The ileum was divided near to the caecum and an attempt made to resect the diseased caecum. This was found to be impossible owing to the dense adherence to the posterior abdominal wall. A clamp was therefore put on the ileocecal mesentery and both ends of the divided ileum brought out of the wound.

From inspection of the diseased caecum and the surrounding parts it was clear that we were dealing with a case of tuberculous caecum with deep ulceration burrowing into the posterior abdominal wall.

No more bleeding occurred after this, and in a few days the clamp on the ileocecal mesentery was taken off.

In March the proximal end of the ileum was closed. Nothing was done to the distal end which had receded within the sinus. By October, 1929, the patient had gained 2 st. in weight, and looked so different that I did not recognize him when he came to see me. A very small fistula, which occasionally discharged a little faecal material, was still present.

I have seen this patient again this year (1932), and he remains well and able to do his work.

This case furnishes a good example of the surgical truth that the perfect and complete operation is often not the wisest procedure to adopt. An ileostomy was obviously the only thing that could have been done successfully in the first place. It was then necessary to preserve the patient's fluid to himself and to short circuit the obstruction by the ileocolostomy. It would have been out of the question to excise the caecum at this stage. The haemorrhage was so severe as to make interference (after a transfusion) advisable. Resection proved impossible, so rest was brought to the ulcerated part by diverting on to the surface of the abdomen the contents of the ileum which passed the lateral anastomosis. After the tuberculous caecum was given rest in this way natural cure appears to have taken place. Excision of the caecum would have been ideal, but the fact that the patient has kept well for over three years makes it clear that the less radical operation was sufficient.

Though tuberculosis of the ileocecal region is not by any means uncommon, it is very seldom that acute obstruction is caused by this condition. This case must therefore be accounted rather a rare surgical occurrence.

BRACHIAL PLEXUS ANÆSTHESIA FOR OPERATIONS ON THE UPPER LIMB.

An Extract from a Letter from an American Post-Graduate.

"... the first rib, when viewing the supraclavicular region from the side, rises apparently perpendicularly above and behind the clavicle. This is important, as it represents the lowest point to which the properly guided needle can penetrate. The operator does not experience that uncomfortable feeling of inserting the needle to a great depth, without feeling any resistance and not knowing the location of the point of the needle. The first rib crosses the clavicle at about its centre, which is the spot where the most important wheal must be placed. In the median line the arch of the subclavian artery is also recognized, as it extends above the clavicle and above this the
pleural arch makes its appearance, which is otherwise covered by the brachial plexus. Furthermore, the scalenus anticus is recognized on the outer edge of the sterno-cleido-

![Image](http://pmj.bmj.com/)

**Fig. 1.**—Relation of first rib and subclavian artery to the clavicle (Kulenkampff). *a*, Scalenus medius muscle; *b*, apex of lung; *c*, omohyoid muscle; *d*, wheal; *e*, subclavian artery and its branch the transverse colli; *f*, sternocleidomastoid muscle.

![Image](http://pmj.bmj.com/)

**Fig. 2.**—Relation of the brachial plexus to clavicle and subclavian artery (Kulenkampff). *a*, omohyoid muscle; *b*, brachial plexus (partly schematic); *c*, subclavian artery with the transverse colli; *d*, scalenus anticus muscle; *e*, sternocleidomastoid muscle.

mastoid muscle and the obliquely ascending omohyoid is seen to the outer side of the first rib. It is cut off here, in order to show as plainly as possible the direction taken
by the rib. Fig. 2 shows the relative positions as they appear after the removal of the skin, superficial and deep fascia. The transversus colli artery is seen, as it usually passes in the midst of the closely overlapping nerve trunks. Fig. 3 shows how the needle should be introduced in order to reach the first rib. Depending upon the angle at which the cervical vertebrae approach the sternum, a projection of the axis of the needle would strike the second to fourth spinous process of the dorsal vertebra.

On the opposite side the plexus, artery, attachment of the scalenus muscle and the vein are shown particularly with reference to the sickle shape of the cross-section. It also shows how the artery is surrounded by nerve trunks immediately under the clavicle. It can readily be seen that a needle inserted close to the artery must pass between the nerve trunks, and that if it is properly inserted it will, without fail, transmit the pulsation of the artery. The diagram shows the narrow slit of the scalenus muscle somewhat more plainly than figs. 1 and 2.

The technique of the injection is as follows: It is advisable whenever possible to

![Diagram of the bony thorax showing the relation of the plexus and subclavian artery to the clavicle on one side, and the position of the needle on the other.](image)

Fig. 3.—Bony thorax from above (Kulenkampff) showing the relation of the plexus and subclavian artery to the clavicle on one side, and the position of the needle on the other. a, subclavian vein; b, attachment of the scalenus anticus muscle; c, subclavian artery; d, brachial plexus surrounding the artery in a sickle-shaped manner; e, attachment of the scalenus medius muscle.

