TABLE C.
Positive Findings in Typhoid and Paratyphoid Convalescents.

Week of Disease.	Week Since Inoculation.	Agglutinin Units.		Seat and Type of Bacilli.		Date of Disappearance from Onset of Attack.
		Typhoid.	Para-typhoid.	Faeces.	Urine.	
4th	39	1250	£250	+ B	—	8 weeks.
4th	30	29	120	+ A	—	8 weeks.
5th	12	625	920	+ B	—	6 weeks.
5th	34	580	200	—	+ B	8 weeks.
6th	39	125	460	+ B	—	—
6th	39	106	36	+ A	—	9 weeks.
6th	55	60	1852	+ B	—	9 weeks.
7th	16	60	185	+ B	—	8 weeks.
8th	48	106	19	+ A	—	10 weeks.
8th	52	12	60	+ T	+ T	12 weeks.
9th	43	125	925	+ B	—	13 weeks.
12th	18	8	143	+ A	—	15 weeks.
12th	16	20	—	+ B	—	15 weeks.

TABLE D.
Positive Findings in Bacillary Dysentery Convalescents.

Week of Disease.	Date of Disappearance of Bacilli.	Type of Bacillus.	Week of Disease.	Date of Disappearance of Bacilli.	Type of Bacillus.
5th	8 weeks	Shiga	9th	11 weeks	Flexner
8th	10 weeks	Flexner	9th	12 weeks	Shiga
8th	11 weeks	Shiga	11th	13 weeks	Flexner
8th	11 weeks	Shiga	11th	14 weeks	Flexner

It is a pleasure to thank Lieutenant-Colonel Paul Bush and the staff of the 2nd Southern General Hospital for their assistance in the collection of specimens and their courtesies in placing much information at our disposal. We are also indebted to the Medical Research Committee for the provision of skilled assistance in the protozoological part of the work, and to the Colston Research Committee for the use of their special apparatus.

TREATMENT OF SCABIES BY SULPHUR VAPOUR.

BY

MAJOR JOHN BRUCE, R.A.M.C.(T.),

AND

CAPTAIN STANLEY HODGSON, R.A.M.C.

ABOUT twelve months ago, while our field ambulance was in charge of a reception hospital for a division, we were called upon to deal with a considerable number of cases of scabies. As ordinary treatment by sulphur inunction is slow, usually taking from seven to fourteen days, we endeavoured to find some method which would be simple, swift, and efficacious. We have given sulphur dioxide gas a trial for twelve months, and have found it meet our requirements. The method of treatment and the apparatus required are as follows:

1. Cabinet.

The cabinet is constructed on the lines of a "home Turkish bath," and is made of $\frac{1}{2}$ -in. tongued and grooved match-boarding on a framework of 2-in. timber. It is intended to accommodate two patients at once. The dimensions are: Front, 4 ft. 7 in. by 4 ft. 2 in.; sides, 3 ft. 7 in. by 4 ft. 2 in.; the back is 5 ft. 3 in. high. As it is necessary for the cabinet to be used out of doors, we provided a canopy over it 2 ft. high, covered with canvas so as to protect the patients from sun or rain. The apertures for the head must be small—about 5 in. in

diameter. The outer portions of the roof are movable, and capable of being adjusted after the patients are placed in position. The inside of the cabinet is lined with thick brown paper, and the roof junction with felt to prevent escape of vapour. One door is sufficient—it must

fit closely. The seat provided for the patients consists of three narrow cross-bars placed 30 in. above the floor level. If made of one piece of wood the buttocks and nates would escape the action of the fumes. The cabinet must be placed near the bath-house.

2. Method of Procedure.

The patient is given a hot bath, allowed to soak for five minutes in the water, then well rubbed with soap—either soft or ordinary yellow bar—and the skin scrubbed to open the burrows. The patient is then transferred to the cabinet, placed on the seat with the head protruding through the aperture in the roof and the sliding board adjusted. A wet towel is applied round the neck to prevent escape of fumes, a sulphur candle placed in the corner of the box is lighted, and the door closed. An orderly must remain constantly in attendance so as to remove the patient at once should he show signs of faintness or develop any difficulty in breathing from escape of fumes. At the end of fifty minutes the lid is quickly removed, and the patient returns to the bath-house, where he puts on clean and warm clothing. Sufficient air to keep the candle burning will find its way through the cracks around the door.

