(perchloride of mercury and other substances), but I am convinced, as is also Dr. Cobbold, that this is a mere delusion; because it is not possible to reach and kill with these injections the worms which live principally in the different branches of the portal system. The natural course of hæmaturia is not continuous; the cessation of it for some time is not cure; and it is not possible to obtain really a cure without getting rid of the worms from the organism. I do not say that it is impossible that we may find a substance that, introduced into the blood, may kill the worm without endangering the life of the host; yet I entertain the belief, expressed long ago, that the worms circulating with the blood, when dead, may prove more dangerous than when alive, as they may become more easily the point of formation of clots and embolisms. But, apart from this, no substance can be of avail if it be not absorbed and diffused through the blood; and that very probably is not the case with substances introduced through the urinary bladder.

Whoever has seen the *post mortem* alterations often produced in the walls of the bladder by the dispersion of the ova in their tissues, cannot believe in the usefulness of medicated injections to cure them. Medicated injections, and above all washing out the bladder, can be only useful in certain cases to alleviate the complicating catarrh of the bladder and prostate; that is all. Medicated injections, it is true, may kill the embryos in the ova poured into the cavity of the bladder; but that has no real importance, because the embryos, when free, soon die by themselves, not being able to live long in the urine. Surgical measures may, in certain cases, be required by alterations of the bladder consequent on infection by Bilharzia, such as growths like papilloma, or incrustations on the mucous membrane; but by surgical measures we cannot deal directly and radically with the infection.

I, therefore, think that, as yet, we have no means of curing the infection of Bilharzia better than is done by nature. The best thing of all is to avoid receiving the worm into the body, and for this I think I have been the first to have indicated the true prophylaxis in suggesting that only well filtered water should be drunk. I have the conviction that the larval form of the worm enters the human organism generally with drinking water, and, being too large, cannot pass with filtered water.

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AN INSTRUMENT FOR THE TRANSFUSION OF DEFIBRINATED BLOOD.¹

By T. W. CARMALT JONES, M.A., F.R.C.S. Edin.

THIS instrument is intended to be used for transfusing defibrinated blood. It could be equally well used for injecting milk or any other fluid into a vein. It consists of a holder (A), into which the defibrinated blood is to be poured; a tightly-fitting metal cap (L), in the centre of which is a hole; a pipe leading from this hole communicates, by means of an India-rubber tube, with a valved hand-ball (T). When the cap is in position on A, air can pass easily to A; but pressure on the hand-ball will force air into A, and compress it on the surface of the fluid in A. At the lower end of A is a piece of India-rubber tubing (B), which can be compressed by the clip (D); and at the other end of the tubing is a hollow coned metal plug (C), which fits into the silver nozzle (M). The instrument, with its accessories, as supplied in the case, provides all that is required for the performance of the operation of transfusion of defibrinated blood, with the exception of a clean ordinary tumbler, or, preferably, a small milk-jug, and a basin of hot water.

The steps of the operation are as follows.

1. Bleed the donor, in an adjoining room, if possible, to five or six ounces, into the measured vessel (H).
2. Whip the blood with the whip (P), and strain through the strainer (F) into the tumbler or milk-jug.
3. See that the India-rubber tube (B), plug (C), and clip (D), are in place. Pour the defibrinated fluid into the holder (A), and put the cap (L) on firmly; then place the holder in the basin of water at 100° Fahr.
4. Open a vein in the patient's arm, and insert the silver nozzle (M, K, or I)—three sizes of nozzles are provided; and block up the open end of the nozzle with the finger.
5. Have the holder brought to you; ease the clip until the fluid flows out of the plug; then tighten the clip again. Take the finger away from the end of the nozzle, and insert the plug, and remove the clip. Note the height of the fluid in A. The fluid in the holder is

now in free and direct communication with the blood in the patient's vein. If any force is required, squeeze the hand-ball gently.

6. After the operation is over, again note the height of the fluid in A, remove the short piece of India-rubber tubing (B), and burn it. The other parts can then be easily and thoroughly cleansed.