have the patient in the sitting posture while being anaesthetized (fig. 4). The patient needs no previously administered opiate, but he should certainly be informed of the paraesthesia, which radiates to the plexus, and he should be instructed to state when he feels these sensations. This is the only way to positively determine when the needle has reached the right spot. The next step is to palpate the subclavian artery, which is done by making gentle pressure with the finger. In many cases the pulsation is visible more often to the right than to the left, which may be explained by varying anatomical relations. A wheal is placed directly outward from the spot where the artery disappears behind the edge of the clavicle. The spot almost without exception will correspond to the middle of the clavicle. At this same point, as a rule, a downward prolongation of the external jugular vein, which is usually visible, also crosses the clavicle. Here we insert a fine needle 4 to 6 cm. long, without syringe, in the direction which it should take to strike the spinous process of the second or third dorsal vertebrae (fig. 3). The
plexus lies rather close to and under the fascia. As soon as the needle touches it, radiating paraesthetic sensations are complained of in the fingers supplied by the median nerve which lies superficially, and of the radial nerve which lies deeper and posterior to the median nerve. If at a depth of 1 to 3 cm. the first rib is felt, it indicates that the plexus must lie more superficially. If paraesthesia is not obtained at once, it must be sought by slightly changing the position of the needle. Very often, from an unnecessary anxiety about the subclavian artery, the needle is inserted too far outward. If blood flows from the needle its direction must be changed. As soon as paraesthesia occurs, attach the syringe to the needle and inject 10 c.c. of a 2 per cent. novocain-suprarenin solution. If paraesthesia evidences itself in the region supplied by the median nerve, a part of the solution should be injected a few millimetres deeper. Finally, 10 c.c. more are injected so as to be distributed in the immediate surroundings, the direction of the needle being very slightly changed during this injection.

![Fig. 4.—Plexus anaesthesia. (After Kulenkampff.)](image)

The operator should not make the injection before the paraesthesia occurs. If there is a pronounced paraesthesia of the median as well as of the radial nerve, it indicates that a complete sensory and motor paralysis of the arm will occur after one to three minutes. It is usually necessary to wait ten to fifteen minutes, but if after this length of time the paralysis is not complete, it will be advisable to make another injection of 5 to 10 c.c. of 4 per cent. novocain-suprarenin solution. Paraesthesia will not be felt after this latter injection and results are more or less uncertain.

Very soon after the injection the upper arm can be ligated to arrest haemorrhage without any discomfort to the patient. For this purpose use Perthe's compressor. Ligation is usually necessary, because, after blocking the brachial plexus, the arm becomes more or less hyperemic, as in Haidenhain's experiment. The evident contrary action of suprarenin in not causing contraction of the subclavian artery is similar to the observations made on extremities after section of the nerves.

The number of failures which will result will depend upon the experience of the surgeon. Kulenkampff reports that in 100 cases anæsthetized by eight different surgeons, in four cases it was found impossible to cause paraesthesia, and therefore the
In the article, several medical interventions and their outcomes are discussed. For instance, nerve block injections were ineffective. In nineteen other cases, some areas supplied by certain nerves were not completely blocked, but in most cases, the operations could be performed.

There is always a motor paralysis of the axillary nerve. It is, therefore, rather surprising that the skin which is innervated by the sensory part of the axillary nerve, as is taught in textbooks on anatomy, is never rendered insensitive but is either hypaesthetic or not affected at all. From this observation it is probable that innervation of these parts must take place from other nerves, probably the supraclavicular. The anaesthesia produced will last from one and a half to three hours. In 160 cases Kulenkampff observed no injury at the point of injection and no post-operative pains. It is possible to puncture the subclavian artery during this injection but this accident is absolutely free from danger.

Plexus anaesthesia is indicated in all surgical operations about the arm, whether they be bloodless or bloody, except those which can be more readily treated by local injections. Most of the operations for which we use the plexus anaesthesia are severe injuries to the hand and phlegmons of the hand and forearm. To these may be added all amputations, disarticulations, and resections of the upper extremity and reduction of fractures and dislocations.

A painless disarticulation of the shoulder-joint can be performed after blocking the terminal branches of the supraclavicular and intercostal nerves, by making a circular infiltration with a 0.5 per cent. novocain-suprarenin solution of the subcutaneous connective tissue at the shoulder-base, extending transversely through the axilla and over the shoulder.

Jenkel, Finsterer, Borchers and Siebert, have reported favourable results obtained with Kulenkampff’s plexus anaesthesia. As a result of plexus anaesthesia Borchers observed a motor paresis of the arm which lasted four weeks, but, as the author himself asserts, this was probably due to the fact that the upper arm had been too tightly ligated.

Hirschel considers his injection into the axilla far more reliable than those made in the supraclavicular fossa. He thinks the latter very suitable for shoulder operations or for the reduction of shoulder dislocations, but believes they cannot be relied upon for hand and finger operations—which does not correspond with our experience or that of Borchers.

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**Hospital Appointments.**

The Editors do not accept responsibility for the accuracy of this list which is published to give applicants the general idea of what is required in applying for any of the posts mentioned. These lists will be published in each issue and indicate the appointments for the ensuing three months, but as many of the appointments are renewable, post-graduates are warned that, before applying for any post, they must ascertain if there will definitely be a vacancy on the date mentioned. Except where otherwise stated the salary is pounds per annum.

<table>
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<tr>
<th>Hospital</th>
<th>Period</th>
<th>Date</th>
<th>Resident</th>
<th>Salary</th>
<th>Overseas</th>
<th>Experience</th>
<th>Women</th>
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<td>Dec. 1</td>
<td>No</td>
<td>£200</td>
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<td>Yes</td>
<td>No</td>
<td>Must be qualified and registered. Preference given to London men</td>
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<td>Jan. 1</td>
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<tr>
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<td>Jan. 1</td>
<td>6 months</td>
<td>£110</td>
<td>Yes</td>
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