3. Clothes.

It is necessary to send with the patient all his kit, every article of clothing that he possesses, his blankets, his palliasse and pillow. If a Thresh or steam disinfecter be available, all suitable articles can be treated by steam. We used the portable disinfecting box with small boiler for several months, and found it very efficient. If none of the above is available it would not be difficult to construct a box or chamber and have steam let into it by a flexible metal pipe from a large kettle, boiler, or oil drum. When we had only one patient to deal with, his clothes were hung in the cabinet and treated there at the same time with the sulphur vapour. Boots and other leather articles can be treated with formalin spray.

The sulphur candle which we found most suitable was the Jeyes' sulphur candle (large). A quick-burning candle with a large wick gives off too irritating a vapour, and the patient is unable to stand the treatment for more than thirty minutes. There is a tendency under these circumstances to produce troublesome erythema.

No antiseptic should be added to the bath, as it may produce irritation of the scrotum, axilla, and other parts where the skin is tender. If properly administered with the above precautions there should be no feeling of discomfort—rather the reverse. We have had patients asking

for a second dose of the box because of the relief afforded. A slight general desquamation often follows the treatment. Freedom from itching is immediate. For example, we treated one man from the Expeditionary Force who had been suffering from the disease for two months, and the next day he told us that the luxury of a long night's sleep, without scratching, had been perfect bliss! In very cold weather we occasionally put a small paraffin stove in the box to warm it before putting in the patient.

Results.

We have treated over two hundred cases, and have had about 2 per cent. returns, and in these cases we think some article of clothing had escaped disinfection and thus reinfected the patient. The cases giving the best results were those which had not been under any other treatment. The great merit of the treatment is that cases can be returned to their unit on the same day as received and resume duty next day. We have treated in one box as many as twenty cases in one day.

The box we used was made by one of our non-commissioned officers, Quartermaster Sergeant Colecliffe, from a sketch supplied by Captain Hodgson.

Our thanks are due to Colonel Roocroft, V.D., A.D.M.S. of the Division, for permission to carry out the experimental treatment.

THE ECONOMICAL USE OF SOLUTIONS OF COSTLY ALKALOIDS FOR OPHTHALMIC PURPOSES.

By N. BISHOP HARMAN, M.A., M.B.CANTAB.,
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OPHTHALMIC SURGEON TO THE WEST LONDON HOSPITAL AND THE
WEST END HOSPITAL FOR NERVOUS DISEASES.

SOLUTIONS of cocaine and homatropine are sufficiently costly at any time to render a method for their better preservation and economical use worthy of note. At the present time their cost is such that economy is more than desirable—it is a necessity.

For the past four years I have had in use, both in private and hospital practice, solutions of the various alkaloids required for eye work made up with minute quantities of antiseptic drugs, which in combination appear to have a more satisfactory effect in the preservation of the solutions than others in common use; these small quantities of drugs can be added to the solutions of the alkaloids without objectionable effect. The drugs are well known, easily obtained, and in the quantities used negligible so far as cost is concerned. A stock bottle of "ophthalmic solvent" is kept in the hospital dispensary, and as solutions of cocaine, etc., are required the stock bottle of solvent is drawn upon instead of the bottle of distilled water. The solvent is made up as follows:

Distilled water	...	...	...	1 pint
Methyl salicylate	...	...	...	2 grains
Oil of gaultheria	...	...	...	2 minims
Tincture of iodine	...	...	...	2 minims

The mixture is well shaken, poured into a stoppered bottle, and left for forty-eight hours, when it is ready for use. Different quantities of the drugs have been tried; the above proportions are those which are sufficient for preserving the solutions from contamination without producing objectionable effects in the use of the solutions. The solvent smells like a chemist's shop, but it is not unpleasant. When solutions made up in this fashion, and those prepared with distilled water only, are used for the purpose of comparison on one's own eyes, or on those of a patient, the only difference that can be detected between the two lies in the slightly increased sting produced by the instillation of the antiseptic solution, but the difference is so little that it is no bar to its use in practice. When it is desirable to do away with this slight sting, as, for example, in anaesthetizing the eye of a nervous patient preparatory to an intraocular operation, a sufficient quantity of the antiseptic solution of cocaine may be poured into a test tube and heated in the sterilizer, the preservatives being volatile are driven off, the solution no longer smells, and the sting is reduced.