The instrument is very simple in action; has no delicate or complicated parts that can get out of order, so as to cripple it; has

H Vessel marked in ounces for donor to be bled into. P Whip to be used in H. F Strainer of lawn muslin on wire frame. A Holder to receive defibrinated fluid. B India-rubber tube about three inches long. C Coned plug (hollow). D Clip. L Metal cap for A. T Hand-ball. M Nozzle. K I Additional nozzles. E Blood-director.

no taps to puzzle the operator; and can be thoroughly cleaned and inspected. Supposing anything were to happen to the hand-ball, an assistant could supply all the force required by blowing, though not so conveniently as the hand-ball.

The piece of India-rubber tubing at B is to be a clean new piece each time the instrument is used, and is to be burnt directly after use, so that no danger may arise from dried blood not removed after previous use. The inside of India-rubber tubing is rough, and not easily cleansed, and cannot be inspected to see if it is clean. This piece of tubing allows sufficient play, and breaks the rigidity, but is purposely kept short. The amount of blood taken from the donor, and the exact amount injected into the patient, will be known.

The instrument is made for me by Mr. Hawksley, of Oxford Street, to whom I am indebted for several practical suggestions.

ON A NEW METHOD OF TESTING FOR ALBUMEN IN URINE.¹

By G. P. BEST, B.A., M.B., Cantab.

I NEED not dwell at length on the ordinary methods of testing for albumen. Suffice it to refer to the observations of an expert in this line, who sums up all that I need insist upon. Speaking of the diagnosis of granular kidney—the disease in which this matter of the contents of the urine is most veiled and most important—he urges what every one will admit, “the great importance of the early detection of the disease,” and further, the fact of which every one is aware, that its only certain pathognomonic sign is the “constant slightly albuminous” character of the urine. (*Clinical Reports on Renal and Urinary Diseases*, by Wm. Carter, M.B. London: J. and A. Churchill. 1878.)

¹ Read before the Harveian Society of London.

¹ From a paper read before the Midland Medical Society.

He continues. "It becomes therefore a matter of extreme importance to recognise it. Yet I need not say I believe, because I have several times had absolute proof, that it may not be recognised.

"I have seen it overlooked under the following circumstances. The urine, when heated, has become opalescent, owing to the separation of earthy phosphates. A few drops of nitric acid have however instantly dissolved these, and produced a perfectly transparent solution; and on the strength of this it has not unnaturally been concluded that no albumen was present. But if this same urine, instead of being put hastily aside, be watched for five or six minutes, or until it has become nearly cold, a turbidity will again appear, commencing usually at the bottom, and spreading thence throughout, which turbidity neither heat nor more nitric acid will dissipate.

"But I am sure that such a separation of earthy phosphates in the earlier stages of this disease is not uncommon, even though the reaction of the urine, after having been heated, remains distinctly acid. Why it is that when they are thus diffused through the urine by boiling it albumen is very slow to make its appearance in a coagulated form on the addition of nitric acid I cannot say; but I am sure that such is the case, and that it sometimes leads to mistakes."

Coming to the practical part, he says: "But, to avoid the delay which the process ordinarily followed entails under the circumstances alluded to, and to attain an accuracy which is not so attainable by it, I now always employ the method recommended by Hellor, and quoted in pp. 68 and 69 of Neubauer and Vogel's work on the urine (Sydenham Society's translation, 4th edition). This is effected by pouring one to two drachms of nitric acid into a cone-shaped urine-glass, and then allowing the urine, filtered, if necessary, to trickle down the side of the glass, so as to float on the acid. If albumen be present, a gradually deepening opalescent layer will appear immediately above the acid, undissolved by warming the side of the glass, and quite incapable of being confounded with anything else. The cases alluded to above gave instantly evidence of the presence of albumen when this method of applying the test was employed; and, as it is not always convenient to wait eight or ten minutes over a case of urine-examination, it is always safer to employ the test in the manner just indicated. It is as well also to employ a filtering paper, whether there be turbidity or not, for, by inclining the paper, so that its point shall rest against the side of the glass, and then by gently inclining the glass itself, the urine flows so gently down as not to disturb the surface of the nitric acid, an effect which it is difficult to avoid, even by the careful pouring from a pipette."

