

## APPARATUS FOR THE PERFORMANCE OF TRANSFUSION.

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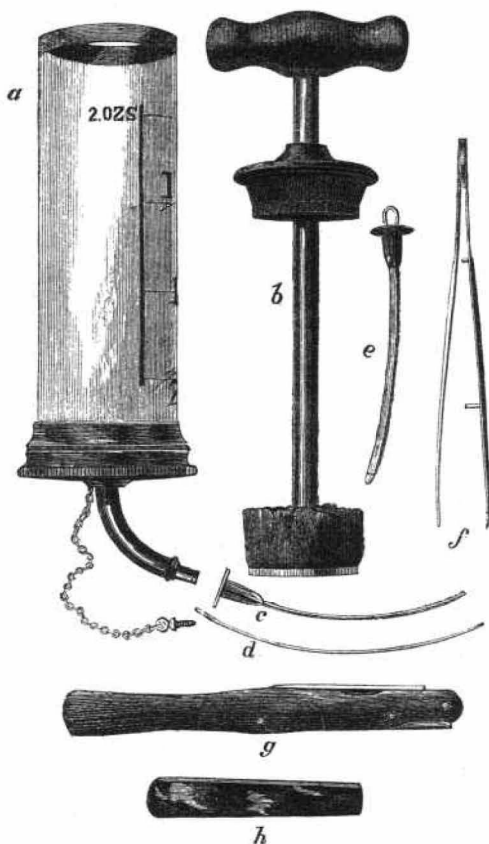
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THE apparatus is constructed to carry out the operation of transfusion in the following manner :

The blood to be transfused is received into a glass syringe, and by means of this thrown into the vein of the patient requiring the blood. The method adopted allows of the almost instantaneous transference of the blood from one individual to another, and the exposure of the blood, which, as is well known, tends to produce rapid coagulation, is reduced to a minimum. This is effected by making the syringe itself the vessel into which the blood is received. For this purpose the piston of the syringe is removed, and the barrel of the syringe is held in an inverted position over the orifice of the vein, in close apposition with the surface of the skin, but not pressed too firmly, otherwise the blood will not flow. The blood then flows into the syringe, and when a sufficient quantity is collected therein the syringe is suddenly removed and the piston inserted, the blood being prevented from escaping by inserting the little plug into the escape-pipe. The syringe is constructed to hold two ounces.

Prior to filling the syringe with blood the arm of the receiving patient must be prepared. For this purpose the arm is to be uncovered, the vein selected which is

largest—usually the median-basilic or the median-cephalic—and a longitudinal incision, one and a half inch long, made through the skin, immediately over the course of



The contents of the "Transfusion Case" are here represented; half the actual size. The syringe (*a*) holds two ounces; *b*, the piston; *c*, canula, and *d*, its plug; *e*, reserve canula; *f*, pair of forceps; *g*, scalpel; *h*, lancet.

the vein. The vein itself is then to be dissected out, and completely bared for nearly one inch of its course. The vein is then to be seized with the forceps, and a slight

incision made in it by means of the scalpel. This incision should be made obliquely, and just enough to admit the canula with its plug. The canula, at the extremity of which the rounded plug projects, is slightly curved. The next step is to introduce this canula, with its plug, into the vein; the plug is then withdrawn, and the escape of a minute quantity of blood shows that the canula is properly inserted. The arm is then to be carefully and steadily held by an assistant, with directions to prevent the escape of the canula from the vein. The operator next procures the supply of blood in the manner previously described, being careful not to proceed to this stage of the operation until everything is perfectly ready for the injection of the blood. Experience has shown that the operation will most frequently break down from want of attention to this rule. The actual injection of the blood is performed as follows:—Taking the syringe with its contents to the bedside as rapidly as possible, the operator removes the little plug from the canula, and adjusts the syringe to the latter. This adjustment can, owing to the construction of the apparatus, be effected instantaneously, and by gently depressing the piston the blood flows into the receiving vein. The quantity thrown in at once should not exceed about one ounce or one ounce and a half, and the injection of this quantity should occupy about one minute. It may be necessary to throw in two or more such quantities, according to circumstances. If more than one syringe-full is required, the second or following supplies must be procured and injected in a manner similar to the first.

The glass syringe, with its adjuncts, admits of being very rapidly and easily cleansed. The "Transfusion Case" made by Messrs. Savigny, of St. James's Street, contains, together with the syringe, two canulas with plugs, a small pair of dissecting-forceps, a sharp-cutting scalpel, and a common lancet. The bulk of the whole is very inconsiderable, and the case, containing, as it does, everything possibly required for the performance of the operation, can be carried in the ordinary "obstetric bag," being thus always at hand in case of emergency.

For the performance of the operation it will be found necessary to have the assistance of two individuals—one to hold the arm of the recipient, the other to manage the arm of the person supplying the blood. The incision into the vein, in order to procure blood, should be a tolerably large one, to ensure a rapid flow of blood into the syringe. It is not necessary, as was formerly supposed, to heat the syringe, or to take steps for maintaining the blood at a high temperature; the syringe should, however, be placed in a basin of clean water slightly warmed, in order to render the motion of the piston easy.

In the accompanying illustration the apparatus for transfusion is depicted half the actual size.

The object kept in view in the construction of this apparatus is the rapid transference of blood from one person to another. Experience has shown that, while the rapidity with which coagulation occurs varies in different persons and at different times, two or three minutes may be always calculated on before coagulation will occur. The various steps of the operation must be carefully considered before undertaking it, in order to allow of the transference being effected within this interval of time. The tendency to coagulate is materially diminished by the method here adopted of receiving the blood, whereby the exposure to air and contact with foreign bodies is reduced to a minimum.