gestion that we might, in all cases of exposure, require the vaccination of all people who have not been successfully vaccinated within five years, and then, according to experiments, in at least half of them the vaccination will "take" and it will satisfy the community—it certainly will not do any harm—and it will be the limit of protection.

DR. A. W. LESCOPIER, Detroit: I sincerely hope my paper did not carry the impression that I believed that persons who are successfully revaccinated after one or two years would be susceptible to small-pox. I think the evidence, not only in this country, but all over the world, shows that in cases of small-pox in which there is a history of successful vaccination, even if ten or twelve years have elapsed, are rare. This is shown in Germany and Japan, where systematic revaccination is carried out in the eleventh year. The object in presenting these statistics was to indicate the advisability of a systematic revaccination, rather than to throw any discredit on vaccination as at present carried out—that is, infantile vaccination not followed up by revaccination. We cannot but believe that vaccination, even if only carried out in infancy, is the most effective means which we have in stamping out small-pox, but if it can be followed up after a reasonable number of years by reinoculation, the chances of completely controlling the disease will be much better.

and may be bent to any desired angle to suit the individual case. On two sides of the tube about its center and opposite one another are small holes which fit accurately over the two lateral projections on the tips of the blades of the special forceps which serves as a handle, the set-screw holding the forceps tightly in the tube while it is being introduced.

The proper-sized tube having been selected, it is fitted to the handle, the retaining end of the tube being nearest the forceps. The artery or vein is then pushed or pulled through the tube from behind forward, its circumference grasped at three points with mosquito forceps and the vessel cuffed back over the tube, gradually working it back until it can be drawn over the sharp retaining points which pierce it and hold it accurately in place. The tonicity of the vessel walls causes it to hug the tube and hold it over the points. The other vessel, grasped likewise with the mosquito forceps, is now drawn over the cuffed-back vessel on the tube until it also catches on and is held by the points projecting through the walls of the first vessel. After the flow has been started the set-screw is released and the handle forceps is then easily removed, obviating any undue traction on the anastomosis during the transfusion.

The technic is simple, being, with the exception of the tubes, the same as that of Crile, although not requiring the

A SIMPLIFIED METHOD OF DIRECT BLOOD TRANSFUSION WITH SELF-RETAINING TUBES

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The tubes here described were devised some four years ago, primarily for arterial or venous anastomosis and as such were used successfully by me while working in the Laboratory of Experimental Surgery of the University of Pennsylvania, under the direction of Prof. J. Edwin Sweet, to whom I am indebted for many suggestions and helpful advice in the development of the technic.

In the hands of the average surgeon, especially where the operation has to be done outside a hospital or with untrained assistants, the cannulas of Crile present certain difficulties in their use, chiefly in applying the retaining ligature and at the same time keeping the end of the vessel properly cuffed back over the tube. Several attempts may be necessary to accomplish this, which is not only trying to the operator but usually ruinous to the success of the operation. The tendency is for the end to retract persistently, hence two assistants are necessary while the operator is adjusting and tying the ligature, and even then the very restricted field, in which at least five hands must work, often adds to the difficulties.

To obviate these disadvantages to a large extent and at the same time to produce a tube suitable for permanent anastomosis in emergency wounds of vessels, the self-retaining cannula was devised. With it any physician can, even with very little experience, quickly perform a successful transfusion.

The tubes, three in a set, vary in diameter from 3 mm. to 5 mm., which gives a sufficient variety to suit most cases. They are 6 mm. in length over all, the tube proper being 4 mm. One end is plain while the other carries five small sharp retaining points arranged at equidistant points around the circumference. These points are slightly flanged outward,

Fig. 1.—Instrument two-thirds size.

Fig. 2.—First vessel cuffed back over the tube, the points catching the wall.

Fig. 3.—Same as Fig. 2 with forceps removed and vessel in place.

Fig. 4.—Second vessel grasped with forceps.

Fig. 5.—Operation completed and forceps removed.

same delicacy and the experience as do the other methods. One should always bear in mind the necessity of doing as little damage as possible to the vessel walls during the manipulations and that the exposed intima should always be well covered with liquid paraffin or kept constantly moistened with saline solution.

1819 Chestnut Street.

AN ADJUSTABLE BED-FRAME

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The Bradford bed-frame has come to be regarded as practically indispensable in the care of many surgical diseases in children requiring bed treatment; and having experienced considerable difficulty in always finding a frame of the proper width and length to fit an individual case even though a

large number of frames were available, a method of adjusting the ordinary gas-pipe frame was devised.

Although very simple and inexpensive, it has been found most convenient and has done away with the annoyance of having to wait until a frame could be made, as well as the expense and inconvenience of having a large number of frames constantly on hand.

