internal blade of the cranioclast, and the extraction-blade is applied outside the scalp, over occiput or face, as the case may be. We have thus an instrument which will produce a more efficient cranioclast than any cranioclast, and will present all its advantages as a safe and scientifically constructed tractor.

Such is this chapter in Midwifery as far as we can read it up till the present time. What developments the future will bring forth, I pretend not to foretell. But I do not doubt that when the evolution of Perforator, Comminutor, and Extractor has come to the full, the obstetrician will not be under the necessity of having various implements for the various stages. He will have one single implement, with which he will be able to carry out any or every stage of the operation *cito et tuto*. He would be something less than human who could ever think to operate *jucundè*.

PORTABLE TRANSFUSION APPARATUS.

By WILLIAM WALTER, M.A., M.D.,

Surgeon (and late Obstetric Surgeon) to St. Mary's Hospital for Women and Children, and the Manchester and Salford Lying-in Hospital.

DR. WALTER showed, in the Obstetric Section, at the meeting of the British Medical Association in Belfast, a portable transfusion apparatus for defibrinated blood or saline solutions, made for him by Messrs. Weiss and Son.

The instrument was essentially the one known as Dr. Robert MacDonnell's (makers Fannin and Co., vide *Dublin Medical Quarterly Journal*, November 1870), the only alteration being that it was now made so portable that it could be carried in any ordinary obstetric bag.

The apparatus consisted of a glass tube, sufficiently large to hold four ounces of fluid. One end of the apparatus was drawn to a point for the purpose of connecting to it a piece of India-rubber tube, which in form resembled a very small Higginson's syringe; to the distal end of the tube was fixed a silver cannula, having a probe-point extending

some distance beyond the eye. Before charging the apparatus with blood, a clip or some form of spring-forceps is placed on the tube, and, as soon as the instrument is charged, it is allowed to stand in a small vessel of hot water so that the blood may remain at a proper temperature until required for use.

The first step in the operation is to obtain a few ounces of blood; five or six ounces is generally more than sufficient.

The blood, as it flows from the vein of the donor, is received in a bowl scrupulously clean and previously warmed, and, whilst flowing, should be stirred with a glass rod or a fork for a few minutes, and then strained through muslin into another bowl or cup; the fibrin, and air-

bubbles arising from the stirring, being thus got rid of, the blood may be poured into the apparatus.

The next step of the operation is to open a vein in the bend of the patient's elbow.

Dr. McDonnell recommends the skin over the vein to be pinched up and transfixed with a small tenotomy-knife at right angles to the course of the vein. The vein should then be seized with a pair of forceps, and, before opening it, raised from the subjacent tissues, by passing a needle or fine probe under it.

The apparatus containing the blood is now removed from the vessel of hot water, and the point of the silver cannula is introduced into the opening in the vein. Before pushing the cannula its entire length into the vein, the clip is taken off the tube, and a little blood is permitted to escape through the eyelet hole, so that all air may be expelled from the tube.

When the apparatus is raised, the blood will sometimes find its way into the vein from its own weight, but more frequently it is necessary to force the blood along the vein by squeezing the dilatation on the tube, as one would squeeze an ordinary Higginson's enema apparatus.

The instrument described was very simple, and easily kept clean; and, besides being inexpensive, was much safer than any form of syringe, the piston of which might be out of order when required for use.

Dr. Walter expressed himself strongly against the direct method of transfusion from vein to vein, being only in favour of using defibrinated blood except in those cases where, from blood not being procurable in time, a saline solution might be used as a temporary measure.

Dr. Walter recommended this instrument as well adapted for general use, and considered that medical men who undertook obstetric practice were not consulting the best interests of their patients unless they included in their armamentarium some form of transfusion apparatus.

Many would consider such a precaution quite unnecessary, as the occasions for performing transfusion were so few and far between, but on that account obstetricians were none the less responsible, when death occurred from *post partum* hemorrhage, after all the ordinary means (including styptics) of treatment failed, and where, had a transfusion apparatus been at hand, the patient's life might not have been lost.

Dr. Walter confessed that, when obstetric surgeon to the Manchester and Salford Lying-in Hospital, he had seen more than one patient in the Maternity Department die from uterine hemorrhage, whose life might possibly have been saved had he within reach an instrument like the one he now exhibited. Such a reflection was extremely painful to him, but it served as a warning for the future, at least to himself, and he hoped also to others.

Dr. MURPHY (Sunderland) said that this instrument was perhaps the best and simplest form for the transfusion of defibrinated blood, but the experiments of Schäfer had conclusively shown that no fluid but blood was of use, and that defibrinated blood was not nearly so efficacious as pure blood introduced by the immediate method. For this purpose, he had devised a very simple instrument, which consists of ten inches of India-rubber tubing, armed at each end with a small glass cannula about an inch and a half long. He pointed out that arterial blood, charged as it was with oxygen, was more useful than the effete venous blood, therefore he injected arterial blood, and prefers to inject it into an artery, so that it was at once of use. He therefore cut down on the radial or dorsalis pedis of the donor, exposed it for an inch or two, placed a clip on the cardiac end, and a ligature on the distal end. It was then cut across, and the tube introduced. The radial of the patient was then opened, and the clip removed from the artery; the blood flowed out at once, and the cannula was then introduced.

THE LATE DR. THOMAS WRIGHT.—The Town Council of Cheltenham, at their last meeting, passed the following resolution, upon the motion of Mr. G. Parsonage, seconded by the Mayor. "That the Council desire to record their very profound sorrow and regret at the loss of so able, devoted, and valuable a public servant as the late Dr. Wright, an officer whose services have done so much to raise and keep the town so high in the scale of the health-giving resorts of this country, and the Council beg to assure the family of the deceased gentleman of their sincere sympathy with them in their affliction, an affliction which the Council trust may be lightened by recollection of the useful life passed by their parent, and the distinguished position attained by him in the scientific world." A copy of the resolution was ordered to be forwarded to the family.