the level of the exit pipe. D is a wooden barrel painted inside and out with crude oil and well caulked; the overflow pipe passes from B to within 6 inches of the bottom of barrel E.

Both barrels are filled with filtering material as indicated in the diagram. F is the overflow pipe which is led off into a stream.

The size of the barrels must be varied according to the amount of water which has to be dealt with. No scum forms in the barrels owing to the use of chloride of lime. This filter in contradistinction to Plan I is a mechanical filter only, whereas that shown in Plan I is a biological as well as a mechanical filter. It may be stated that the above two kinds of filters have been in use for over six months at one base, as the only methods of sullage water disposal.

The sedimentation pits require cleaning out once a week. The solids removed, consisting for the most part of grease, are disposed of by burning.

In conclusion, it is only fair to state that the whole of the work entailed in the building of these filters has been carried out by Staff-Serjt. T. Eastwood, R.A.M.C., and the non-commissioned officers and men of the sanitary section under my command.

A SIMPLE, RAPID AND ACCURATE METHOD FOR LOCALIZATION OF FOREIGN BODIES SO AS TO INDICATE TO SURGEONS THE POSITION OF THE PATIENTS WHEN SKIAGRAPHED.

BY CAPTAIN H. E. GAMLEN.
Royal Army Medical Corps.

LATELY during the battle periods it has been found impossible to cope with the increased amount of work owing to the difficulty of obtaining plates, and the fact that the routine method of plating incurred
delay. In consequence, it has been decided with few exceptions to screen the cases and where possible to make examinations and report upon the presence and position of foreign bodies, fractures, etc., and forward to the wards at once. By this procedure we have been able to reduce the plating of cases by 40 to 50 per cent., and furnish the surgeons with the diagnosis within a few minutes. The objections to screening and localiz-

![Diagram of localization of foreign bodies](image)

**Fig. 1.—Method for localization of foreign bodies.**

ing at the same time are several. Firstly, there is the danger to the hands of the operator. It is doubtful whether after working several hours daily the gloves give ample protection, especially if the hands of the operator are already sensitized by previous burning.

Secondly, there are parts of the body, such as the neck, axilla, perineum, etc., where the curvature of the body prevents the ordinary
fluorescent screen from being brought into close apposition with the skin surface. When the depth of the foreign body beneath the screen surface is known, allowances have to be made for this separation, and whilst this is being carried out the patient is apt to move his position and the work has to be gone over again.

Finally, the time spent in localizing and the errors which often creep in owing to one not having the patient during the operation in exactly the same position as during the screen examination. I have been able to overcome as a result of various experiments all these objections.

The instruments I use are localizing pressure screens, two, four and six inches in diameter. The smallest will fit into any part of the body, and the last is large enough for any ordinary screen examination. The
instrument in appearance looks very much like a frying-pan. Each has a long steel flat handle from six to eight inches in length, and the pan portion combines three purposes:—

(a) Fluorescent screen.
(b) Localizing apparatus.
(c) Cross wire marker.

(a) The bottom of the pan is made of aluminium, on which rests the fluorescent screen with its protection of glass or celluloid.

(b) Beneath the pan are two cross strips at right angles to each other, the one in line with the handle is of aluminium, the other being of thin steel. Beneath the handle is a thin narrow aluminium movable rod, one end of which terminates half way up the handle in a pointer and finger button for movement of the rod. The other terminates in a small lead shot whose normal point is the centre of the cross-wires.

As this rod moves up and down, it records the depth of the foreign body in centimetres, which is scaled on the handle.

At present we have these instruments scaled for a distance of 52 centimetres and a tube shift of 6 and 10 centimetres. We are always able by the use of air cushions of varying thickness to work at a distance of 52 centimetres from the tubes.

The method of procedure is as follows:—

First expose the part and search for the foreign body, and when found place the limb in the best position for operation purposes. Then cut down the beam of X-ray light until it just covers the screen. The lead shot which is at the normal zero position is made to just overlap some part of the foreign body, and the screen is gently pressed upon the part under examination. One of the diaphragms is moved so as to allow only a narrow slit of light to pass through and then the tube is shifted to its second position. The shot is now made to follow the foreign body until it overlaps again, the traverse of which is indicated on the scale of the handle. On turning up the light, the depth is read off as so many centimetres or inches, and the impression of the rods is left on the skin of the patient in the form of a cross which is at once made permanent by tracing it with moistened copying pencil or nitrate of silver. The round hole with raised edges in the far end of the handle is also used for localizing the direction of the pencil of light in the direct line of the foreign body. The handle is pushed beneath the patient, and when the hole is in alignment with the foreign body it is gently pressed upon the skin, which when examined is found to show the shape of the circle.

Finally this circle is made permanent by copying pencil. In this way, if we think it best to plate the part, we have at hand the best data for doing so, and it is quite easy to overlap the cross wires with those of the plate holder.

These instruments were made by A. E. Dean, London.