its cardiac end, was an oval opening, one inch in diameter, communicating with what was supposed to have been a cyst. The opening was injected at its edges, but not thickened. The gastric mucous membrane elsewhere was quite healthy. The intestines were all matted together at the back part of the abdominal cavity. Over them lay the omentum, which was thickened, and continuous with a layer of lymph which lined the abdominal cavity anterior to the intestines. A closed sac was thus formed, lined by false membrane, and incomplete only where communicating with the stomach. The intestines were healthy; the mesenteric glands enlarged. The kidneys, uterus, and ovaries were all healthy.

There can now be little doubt as to the nature of this case; the light of pathology having fairly removed the darkness of the clinical phenomena. I had thought the case almost unique, when I dropped upon another very like it which occurred in the practice of my colleague, Dr. Wilks. I give it in abstract, as taken from our *post mortem* records.

CASE LXL. Ulceration of the Stomach: Perforation: Hypochondriac Abscess.—Mary A. F., aged 32, was admitted on December 22nd, 1877, and died on January 2nd, 1878. She had been subject to winter-cough, and had spat blood on several occasions. She had never noticed her abdomen swollen, nor had had pain until six days beforehand, when she discovered a swelling of the abdomen whilst she was dressing. When admitted, she had a large rounded swelling in the epigastric and hypochondriac region. It was tympanitic on percussion, and there was splashing of air and fluid in it. There was an edge below, which was thought to be that of the liver. On December 24th, she was tapped with an aspirator; air escaped, and then pus, which was foetid, to two pints. Distension returned. Her temperature was 98° Fahr. She then had diarrhoea, and pain in the right side of her back. On the 26th, she was very low. On the 29th, she was again tapped with a large trocar, and much very offensive pus was drawn off. A drainage-tube was fixed in. The patient gradually sank, and died on January 2nd. At the necropsy (8), the lower part of the abdominal cavity was found to be healthy, the omentum being spread over healthy intestine. The under surface of the right lobe of the liver was adherent to the parts below. The abscess, which was opened, was bounded above and in front by the diaphragm and abdominal walls. To the right, it was bounded by the falciform ligament of the liver. To the left, the cavity extended into a space inside the left ribs, arching the diaphragm greatly, and pressing on the spleen. The floor of the cavity was formed by the whole convex surface of the left lobe of the liver, by the upper surface of the spleen, and by the stomach, into which there was an aperture through which air and fluid bubbled from the stomach. The stomach was shrunken; on its convex surface was an ulcer, measuring $2\frac{1}{2}$ by $1\frac{1}{2}$ inches, and bounded by a smooth rounded lip of mucous membrane. The base was on the pancreas and the left lobe of the liver.

These cases I simply record as examples of chronic ulcer of the stomach, perforating its walls, and giving rise to an abdominal tumour, in one case simulating ovarian disease.

In conclusion, Mr. President, allow me, through you, to thank the Council of this Society for the honour they have conferred upon me by making me their lecturer; and to thank you, gentlemen, for the kind support and attention you have given to me during their delivery.

HEALTH OF HELMSLEY RURAL DISTRICT.—Dr. Bruce Low, whose report, we are glad to see, appears in a printed form, takes a more hopeful view of the future than hitherto. He cannot refrain from congratulating his authority on the satisfactory nature of the year's results; though, at the same time, he warns them not to fall into a false sense of security. The sanitarian's work requires him to always be on the alert. The task of watching against the first appearance of preventable disease must always be maintained without the slightest relaxation; for without this constant care and watchfulness, the healthiest districts may sink into the slum which is formed out of idleness, apathy, and dirt. As it is, the district is quite unprovided with machinery for dealing with outbreaks of infectious disease. There is no isolation hospital, no ambulance, no disinfecting chamber, and no arrangement for the notification of infectious disease. In these circumstances, the struggle is often hopeless; and it is to be deplored that the efforts of Dr. Low do not receive that encouragement which they deserve from the hands of those responsible for the sanitary welfare of the district. The death-rate from all causes was as low as 12.88 per 1,000 (the smallest recorded for the last twenty years), and there was also a gratifying diminution in the mortality amongst infants.

A LECTURE

ON

THE HISTORY OF EMBRYULCIA,

Introductory to the Course of Lectures on Midwifery and the Diseases of Women and Children, in the University of Edinburgh.

By ALEXANDER RUSSELL SIMPSON, M.D., F.R.C.P.E.,
Professor of Midwifery and Diseases of Women and Children in the University of Edinburgh.

(Concluded from page 1181.)

Commentators.—More important than the question as to how the perforation can be best effected, is the question as to the best method of securing the further reduction in the size of the fetal head. It were long to name the almost endless variety of implements that have been employed or invented for performing this part of the operation. We may catalogue them in five different groups, and look at one or two types in each of these divisions.

1. **Craniotomes.**—Up till the early part of this century, when obstetricians had to do with a case where the head could not be hooked out after perforation of the vault, and they found it necessary further to break open the head, they helped themselves out with some kind of forceps, which may have been little changed from the *nestor* of Hippocrates or the *mishdach* of Albucaasis. I show you two of them, which have been, with various modifications, most widely used—the one on the Continent, the other amongst ourselves. The first (see Fig. 13) is the *tenette à conducteur* of Mesnard, which I show you,

Fig. 13.

