The opening is enlarged with scissors along the anterior surface of the sac, avoiding blood vessels. The testicle is drawn through the ample hole and the tunica everted like a cuff. The assistant holds up the testicle while the operator, introducing forceps or fingers into the scrotal wound, eases it out so as to form a roomy bed in which the testicle may lie when it is returned, without tension on the sac. Two pairs of Lane's forceps are now used on either side, one to embrace the cord (c), the other the gubernaculum (g), or rather what remains of it, which

FIG. 1.—Eversion of sac.
T, testicle; E, epididymis;
C, cord; G, gubernaculum
remains; M, mattress suture.

is very little. The two forceps are held apart, displaying a web of tissue between them partly covered by the everted sac (Fig. 1). To this web the sac is secured by a through-and-through mattress stitch of catgut, or an opening is made in it with pointed forceps and the edges of the sac are approximated and secured through the rent with a single mattress suture. If the sac is very redundant an additional pleating stitch may be applied to it on the outer side of the cord, as is done in the usual operation. The testicle is now

replaced and the scrotal wound closed with an intradermal or a running mattress stitch, which, better than any other, obviates the tendency to incurvation of the edges. A scrotal suspender secures a gauze dressing in place.

The whole operation is very quickly performed. The points I would recommend as safeguards against recurrence are: (1) the making of a new bed for the testicle by easing out the depths of the scrotal wound; (2) the securing the edges of the sac to the web of tissue behind the testicle.

In the operation as it is usually done the everted sac is merely constricted by a stitch or two beside the cord, and no new cavity is made for the testicle. There is thus a tendency—though not as often as is supposed when the technique is careful—for the sac to retrovert when returned. Most recurrences, I feel sure, occur at the time of replacement, or very shortly afterwards, for “the endothelial surface of the serous sac faces the scrotal fibrous and cellular tissues to which it becomes adherent in a short time” (Jacobson).

FIG. 2.—Jaboulay's operation.

Jaboulay in his original operation released the testicle by ligating and dividing the gubernaculum testis, and then folded the two sides of the divided sac behind the testicle and fixed them there with a few sutures (Fig. 2), one of which included the superficial tissues of the cord (Binnie); or he even cut away, in addition, part of the redundant sac before stitching them together behind the testicle (Thomson-Walker). No recurrence can follow such a procedure, but I think that in the usual class

of case it involves unnecessary interference with structure, though when the sac is thick and eversion difficult it is best to open it up, and then to peel off the parietal tunica from the thickened adventitious coverings, and thus, having released the testicle, to evert round it and the cord the now membranous tunica, as in the Jaboulay operation. In Wyllys Andrews's “bottle” operation a small opening is made in the upper pole of the sac and the testicle is displaced through this and the sac inverted and drawn up the cord—a procedure which gives no absolute safeguard against recurrence.

Eversion of the sac is, generally speaking, contraindicated when the sac is very much thickened and calcified, for the main reason that it does not then reduce the size of the tumour to any extent; but in these cases, and even in the leathery sacs of infected haematocoeles (and incidentally in pyocoeles), I have often saved testicles that might otherwise have been sacrificed by everting the sacs, swabbing out their roughened inner surfaces with zinc chloride

solution, packing them with iodoform gauze and leaving the wound partially open, and instituting in a day or two Carrel-Dakin drip until the cavity gradually obliterated itself. It is remarkable what a degree of pliancy and shrinkage the sac eventually attains.

A METHOD OF MAKING A BLOOD FILM.

BY

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THE following method of making blood films is one of several tried in an attempt to get a more even distribution of the red and white blood cells. In an ordinary blood smear most of the leucocytes are found at the margins of the film, but the method about to be described leaves the majority of these cells in the centre of the film. This may be a step in obtaining the result originally aimed at—namely, even distribution of cells in a film.

A piece of glass about the size of a half-plate negative (*a* in the accompanying diagram) is cleaned, and on one side white paper is gummed so that the quality of the film can be more readily observed in preparation; *b* and *b* are each two glass slides stuck together with Canada balsam and mounted two inches apart on *a*; *c* is a single glass slide mounted in the position shown.