The advantage in economy presented by the use of this preservative is great. Solutions of cocaine are notorious

for the readiness with which moulds grow in them, but since using these preservatives on no occasion have I found a bottle contaminated. Last month a bottle which had been in use in the out-patient department for three months was sent to the pathological laboratory for examination by cultures. The bottle was an ordinary wide-mouth, glass-stoppered bottle of half an ounce capacity, the mouth measured 1 in. in diameter. Some of its contents had been drawn off with a pipette for use on many occasions, and not infrequently the bottle had been left open during the course of an operation. The pathologist reported that all the cultures made from the solution were sterile.

Viscid Solutions.

Solutions that have such a consistency that they can be lifted on thin rods are much more economical than solutions of the consistency of water. A minimal quantity of the viscid fluid can be lifted and inserted within the pouch of the lower lid with certainty; the watery solution has to be dropped in with a pipette, and much of it may overflow the lids. Further, it is found that viscid solutions spread over the whole surface of the conjunctiva rapidly, and cling thereto, so that they are absorbed at all points and the effect is maximal. For this reason solutions of the pure alkaloids in castor oil have enjoyed a considerable popularity, particularly the solution of homatropine and cocaine, 2 per cent. of each, for the purpose of securing cycloplegia before retinoscopy. Recently the dearth of the pure alkaloids of homatropine made a return to the use of the homatropine hydrobromate necessary. The salt cannot be dissolved in oil, and the unsatisfactory nature of the watery solution in waste and uncertainty of operation was in marked contrast with experience of the oily solution of the pure alkaloid.

To get over the difficulty the dispenser was asked to prepare solutions of the salt with the stock preservative, and then thicken the solution by the addition of gum arabic until the fluid was so viscid that it would cling in a fair round drop on a small lacrymal probe. He found that the effect could be obtained by making the mucilage about eight times the normal strength. The solution formed is slightly turbid, but it is found to be quite as effective in use as the clear oily solution. Gummy solutions are very satisfactory media for the growth of moulds, but it has been found in practice that the preservative drugs used in the solvent are quite efficient in keeping the solutions free from growths. A bottle that had been in use for two months in the out-patient department was sent to the pathological laboratory at the end of an afternoon's work. The bottle was of half-ounce capacity, with a mouth one inch in diameter; of the original quantity very little remained—somewhat less than half a drachm. The bottle had stood open on the desk for three hours just before the cultures were made, and during that time a succession of patients had passed and repassed the desk, and received their doses therefrom. The pathologists reported that the cultures were sterile at the end of twenty-four hours, but that after forty-eight hours a growth of the hay bacillus was found. The test was severe. The bottle had been long in use; it had been open during the work of the clinic two or three times a week for six weeks, so that some of the preservative must have evaporated, and the innumerable dips into the bottle gave every chance for contamination.

It is found that cocaine, atropine, eserine, homatropine, and homatropine with cocaine are equally effective in this gummy solution, and the economy of their use is noteworthy.

DR. KENNETH DOWS, of New York, has given £19,000 to Johns Hopkins University, Baltimore, for the investigation of tuberculosis and the provision of better teaching in the recognition and management of the disease.

Now that so many among us are learning Russian, a short list of the most important newspapers, periodicals, and trade journals published in that language which has recently been issued by Messrs. Neyroud and Sons, Limited (Regent House, Kingsway), may be useful. Eleven medical journals are included in the list; the weekly *Vratchebnaia Gazeta*, published at Petrograd, described as the leading Russian medical journal, is stated to have a circulation of 16,000 weekly.