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REFERENCES.

SOVIET BLOOD TRANSFUSION INSTITUTES' CONFERENCE.
Moscow, June 3 (Tass).—A conference of doctors from blood transfusion institutes and stations providing field medical establishments with preserved blood has been held in Moscow under the auspices of the People's Commissar for Health Protection, Mitrelev, and outstanding Soviet physicians and biologists, Academicians Burdenko, Spasokukotsky and Stern. Reports read at the conference showed that all the requirements of army establishments for preserved blood have been fully satisfied, thanks to the great numbers of donors. In eleven months there has not been one case of shortage.

It was also stated that Soviet hospitals are effectively applying blood substitutes evolved by Soviet scientists—a preparation obtained by mixing salt solutions with human blood serum and a colloidal combination of casein and certain synthetic products, anti-shock liquid and other preparations.

The conference devoted great attention to the problem of erythrocytes. In the past, when plasma and blood serum were utilized, the red blood corpuscles remained unused. Soviet scientists have proposed a special solution of salts for the dilution and preservation and subsequent utilization of erythrocytes which represents an excellent blood substitute.

A report on the organization of blood transfusion at casualty clearing stations was made by the Chief Surgeon of the Western front, Prof. Zanaitis. A number of improvements and inventions facilitating and improving storage, transport and transfusion of blood were demonstrated at the conference.

(Soviet Monitor.)

CONTINUOUS PENTOTHAL ANÆSTHESIA.
A SERIES OF 200 CASES GIVEN WITH A SIMPLIFIED PORTABLE APPARATUS.

By Major Dennis Dunnill,
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Perhaps some apology should be offered for the introduction of yet another anaesthetic apparatus but the one here described has given such complete satisfaction and is capable of being so easily improvised that it
is hoped that these notes may be useful to others, especially to those who like myself are serving abroad in conditions where the choice of an anaesthetic agent is necessarily limited.

The hospital to which I was attached has been serving in a tropical country and under existing local conditions the use of pentothal anaesthesia was found particularly valuable. In these circumstances a simple portable and self-contained apparatus was essential and after some experimenting I devised the following (see illustration):—

"A" is a mahogany case, size 18 by 6 by 4 inches, the lid of which opens downwards to a right angle and is fixed in this position by a brass elbow fitting; it is kept closed by a small brass hook and eye. "B" is an army transfusion bottle with the standard fitting of a rubber cork through which passes a long and a short glass tube; it is kept in position with a short leather strap "C."

The longer glass tube is connected by rubber tubing, on which is a screw clamp "D," to a drip feed "E" held in position by two spring clips; from the lower end of the drip feed a piece of rubber tubing leads to the device "F" and the intravenous needle.

The necessary positive pressure within the bottle is provided by the...
bellows "G" which is connected to one arm of a glass Y-piece attached to
the short glass tube; the other arm of the Y-piece is connected to a glass
U-tube "H" fitted up as a mercury manometer with a scale in cms.

"F" is a two-way tap leading via a piece of tubing and glass window
"f" to the intravenous needle and to which a 10 c.c. or 20 c.c. syringe
containing the pentothal solution is attached. Until a two-way tap was
obtainable a suitable substitute was made by attaching the tubing from the
drip feed to one arm of a glass Y-piece; a metal adaptor for attachment of
the syringe was connected by an inch of rubber tubing to the other arm,
while the long arm was attached to "f."

A removable piece of wood "J" with two side strips is fitted with two
nails with their heads cut off protruding from one end and this can be fixed
in place by pushing the nails into holes in the side of the case lid; it provides
a convenient and safe platform on which the syringe of pentothal solution
may rest while the operation proceeds.

The whole apparatus can be removed from the case for sterilizing in a
dressing drum after which it has only to be attached to a fresh bottle of
sterile saline to be ready for use. The piece of rubber tubing with glass
window and adaptor for needle (f), being detachable, can be boiled between
cases while a "spare" enables one to carry straight on without any delay.

Technique of Using Apparatus.—The open case can be placed on the
arm rest of the operating table, on an instrument table nearby or, if the
patient is in bed, on the bedside locker or a chair. A few squeezes on the
bellows will provide 10 to 20 mm. Hg pressure within the bottle as shown on
the manometer, the latter figure only being required if the level of saline in
the bottle is low. The saline is allowed to run through the tubing until all
the air has been removed and a steady flow appears from the needle; "D"
is then adjusted until "E" shows a satisfactory rate of flow and "F" is
then closed.

The needle having been inserted into the selected vein and kept in place
with a strip of adhesive tape the tap is turned to admit the saline and we
now have a steady drip of saline (or plasma if the case warrants it) entering
the vein and, at any time, pentothal may be added at will.

As soon as anaesthesia is required the two-way tap is turned to admit
the pentothal from the syringe and, the desired amount having been
injected, the tap is returned to its first position so that the saline drip con-
tinues until more pentothal becomes necessary when the same action is
repeated. All that is necessary from now onwards is an occasional move-
ment of the tap when injection of more pentothal is considered advisable
and an occasional glance at the drip feed and manometer, with a squeeze on the
bellows when the latter indicates that the pressure has fallen below the
desired height.

Discussion.—As with other anaesthetic agents some people show a sus-
ceptibility to pentothal, being deeply anaesthetized with 5 c.c. of a 5 per cent
solution, while others need 30 c.c. or even more for the extraction of a
single tooth. With the apparatus described the tedium of holding a needle in a vein while repeated doses are given is obviated, as is the temptation to give a single large dose with its attendant risk should the patient be unusually susceptible. A carefully controlled level of anaesthesia over a long period is obtainable by observing the changing signs of anaesthesia and regulating the dosage of pentothal accordingly.

In a series of 200 cases of all sorts lasting from ten minutes to two hours, no anxieties were experienced and, owing to the accurate control of dosage, there was no undue depression of respiration; even in very ill patients and those suffering from shock, toleration appeared to be good and there was no appreciable fall in blood-pressure.

The usual premedication was omnopon gr. 1/3 with scopolamine gr. 1/150 and this undoubtedly assists in reducing the amount of pentothal required. Oxygen was never found necessary but scrupulous care in maintaining a satisfactory airway is essential. The maximum amount of a 5 per cent solution given in this series was 55 c.c. and no ill-effects were noticed after large doses though patients often remained asleep for several hours after returning to bed.

This method would appear to be definitely preferable to the continuous intravenous drip of a dilute solution of pentothal in that the drug can be stopped without having to remove the needle and can at a moment's notice be continued should the operation be prolonged unexpectedly or the depth of anaesthesia become unduly light. Finally, in the event of a rush of casualties necessitating two operations being performed at the same time, a glass Y-piece may be attached to the longer glass tube in the bottle and "D," "E," and "F" may be duplicated.

Conclusion.—A simple portable apparatus for the giving of continuous pentothal is described by which ease of control and a wide margin of safety are obtainable since only the actual dose required by each particular patient is injected as is indicated by the signs of anaesthesia.

The apparatus modified and improved will shortly be obtainable from Messrs. Down Bros., 22A, Cavendish Square, W.1.

THE TREATMENT OF CERTAIN CARRIERS WITH SULPHAGUANIDINE.

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Data are gradually accumulating regarding the therapeutic value of sulphaguanidine in cases of bacillary dysentery. Anderson and Cruikshank [1] were convinced of its value in treating the acute disease but expressed the opinion that very large doses are necessary to eradicate these bacilli