A drop of blood is taken on the end of a slide and placed between *b* and *b*, and a second slide is made to rest on *b* and *b* at right angles to the first, so that there is the thickness of a slide separating the glass surfaces between which the drop of blood lies. Contact of blood between upper and lower slides is made by raising the latter,

which is then allowed to fall back on the stage. The upper slide is now passed over the lower, the drop of blood following and leaving a very thin film behind, the time taken to traverse the slide being about thirty seconds. The margins of such a film consist mostly of red blood cells, while in the central zone numerous white blood cells and blood platelets are deposited. This arrangement is so striking that after using Leishman's stain the bluish tint of the central zone, due to the basophil elements of the blood, can be seen by the naked eye; the margins are stained pink. Under the microscope the numerous white blood cells and blood platelets in the central zone immediately arrest attention, and in some specimens there will be fields where not a single red blood cell is to be seen. The number of white blood cells in a given field varies considerably, but fifteen to thirty cells are quite commonly observed, and I have counted over sixty.

Differential counts are rapidly made, but since occasionally the white blood cells in a field are very numerous confusion is likely to arise at first in counting; after a little practice large numbers can be dealt with, or the difficulty may be met by using a higher magnification.

The results of such “drop smear” preparations compared with ordinary blood films may be enumerated as follows:

1. In drop smears most of the white blood cells are found in the centre of the film, while in ordinary films they gather at the margins.

2. There is a tendency for the various white cells to occur in groups—for example, numbers of polymorphonuclears are found together, and so with the other kinds of cells.

3. In comparing differential counts I find almost invariably an increase of about 8 or 10 per cent. polymorphonuclears and 4 per cent. eosinophils over the counts made with films prepared in the ordinary way. This is possibly explained in the next paragraph.

4. In an ordinary blood film basophil masses are sometimes observed. These I take to be detritus from ruptured cells,

and many more such masses must be carried to the end of the film in preparation. Ruptured eosinophil cells also are sometimes seen, and are very obvious, provided that the granules of the cells have not been scattered too far apart. It appears that the eosinophil is very easily ruptured, and the polymorphonuclear comes next in this respect. In a drop smear evidence of ruptured cells is seldom observed, and, considering that the film is made by passing a drop of blood over the slide, it is not likely that cells will suffer mechanical injury.

5. In drop smears the cells of the central zone are well separated one from another, they suffer little if any distortion, and they take the stain well. Red blood cells can be studied at the margins of the film, but it is in conditions where information regarding the white blood cells is required that the above method would appear most useful.

The question of the comparative accuracy of differential counts in the two methods is rather complicated. For instance, in comparing counts of 100 cells from a blood film made in the ordinary way it is not uncommon to find a difference of 10 per cent. in the polymorphonuclears, and the final result after counting 300 or 500 can only be an approximation. For the present I am not prepared to make any statement regarding the comparative accuracy of the two methods.

The following advantages of examination of pathological fluids by the drop smear method are worth noting: the films are thin and evenly spread; the results are far better than those obtained by using the end of a slide or the platinum loop; the cells suffer no damage; casts are often spread out in a beautiful fashion, and, owing to the thinness of the film, micro-organisms are readily recognized. There is no difficulty in making the films, and others may be able to devise further useful modifications of the method.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

OEDEMA OF THE UPPER EYELIDS.

APPARENTLY trivial symptoms and signs may frequently be indications of serious disease, and, conversely, the opposite occasionally holds good—grave signs and symptoms resulting from comparatively simple conditions.

Oedema of the upper eyelids is a particularly instructive example of the latter, and requires especial wariness on the part of the practitioner.

A robust schoolboy is seen, presenting an alarming oedema of one or both upper eyelids and a raised temperature. The swollen area is so tender and so suggestive that an exploratory operation is undertaken for supposed acute frontal sinusitis, but no disease is discovered. Despite operation the oedema persists, until the actual cause of the condition becomes self-evident by the staining of the patient's dressings or pillow, which indicates a septic wound or abrasion on some part of the scalp, originally sustained some days previously and completely overlooked. Antiseptic fomentations produce rapid resolution of the oedema, which operation had failed to relieve.

I have seen two cases of this type, both in young schoolboys. One case followed the course just depicted, while the other rapidly resolved after less drastic treatment. Curiously, in both cases the wound was found in the occipital region of the scalp.

The swelling of the upper eyelid is no doubt due to the spread of infection along the lymphatic network in the subcutaneous tissue of the scalp, which is continuous with that in the loose areolar tissue of the lid. The condition, I believe, is well known to ophthalmic surgeons, but seems to deserve wider appreciation.

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FOREIGN BODY IN THE BLADDER.