It will thus be seen that, while one of the methods employed takes a considerable time (about eight or ten minutes), and the other, to say the least, is somewhat elaborate, the very recommendation of this last by such experts as Neubauer and Vogel proclaims a necessity which is not met by rougher and more offhand methods. It is to meet such a necessity, without incurring the loss of time on the one hand, or too great an apparatus on the other, that I was led to devise the method I now propose; and I may say, in passing, that what suggested the idea to my mind was nothing more nor less than the very passages I have read to you. This method consists simply in the use of the syringe for the purpose of effecting that apposition (without intermixture) of the layers of urine and nitric acid which every method seeks to accomplish. So much for the general principle, which wants no further elucidation; but I will note its application in two particulars.

It is a well known fact—owing, doubtless, to our more accurate methods—that we are apt to neglect that examination in bulk of the excreta from which practitioners of old derived all their information concerning them. How often does the inspection of the stools throw a flood of light on the nature (and, by consequence, the treatment) of a case which had till then remained obscure. In our hospitals, we see the urines of patients neatly decanted off into long glasses or test-tubes; but it seems to me that both physicians and students might sometimes be gainers by seeing the urine as it is in the pot.

The other point which I wish to note is the convenience of my method for house-to-house visitation. With a syringe, it is easy to draw up a few drops of urine from the most unhandy pot, and the test-fluid after it.

Instead of nitric acid, I find it more convenient to substitute Dr. Roberts's hydrochloric solution of common salt, the suggestion of which disposes of the difficulty of arranging for the portability of nitric acid.

I have here a specimen of urine, which I have selected as being but slightly albuminous. Making sure that the piston of the syringe fits air-tightly, I just dip the end of the nozzle below the surface of the urine, and draw up a little. I now transfer it to the test-solution, of which I also suck in a small quantity; and you see how sharply this

underlies the urine, producing in its lowermost part a narrow but well defined cloud, which witnesses to the presence of albumen.

THERAPEUTIC MEMORANDA.

A CUCAINE SPRAY-PRODUCER.

As the use of a spray-producer undoubtedly commends itself in regard to the employment of cucaine in surgery, I have devised an apparatus which, by the introduction of certain modifications upon the usual type, will be found to meet the requirements of the case in question.

On account of its expensive nature, every drop of cucaine-solution has some significant value, from more than one point of view; and when used in the form of spray, its mission is quite different from that of carbolic acid administered in the same manner; hence the carbolic spray-producer is quite unsuited for the administration of cucaine as a local anæsthetic.

The accompanying illustration will explain the general appearance of the apparatus for producing cucaine-spray, and it is therefore only necessary to refer to its special features.

The spray-producer is made of silver, and the jet is as fine as can possibly be produced; it plays softly over a part without spluttering, and is so constructed as to act upon the eye-ball without inconvenience to the patient. In the ordinary spray, the air contained in the reservoir has only one means of exit; namely, through the jet. This causes a waste of some of the solution, since the spray continues to act until the air is exhausted in the reservoir. To counteract this waste, particularly serious in the case of cucaine, a small aperture has been made in the air-tube, which, while the spray is in use, can be kept covered with the thumb. When the spray is no longer required, the thumb may be removed, the air at once escapes through this opening, and simultaneously the jet is arrested. This contrivance prevents all dropping of the solution, and also it regulates its action with great precision.

The cucaine-spray has proved useful in all operations on the eye, and on mucous surfaces. In the removal of hæmorrhoids, for instance, the assistant is enabled to keep the part in an anæsthetic condition by an occasional spray, whilst the surgeon may carry out, uninterruptedly, the various details of the operation. In general surgery it is often equally useful, especially in herniotomy and ligation of arteries. There is, of necessity, a little difficulty in preventing pain, during the first incision through the skin. This having been, if possible, overcome, a sufficiently strong solution of cucaine-spray, turned on to the exposed surface of the subcutaneous tissue, will render the operation painless throughout the rest of its course, and for this reason practicable without the employment of a general anæsthetic.

The spray-producer can be procured of Messrs. Wright and Co., 108, New Bond Street, London, who have made it at my suggestion; and I am glad to take this opportunity of thanking them for their assistance, and for the trouble they have taken in the matter.

H. PERCY DUNN, F.R.C.S., Assistant Ophthalmic Surgeon and Pathologist to the West London Hospital, etc.