.

There are a few points of interest to which I would wish to allude. 1. The operation was performed on the twelfth day of obstruction and during considerable abdominal distension. I have often expressed an opinion that it is useless and dangerous to hunt for obstruction while peritonitis and distended gut are present, and that the indications are best met by a carefully performed enterostomy; opening of course a distended coil. The empty condition of the cæcum, however, together with the collapsed small intestine, pointed to obstruction high up—a condition ill-suited for enterostomy. Again, although the obstruction was high up, faecal vomiting did not appear for eight days, and this suggested that probably the obstruction, very incomplete at first, became more complete by distension from above, and that had care been exercised early the symptoms might have continued, as they had begun, to abate.

This opinion is fortified by the fact that the pain she complained of during exercise and hurry was over the neighbourhood of the band, and that probably her frequent so-called bilious attacks emanated from the same source. Amongst the causes which deprive an early obstruction of a fair chance, next to cathartics, should be placed enemata, which, as Niemeyer pointed out years ago, induce peristalsis above as well as below the seat of obstruction.

There was another symptom in this case which interested me, and that was the sharp abdominal pain which followed shortly after the anal evacuation. I have frequently observed this before. In one case, which was being treated expectantly, the patient died on the twentieth day, four hours after the relief of obstruction, having endured sharp abdominal twinges. In another case after the relief of a very simple hernia, an evacuation of bowel took place, followed by collapse and death.

FORMIC ALDEHYDE AS A RAPID HARDENING REAGENT FOR ANIMAL TISSUES.

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In the busy life of the present day the saving of time in all parts of medical work is of the utmost importance, and this is especially so in regard to microscopic pathology. Too often a portion of tissue, removed either for diagnosis or in the way of treatment, is never thoroughly examined on account of the inordinate length of time which the processes of hardening, cutting, staining, and mounting will require. Fresh sections of tissues are difficult to prepare, and often decidedly unsatisfactory. Of the various fluids in use for hardening animal tissues before section, two are commonly employed—namely, alcohol and chromic acid. Absolute alcohol hardens most tissues in some four or five days, but has the great disadvantage of being apt to render them brittle, or to harden them very unequally. Methylated spirit will take a fortnight or more to produce a satisfactory result. Chromic acid is generally used as potassium bichromate in solution, with some sodium sulphate in the well known Müller's fluid. Wherever the sulphate penetrates—and it has great power in this direction—the chromic salt will follow, and harden the tissue extremely well; but the process requires an inconvenient length of time—in fact, often as long as six weeks, and with many renewals of the reagents. Pure chromic acid, or chromic acid with spirit, hardens in about a week, but again is liable to make the tissue brittle. Perchloride of mercury interferes much with staining, though it hardens rapidly. Thus any reagent

which tends to shorten this period of time, and yet produce satisfactory results, is to be welcomed.

Experimenting in some other ways with formic aldehyde, I was much struck by its extremely powerful and rapid hardening effect. I therefore determined to test its action upon tissues, especially very soft varieties of normal and pathological structures, just indeed those most difficult to prepare for section. Normal cerebellum, testis, lung, thymus gland, and ciliated epithelium of the trachea all hardened well in three days when immersed in a 20 per cent. solution of the aldehyde, though for the testis and lung a 40 per cent. strength is the better. None of the tissues became brittle, but all were easily cut after soaking in gum with an ether-freezing microtome, and all stained well with logwood, and some with logwood and eosine. None of the cells of the various specimens were altered in shape or character.

Of pathological tissues, a very soft round-celled sarcoma from the head, an adenoma of the thyroid gland, and some emphysematous lung were treated with a 40 per cent. solution, and all were sufficiently firm in forty-eight hours for cutting; and again all the sections took the ordinary stains well. The lung tissue was, however, somewhat brittle. Compact growths, such as scirrhus or renal tissue, require only a 10 per cent. solution for twenty-four hours.

I am thus led to think formic aldehyde in 40 per cent. solution for very soft tissues, in 20 per cent. for firmer, and 10 per cent. for quite firm material, acts as a most rapid and satisfactory hardening reagent. It does not render any tissue brittle in the way spirit does, and in no way prevents a stain acting well on the sections. It is therefore a useful adjunct in pathological and histological work.

