infection of tinned food with *B. botulinus*. Moreover, certainly one of my patients has disclaimed ever having taken tinned food at all; and its relative infrequency among soldiers from abroad who have lived very largely on tinned food is significant.

Prognosis and Treatment.

It remains now to speak of the prognosis and treatment. In the majority of cases recovery occurs, though there is more likelihood of a fatal termination in those cases of the *superior* type; even here, however, recovery may quite unexpectedly take place. But what is of importance is that we are able to hold out to the patient's friends the possibility of recovery from a condition which, but for our knowledge of its nature, we should otherwise regard either as absolutely fatal or as the commencement of a chronic incurable disease, since different cases may simulate cerebral tumour, tuberculous meningitis, or the onset of disseminate sclerosis. The recovery from paralysis may be incomplete, as in poliomyelitis; it is too soon to speak for certain of this in the present epidemic, but some, at any rate, have made a full recovery.

Treatment seems to have little influence on the course of the disease, but, as in poliomyelitis, we should resort to complete and absolute rest in the dark, with or without the use of bromides or other nerve sedatives, during the stage of onset. Urotropin has been given, from a belief in its antiseptic effect on the central nervous system, and salol for a similar action on the nasopharynx, by which route infection is supposed to reach the brain. Lumbar puncture should be performed and, if necessary, repeated in cases which show the more marked signs of intracranial pressure, such as severe pain in the head, vomiting, and unconsciousness. Later, tonic treatment, such as iron, arsenic, strychnine, and cod-liver oil, with fresh air, are likeliest to restore the vitality of the damaged nerve centres.

REFERENCES.

¹ *Ophthalmoscope*, 1911. ² *Zeit. f. Hyg. u. Infektionskr.*, 1897, vol. xxvi, p. 1.

THE "THICK DROP" METHOD FOR THE DETECTION OF SCANTY SPIROCHAETES IN THE BLOOD.

BY

H. M. WOODCOCK, D.Sc.LOND.,

(ATTACHED R.A.M.C.)

(From the Military Laboratory, Jaffa, E.E.F.)

In the majority of cases of Palestine relapsing fever (among British troops) which have come under my notice the spirochaetes have been throughout present in the blood in very scanty numbers. This has entailed a prolonged search before the diagnosis could be established; frequently a negative finding has had to be returned, as films cannot be carefully scrutinized in their entirety when a large number have to be examined. On several occasions the spirochaetes have first been demonstrated, after considerable search, at the second or even third time of examination of the particular case.

I have therefore made use of the "thick drop" method, which has proved of much service, not only saving time, but also frequently enabling me to report as relapsing fever, cases in which the examination of an ordinary blood film yielded no result.

To prepare a thick drop for examination, a small drop of blood is placed upon a clean slide. The drop should be about as large as is required for making a good-sized smear and should be spread out a little (with the needle) so as to cover an area about $\frac{3}{8}$ in. in diameter. Too thick a drop is not an advantage, as it is difficult to lake (dehaemoglobinize) completely, and more fibrin is present. The drop must be allowed to dry thoroughly, and before proceeding to lake it, may be gently heated by passing it over a flame two or three times.

There are several well-known methods of laking the thick drop. I have made use of two: (a) Distilled water, or (b) acidulated methyl alcohol.

(a) A few drops of distilled water are poured upon the thick drop, and the slide is gently agitated to and fro. The water may be renewed until the blood has completely lost its colour.

The process takes four or five minutes, depending on the thickness of the drop.

(b) Methyl alcohol acidulated is used in the proportion of 10 or 12 drops of HCl to 50 c.cm. of methyl alcohol; the procedure is the same as in the former case, but the laking takes rather longer. After the colour has been extracted, the drop is well rinsed with distilled water and dried.

Dehaemoglobinization is more complete and rapid by the former method, and there is less formation of fibrin. But unless the greatest care is exercised, the drop, or portions of it, are apt to be removed from the slide, in spite of complete drying (as there has been no proper fixation previously). If distilled water is used, and the preparation is to be stained by gentian-violet, it is advisable, after carefully draining off the water when the laking is complete, to pour on a few drops of methyl alcohol, for a minute or two, to fix the preparation to the slide.

The thick drop may be stained by the Giemsa or Leishman method, or with aniline gentian-violet; the last gives excellent results with spirochaetes, the intensely blue-stained parasites standing out well from the surrounding elements. Aniline gentian-violet is used in the proportion of 9 parts of aniline water to 1 part of alcoholic gentian-violet, the stain being left on for twenty seconds or so. The preparation is then well washed with distilled water, by which means the requisite degree of extraction and differentiation can be obtained, and finally dried.