The following description is presented in the hope that an adjustable frame, which can easily be made to fit any average child under 15 years of age, may be of value to others.

Ordinary gas-pipe is used in standard stock sizes as follows, and can be purchased at any plumbing or pipe-fitting concern:

Two pieces of $\frac{1}{4}$ inch galvanized pipe 8 inches long.
Two pieces of $\frac{1}{4}$ inch galvanized pipe 30 inches long.
Two pieces of $\frac{1}{2}$ inch galvanized pipe $6\frac{1}{2}$ inches long.
Two pieces of $\frac{1}{2}$ inch galvanized pipe 50 inches long.
Three $\frac{1}{2}$ by $\frac{1}{4}$ inch elbows.
One $\frac{1}{2}$ by $\frac{1}{4}$ inch bushing.
One $\frac{1}{2}$ by $\frac{1}{2}$ inch elbow.
Four $\frac{1}{2}$ by $\frac{3}{8}$ inch coupling.

The $\frac{1}{2}$ by $\frac{3}{8}$ -inch coupling without threads in the $\frac{3}{8}$ -inch end should be used. On one end of each of the $\frac{1}{2}$ -inch pipe the threads are cut for 1 inch, which is about twelve threads. Then the two end threads are filed down and will pass into the shoulder of the $\frac{3}{8}$ -inch end of the $\frac{1}{2}$ -inch coupling, increasing the binding over the $\frac{1}{4}$ -inch pipe that telescopes into the $\frac{1}{2}$ -inch pipe.

The foregoing four ends must be quartered by placing two blades in hack saw, making cuts $\frac{1}{2}$ inch deep. This should be done after the threads have been cut which enables the $\frac{1}{2}$ -inch pipe to clamp more firmly the $\frac{1}{4}$ -inch pipe.

Adjustable bed-frame.

The other four ends of the $\frac{1}{2}$ -inch pipe should be threaded for half an inch or seven threads; but one end of the $\frac{1}{4}$ -inch pieces needs threading as the other ends pass into the $\frac{1}{2}$ -inch pipe. The $\frac{1}{2}$ by $\frac{1}{4}$ -inch bushing is used in one elbow which receives two $\frac{1}{4}$ -inch pipes.

After connecting pipes to elbows, one must be careful to have them at perfect right angles as well as to have the pipe straight so that they will not bind when telescoping. I have found that ether will clean the pipe most satisfactorily after the frame has been put together.

A Stillson wrench is necessary for adjusting this frame to the required length and width.

ILLUMINATED EAR SPECULUM

FREDERICK A. KIEHLE, M.D., PORTLAND, ORE.

The accompanying drawing shows a very satisfactory device for the examination of the ears of patients who are confined to bed. Most physicians are familiar with the difficulties involved in procuring a drop-light and a head mirror in a hospital ward, or the assistance necessary in holding a light and maintaining the proper position of the patient. In the illustration A represents the illuminated ear speculum from an outfit designed for use with portable dry cells and wire attachment. The electric light and the attachment plug, however, have been removed, and the vertical cylinder split into two flanges which will slip down as shown by the dotted line, holding A firmly on B. Within the horizontal cylinder is a mirror fixed obliquely and with a central perforation which throws the light rays from below forward through the speculum and against the tympanum. The fenestration at

the side permits of applications being made or a probe passed through the speculum. B is simply one of the smaller flat-sided designs of a pocket battery, and should be reversed in the drawing so that the press-button is immediately under

Device used in examining ears of patients confined to bed.

the eye-piece. The whole apparatus slips readily into the pocket and is instantly available for use.

A COIN-CATCHER FOR REMOVING COINS FROM THE ESOPHAGUS

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The country doctor is often handicapped by lack of instruments. I was called to remove a nickel from the esophagus of a 2-year-old child and I had nothing in my armamentarium, nor could I find anything in those of my neighbors, with which I could remove the nickel.

The simple device that I thought of is to be had in any town. With an awl two small holes are made opposite each other about an inch from the end of a silk urethral bougie about Size 16 A. Some No. 20 brass spring wire is threaded into the holes, and the ends brought out at the open end of the bougie and drawn till a loop of about half an inch is left extending from the holes. With a pair of pliers the loop is now bent into a hook. The hook should extend just far enough to catch the coin.

With the patient anesthetized the instrument is introduced the same as a stomach-tube, and when it is felt to pass the coin, the operator by a sliding motion up and down the esophagus can catch the coin in a few moments. A recently boiled bougie is soft enough to yield to the coin, and it holds it in place while it is being extracted.

This is so simple and yet so efficient a device that the suggestion may be worth while to other country doctors.

Device for removing coins from the esophagus; A, coin.