A CASE OF HYDATIDS OF FEMUR IN THE SITE OF FRACTURE:

WITH REMARKS ON THE METHOD OF AMPUTATION THROUGH THE HIP-JOINT.

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Previous History.—A. B., a Pathan, male, aged 25, was admitted to the Mission Hospital, Quetta, in March, 1893, suffering from a fracture of the shaft of the right femur at the junction of the upper with the middle thirds of the bone. The history he gave was that a year before his admission to hospital he was knocked down by a horse, and had his right thigh fractured. He was laid up with this for six months, but after this time was able to get about again. Four months before coming to hospital the thigh fractured spontaneously at the same place, and a swelling began to form at the site of fracture.

Condition on Admission.—The patient was very emaciated and weak, the very slightest movement causing him severe agony. A round fluctuating tumour separated the ends of the fractured bone. The hypodermic syringe gave only negative evidence. The patient was suffering from hectic, and could only take fluid nourishment.

Exploratory Operation.—Two days after admission a small incision was made into the tumour, which revealed the presence of hydatids, and by slightly increasing this a large number of daughter cysts were evacuated. On further examination of the fractured ends it was found that the whole shaft of the femur was involved by these organisms, and it was proved beyond all doubt that the only thing that could save the patient would be amputation through the hip-joint. Although this operation was so slight, yet owing to the weak condition of the patient he nearly died on the table. After six weeks' careful nursing and feeding, I thought that the condition of the patient had so far improved that amputation might be performed without serious risk. However, the next day he was not so well, and I concluded that death on the table could only follow.

Amputation through the Hip-joint.—A few days after this I undertook to operate at the patient's earnest request, adopting the following precautions, which I think will be of interest to many. The use of skewers in amputation through the hip-

joint has been already practised by Dr. Myles, of Dublin, Dr. Wyeth, and others; but as my method of using them differs from theirs, and gave me every satisfaction, I think I do well in describing it. The wound which had been made for exploring the ends of the fractured bone had never closed, and though it had never suppurated, a continual discharge of daughter cysts took place through it. This wound was thoroughly washed out and dusted with iodoform; the patient was then put under ether instead of chloroform, a catheter was placed in the rectum connected by a tubing with a vessel containing warm 1 per cent. salt solution, and the whole body was well covered with blankets. The limb to be amputated was then raised by an assistant and the first skewer inserted. The point of the skewer was entered 1 inch behind and below the anterior superior spine of the ilium, crossing in front of the shaft of the femur nearly parallel to Poupart's ligament, and coming out 2 inches in front of the tuberosity of the ischium. A second was entered just above and behind the great trochanter, coming out at the same point. By manipulating the limb no difficulty was experienced in doing this. Two pieces of elastic tubing were then twisted in figure-of-eight form over each of these skewers. A modified circular amputation was then performed, the skewers preventing all hæmorrhage. The circular cut was so made as to leave ample room for a good anterior skin flap and a posterior combined flap of about one-half its size. The vessels of the anterior flap were first dealt with and then those of the posterior. The outer end of the incision was then prolonged over the joint and the head of the bone removed. No difficulty was experienced during the operation; there was no bleeding to speak of, and the condition of the patient was excellent.

Result.—Though this patient died suddenly the next day, I do not think that his death was directly due to the operation, but to its having been performed too late. It was done as a last resource at his earnest request.

Remarks.—1. The pulse improved during the operation, and kept good up till just before his death. I put this down to the use of ether in the first place, but am led to believe that it was much more due to the constant use of the saline solution during the course of the operation.

2. The disease involved the whole length of the bone, but not the acetabulum nor pelvis. No thorough *post-mortem* examination was allowed.

3. It seems to me that in this case the first fracture was an ordinary one, and that the second was caused by the hydatids making a choice of the inflamed fracture area for development.

4. During the operation three pints of the saline solution were injected into the rectum, showing the large amount which can be absorbed. This fluid was all retained.

SARCOMA GROWING AT THE SEAT OF A RECENT FRACTURE.