Where examination is desired for suspected malaria or relapsing fever, it is a useful plan to have the slide sent in with both a fair-sized film (extending, say, over two-thirds of the slide) and a thick drop (on the other third) upon it. For staining, the smear can be separated from the drop by drawing a line with a grease pencil across the slide, between the two. The smear is stained by the Giemsa or Leishman method, and if no malarial parasites are found, nor spirochaetes quickly seen, the thick drop is used. If it is desired to examine the drop also for scarce malarial parasites (for example, crescents) as well as spirochaetes, the second method of laking is to be preferred, as distilled water is very liable to disintegrate malarial parasites; and in this case the Giemsa or Leishman method must be used for staining.

INTERNAL DERANGEMENTS OF THE KNEE-JOINT.

BY

H. BRAMWELL, T.D., LIEUT.-COLONEL R.A.M.C.,

DIVISIONAL SURGEON, MILITARY HOSPITAL, TIDWORTH.

DURING the past eighteen months several patients have been sent to the Military Hospital, Tidworth, on account of painful cicatrices on the inner side of the joint. In all cases the cicatrices were the result of linear incisions down the inner side of the joint in line with the patella and ligamentum patellae, over the prominent part of the internal condyle. The history was of an operation performed for some internal derangement of the joint. This has been especially noticeable in cavalymen.

Since September, 1916, it has been found advisable to segregate the knee cases, owing to the large number, principally the result of football accidents, but at one time a number of injured knees followed trench training. There has been on an average at least twenty cases in hospital daily suffering from derangements of the knee-joint the result of injury.

They practically all suffered from traumatic synovitis, some simple, the others with complications.

The most frequent complications were:

Firstly: Rupture of some fibres of the internal lateral ligament, indicated by acute pain on pressure over the inner side of the internal condyle.

Secondly: Looseness with partial or complete dislocation of the internal semilunar cartilage, indicated by pain on pressure over the site of the anterior end of the cartilage, inability to completely extend the joint, and a history of "locking."

Thirdly: A general stretching of the ligaments was the only objective symptom, besides the synovial effusion. This applied more especially to the posterior crucial ligament, which is the one ligament of the joint put on the

stretch, both in full extension and full flexion, the latter movement being only checked by the contact of the leg with the thigh.

Fourthly: Loose bodies in the joint, such as chips of cartilage, pedunculated outgrowths, and occasionally pieces of shell.

Treatment.

For simple traumatic synovitis, with marked effusion, probably sometimes haemorrhagic, it has been found that three weeks in hospital is sufficient to enable the patient to be sent as a convalescent for a short period of gentle exercise with massage if necessary. Cases with internal complications have required longer. Out of the total of some 550 to 570 cases which have passed through the hospital during the eighteen months, about twenty-five have been operated on. Only men under 40 years of age, with decided symptoms, and likely to be rendered efficient for A 1 class, have been chosen for operation, and only after careful treatment has failed to improve the condition.

Colonel Jones's method of bloodless operation with tourniquet has been used in every case. The incision has been made down the inner side of the ligamentum patellae, to half an inch below the superior margin of the tibia, then curving inwards to a little beyond the outer margin of the internal lateral ligament. The incision is crescentic. A flap of skin is dissected up and wound cloths applied; with a fresh knife a similar flap of the capsule, but slightly smaller in circumference, is dissected up reaching to the anterior lower margin of the internal lateral ligament. This exposes the terminal branches of the anterior internal articular vessels; these are tied, arteries and veins. The synovial membrane is then divided transversely just above the internal semilunar cartilage. This gives a very full exposure of the joint, the crucial ligaments being fully exposed.

When the offending part has been removed, the synovial membrane is stitched with fine catgut, the capsule drawn down and stitched separately, and finally the skin. By this means three layers of tissue in a valvular manner guard the opening into the joint, and the skin incision is well below the internal condyle of the femur and away from all pressure when riding.

Among the cases operated on, in two cases the internal semilunar cartilage was found completely dislocated and lying between the condyles of the femur. In the majority it was the internal semilunar cartilage which was at fault, but in several only pedunculated outgrowths from the infrapatellar pad, or edges of the cartilage, were the cause of the trouble.

This method of operation has proved satisfactory; only one case gave the least trouble, but eventually recovered completely, and the patients have expressed themselves as thoroughly satisfied. Incisions over the condyle of the femur, in whatever direction, always give rise to annoying symptoms afterwards.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TUBAL ABORTION WITH CYSTIC DEGENERATION OF THE OVARY ON THE SAME SIDE.