ON observing a case reported under the above heading in a recent number of the JOURNAL (December 17th, 1927, p. 1140), I thought the following somewhat similar case might be worth recording.

An unmarried woman, aged 20, was admitted to hospital on November 8th, 1927, having been diagnosed as a case of ischio-rectal abscess (right-sided) by her own medical attendant. For about a fortnight previous to her admission she had had pain and tenderness in the right buttock. For about six months she had been treated for pyuria, which, in spite of clearing up on the exhibition of hexamine, always recurred when the hexamine was discontinued.

On admission she complained of intense pain on defaecation and of pain in the right buttock. There was an indurated, red area about 1½ inches in diameter over and just external to the ischio-rectal fossa.

On November 11th she was given an anaesthetic and an incision was made into the inflamed area. About a cupful of purulent and necrotic material was evacuated, and then the scoop which was being used impinged on something hard and slightly mobile. On digital examination this was felt to be a spicule of unknown material. A piece about 1 inch long was broken off and turned out to be lead pencil. Slight bleeding from the urethra led to investigation there, and on passing a finger into the bladder—an operation rendered simple by the fact that the urethra was dilated so as to admit a finger easily—it was found to be almost completely filled by a soft, crumbling mass of phosphatic material. This calculus was broken down, and embedded in it was found the remainder of the pencil, which had pierced the posterior wall of the bladder just to the right of the trigone. The pencil was removed, and, with the piece removed via the ischio-rectal fossa, measured 4½ inches in length. The bladder and sinus in the buttock were irrigated very thoroughly with boric lotion, and drainage of the sinus provided for. An uninterrupted recovery was made, the opening in the bladder healing up spontaneously, and the patient was discharged on January 1st, 1928. Micturition was normal, and the urine was normal also.

On being questioned the patient stated that two years previously she dreamt she was going to have a child, and inserted the pencil then with the object of preventing this.

It seems remarkable that the pencil, after penetrating the bladder, should reach the ischio-rectal fossa without doing any damage to the vagina or rectum, alongside both of which it lay.

I am indebted to Mr. C. J. Pinching, O.B.E., for permission to publish this case.

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THREE PERFORATIONS OF THE ILEUM CAUSED BY FISH-BONES.

THE following is an unusual case of general peritonitis resulting from perforations of the ileum due to swallowed fish-bones. The patient, being a staunch devotee to Christian Science, at first refused admission to hospital, then relented; she later refused operation, and finally consented only when *in extremis*.

During the night of April 6th–7th, 1927, an unmarried domestic servant, aged 49, was admitted to hospital with a history of sudden onset of severe abdominal pain, stabbing in character, on April 3rd, necessitating confinement to bed. There was some relief the next day, when she vomited two or three times. The bowels were quite normal. In the early morning of April 5th the pain was much worse, but this passed off, and she was able to perform her domestic duties. In the evening of this day a marked increase of the abdominal pain compelled her to return to bed. She vomited several times during the night, and was unable to retain food or fluids. In spite of all this she did not consult her doctor until the evening of April 6th, when he advised immediate removal to hospital. To this she objected, but when he repeated the advice three hours later she consented.

On admission the abdomen was somewhat distended, there was generalized rigidity, particularly in the lower abdomen, and a diagnosis of general peritonitis was made with no little assurance, but the cause remained obscure. Operation was advised but refused, and for four hours the patient remained adamant, consenting to operation about 3 a.m. on April 7th.

Operation.—The abdomen was opened through a paramedial incision. Free brownish, stinking sero-pus was found in the abdomen, the intestines being generally distended and inflamed; the appendix and pelvic viscera were normal. In the course of searching the pelvis for a cause of the peritonitis a sharp point was felt in the wall of the ileum; this proved to be the point of a fish-bone projecting from the wall of the gut, around which the intestinal contents had escaped. The bone was removed and the perforation sutured. The whole of the gut was then carefully examined and two other similar points were found; the bones were taken out and the wall was repaired. Pelvic drainage was instituted and the abdomen closed.

The patient's condition was extremely poor at the end of operation, but convalescence proceeded without hindrance to complete recovery.

Questioned as to the mode of introduction of these bones, the patient admitted having hurriedly taken a large meal of brill on the night of April 1st, and that she had had difficulty with the large coarse bones. These have been examined by Mr. Henry Crowther, curator of the Leeds City Museum, who states that the specimens are probably brill bones, and draws attention to certain characteristics—namely, the fluting, the elasticity, the hollowness, and finally, the very sharp point.

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