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C. T., aged 21, a wood turner, whilst skating on January 19th, 1891, fell upon the ice, and twisted his leg under him. He was taken to the infirmary, where it was found that he had sustained a simple fracture of the left thigh at the junction of the middle and lower thirds. He remained in the infirmary for five weeks; the limb was then put up in plaster-of-Paris, and the patient sent home. At the end of a fortnight he returned to the infirmary, where the plaster case was removed, and a linen bandage put on, the fracture apparently having done well. Three weeks after this—ten weeks after the accident—a swelling was first observed where the bone had been fractured. This rapidly increased in size. The patient was readmitted into the infirmary, but, declining to undergo operation, he was discharged at the end of a week.

I saw the patient in consultation on June 7th, 1891. He was then pale and emaciated, his face showing evidence of considerable suffering. The left thigh was enormously enlarged, the skin tightly stretched, the superficial veins coursing in the form of broad dark bands, and the whole surface intersected with silvery streaks; the leg and foot very

markedly oedematous. The circumference of the thigh just above the knee was 19½ inches, in the thickest part 20½. The length of the tumour was 13 inches. On July 21st the circumference was 25¼ inches in the thickest part, and the length of the tumour 15½ inches. On September 28th the circumference was 28 inches, and the length about the same as before.

The patient gradually became thinner and weaker, and he died on September 28th, having persistently refused any operative interference. Very considerable difficulty was experienced in keeping the skin of the under surface of the thigh from sloughing on account of the patient's reluctance to be moved. About fourteen days before death a large sloughy ulcer developed in this situation, and a considerable area of skin became dark coloured and boggy. There was no history of a swelling or pain prior to the accident, nor of any family predisposition to malignant disease.

The *post-mortem* examination was made on September 29th. On removing the skin the deep fascia was found tightly stretched over the tumour. The muscles around the tumour were converted into broad, very pale, and ribbon-like structures. The growth was surrounded by a thin fibrous sheath. On section it presented a pinkish-grey appearance. In some places there were masses of firm white fibrous tissue, especially marked along the outer border of the tumour. The whole of the growth was traversed by bands of fibrous tissue. The shaft of the femur had disappeared, except for two small pieces of necrosed bone about an inch in length, forming the anterior wall at the lower end, and a piece about 4 inches long and 1 inch in width at the upper end. The upper articular end and the great trochanter were redder than normal, but otherwise not affected. It appeared probable to me, from the appearance of the upper end, that the growth had started in the periosteum. At the lower end the cartilages covering the condyles of the femur and the semi-lunar cartilages of the knee-joint were untouched. The growth had extended downwards into the cancellous tissue of the condyles, into the suprapatellar pouch, and had eroded the upper part of the cartilage of the patella. Small cysts were scattered here and there, and also extravasations of blood. To the touch the growth was in parts firm and unresisting; in others it was elastic. The femoral artery was compressed by the growth. The tumour weighed nearly 25 lbs. On microscopic examination it was found to be a small spindle-celled sarcoma.

The condition appears to be a very rare one, if we may judge by the very small number of recorded cases. Fracture of bones in which central sarcomata are growing is not rare. In this case there was no evidence to suggest the presence of a growth at the time of the accident.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

SEQUEL OF A CASE OF GENERAL PARALYSIS OF THE INSANE AT PUBERTY.

IN the BRITISH MEDICAL JOURNAL of November 18th, 1893, I was permitted, by Dr. Wade, to publish a case of General Paralysis of the Insane at the time of Puberty, which was then in the Somerset Bath County Asylum. At that time the patient was alive, and I had every reason to believe that, in the event of death, no *post-mortem* examination would be allowed. Since then the boy, B. L. P., has died, and a *post-mortem* examination was permitted. As the case is incomplete without an account of it, I hasten to give the particulars, which fully confirm the diagnosis made during life.

Examination 72 hours after Death.—Temperature 32° F.; body much emaciated, and limbs contracted. Calvaria comparatively dense; no sign of old or recent injury to head could be detected; membranes thickened and slightly milky, very adherent to brain substance, and striped removing considerable portions of it; no tubercle. Ventricles dilated, and contained excess of fluid, but their floors were quite smooth; no sign of any gross lesion; weight of brain 40 ounces. With the exception of one or two small nodules