Mrs. G., aged 25, a healthy woman (2-para; previous labour normal, two years ago), on the morning of August 12th, 1911, felt sick and out of sorts and suffered from dysuria. Towards evening acute pain in the abdomen set in suddenly and she vomited frequently; there was also a show; she thought she was about eight weeks pregnant, having missed two periods. I saw her about 10 p.m., and found her looking rather pale with a rapid (105) but strong pulse, temperature normal. There was a very slight red vaginal discharge; but, as it had really amounted to little all day, and examination showed no signs of unavoidable abortion, I prescribed opium 2 grains. She soon went to sleep, but woke up about 4 a.m. with violent abdominal pain, intense sickness, and an increase of the vaginal discharge. At 5 a.m. I found her suffering acute pain in the abdomen, principally referred to the umbilicus, and the back. Pulse 120, rather small and compressible, but regular; temperature 99°, and respiration 30. Her expres-

sion was anxious, and she said she felt she was going to die.

Examining under chloroform, I found the uterus slightly enlarged, but not quite of the normal size in an eight weeks' pregnancy. It lay in the natural position, but there was a mass behind and to the left, continuous with it and filling a great part of the left pelvic cavity. Extra-uterine gestation was diagnosed, and the patient was removed to the Cottage Hospital. Meanwhile $\frac{1}{4}$ gr. heroin and $\frac{1}{16}$ gr. trinitrin were given hypodermically. Upon opening the abdomen I found the pelvic cavity full of dark blood clot; when this was removed an ovarian cyst was seen about the size of a large orange on the left side, while the left tube curled round behind it with its fimbriated end underneath the cyst. I could find no rupture in the course of the tube, which was almost normal in appearance, but slightly enlarged; upon freeing it from under the cyst I found the fimbriated end much enlarged and broadened out, coated with congealed blood, and oozing slightly. An ectopic gestation had apparently been lodged in the fimbriae and had aborted into the abdominal cavity, but I think the pressure of the cyst lying on the top of the fimbriae had to a great extent prevented the dangerous haemorrhage usual in such cases; in fact no fresh bleeding could be seen until the fimbriae had been freed, and then only a slight oozing. The tube and the cyst were removed, the peritoneal cavity cleansed, and the patient put back to bed. Except for a vaginal discharge containing some membrane (no complete cast came away), which was probably decidual, and which ceased in a week, the patient made an uninterrupted recovery, and left the hospital one month after the operation. The right ovary was also degenerated and of about the size of a large walnut, but as it had some healthy ovarian tissue, I did not remove it. The woman gave birth to a healthy female child thirteen months later. I searched the blood clot carefully, but could not find the ovum; the cyst showed no signs of torsion, and was easily removed.

I think this case of a tubal abortion and ovarian cyst on the same side must be somewhat rare. The evidence seemed to point to the left ovary having been useless as an organ of generation, so that the ovum in this pregnancy must have come from the right ovary to the left tube; the fact that conception took place in the fimbriae almost proves the peritoneal method of transit. I am also persuaded that the pressure of the cyst hindered what might have been a critical haemorrhage. The patient's menstrual history previous to this had always been normal in quantity, of twenty-eight days' type, and four days' duration, and her urine at the time contained no abnormal constituents.

Penrith. ROBERT B. JOHNSTON, F.R.C.S., M.R.C.P.E.

AVULSION OF THE EYEBALL IN BIRTH.

THE note in the JOURNAL of April 6th, p. 415, recalls a case to which I was called by a midwife on April 1st, 1904. The woman, aged 33, had an extremely prominent sacrum, rendering the antero-posterior pelvic diameter very small. In the early stage of each of her two previous pregnancies she had suffered from retention of urine from incarceration of the gravid uterus needing manual replacement. The first child, labour at the eighth month, was delivered alive by forceps; the second—a breech presentation—was still-born owing to delay in getting the head past the sacrum. I found that she had been in labour for twenty-four hours; the vertex presented high up with the occiput to the right. Chloroform was administered and forceps applied at once; after very strong traction the child was delivered with the right eyeball lying on the cheek; the inner canthus was torn, the tear extending about one inch across the lower lid along the margin of the orbit, and the superior oblique muscle could be seen torn away from the trochlear. I replaced the eyeball and put three or four fine sutures on the lower lid and canthus; the wound healed by first intention.

There can, I think, be no doubt that the eye was in this case not injured directly by the forceps, which were applied without difficulty, as the marks of their pressure were quite plain on the left temple and right occipital region. The cheek, which was rather prominent, appeared to have been lodged against the prominent sacrum, and the friction in delivery tore through the skin and