Fig. 14.

Fig. 15.

Fig. 13.—Mesnard's Craniotomy Forceps.
Fig. 14.—Lyon's Craniotomy Forceps.
Fig. 15.—Baudelocque's Cephalotribe.

both because, under some modification, it has been extensively employed abroad, and because it is sometimes said to resemble the cranioclast, which is constructed for quite a different purpose. The longer blade (on the right) having been passed through the aperture made by the perforator, the smaller blade was passed, according to Mesnard's direction, outside the scalp, so as to obtain a power of prehension for extraction; but the perusal of his work, *Guide des Accoucheurs*, gives one the impression that he had not come across a case of very grave contraction in his practice in Rotten. This other craniotome (see Fig. 14) is the well-known Lyon's forceps, which was used by passing

one blade within the skull, and the other between the scalp and skull, so as to break off bit by bit the bones of the calvarium. Instruments of the Mesnard type could sometimes be used for fracturing the bones, but were chiefly serviceable as extractors. Those of the Lyon type might be used for traction, but were mainly useful in breaking down and tearing out the bony plates of the skull-cap. With crotchets and forceps such as these, the best accoucheurs were content to achieve the delivery in cases of contracted pelvis in the end of the last and early part of this century. So Dr. Osborn, of London, delivered Elizabeth Sherwood, a rickety dwarf, in whom, after perforating the head of the child and scooping out the brain with a spoon, he allowed the labour to go on for six-and-thirty hours, for the double purpose of allowing the uterus to drive on the head, and to permit the softening of the foetal structures that followed from the death of the child. In the interval, she was seen by Drs. Bromfield, Denman, and Hunter. "She was examined, besides," he says, "by more than thirty students in midwifery, who were at that time attending Dr. Denman's and my lectures; and which she willingly permitted at my request, from a representation of the singularity of her case, and the utility which might result from its being more generally known." When Osborn returned to finish his task, he spent three hours in destroying and detaching the whole upper and presenting part of the head, and finally

Fig. 16.

Fig. 17.

Fig. 18.

Fig. 16.—Scanzoni's Cephalotribe.
Fig. 17.—Simpson's Cephalotribe.
Fig. 18.—Simpson's Cranioclast.

effecting the extraction with a crotchet fixed in the great foramen; while two fingers of the left hand raised one side of the fore part of the head, so that it slid through edgeways. In the same way, also, my predecessor, Dr. James Hamilton, delivered a rickety woman here of a child, the unbroken base of whose skull is still in my possession. The bones of the vault have all been picked away to the roof of the orbits in front and the occipital protuberance behind. Hamilton has left it on record that the operation began between nine and ten in the morning, and required "such an exertion of force that he was literally carried home in a sedan chair, drenched and exhausted, at half-past two in the afternoon."

2. *Cephalotribes*.—In 1828, Auguste Baudelocque witnessed the delivery of a patient with a two-and-a-half-inch brim, according to the usual procedure by means of perforators and crotchets. He only knew the operation before from lectures and books, and was horrified to see the risks to which the woman was exposed. In that case, the patient died soon after delivery; and at the *post mortem* examination the vagina was found riddled with perforations, the pubic bone was fractured in two places and stripped to some extent of its periosteum; whilst search was made in vain for the bladder and urethra. In January, 1829, he wrote to the Académie des Sciences at Paris a suggestion for the use of a pair of powerful forceps (see Fig. 15), furnished

with a screwing apparatus at the handles, for the purpose of crushing the foetal head and reducing it to such size as to allow its passage through the contracted pelvis. In 1833, the Academy awarded him a prize of 2,000 francs for his invention; and in 1836 he published a full account of this instrument, for which he had now adopted the designation of the cephalotribe. There had been proposals made in the same direction previously, but the head-crusher of Baudelocque was the first that was proved to be really valuable. It was speedily adopted in France, and still more in Germany, where for more than a generation cephalotripsy became the favourite method of comminuting the foetal head. Many of the leading obstetricians modified the instrument according to their liking; some, like Kilian, making it larger than the original; others, like Scanzoni (see Fig. 16), making it less. Other continental obstetricians have made more distinct changes in the construction of the blades, as in the "lamineur" of Professor Wasseige of Liège. In this country, cephalotripsy was hardly ever practised, if at all, until, early in the sixties, Sir James Simpson gave the instrument a British cast (see Fig. 17); and for the last twenty years or so his cephalotribe (or Kidd's or Braxton Hicks's modification of it) has probably been more frequently used for head-comminution than any other instrument.

3. *Cranioclasts*.—In October, 1858, Sir James Simpson had perforated a foetal head lying above a narrow brim, and comminuted it with one of the varieties of the craniotomy-forceps. He left the case for a few hours, and, on returning, was surprised to find the head down in the pelvic cavity. It was easily extracted; and, on studying the mode in which the fracturing was effected, he was struck by the circumstance that the occipital bone had been loosened from its attachments, and fractured close to the foramen magnum. This showed him the importance of breaking the bones in the base of the skull, and led him to contrive the cranioclast (see Fig. 18), for the purpose of producing,

Fig. 19.—Braun's Cranioclast.

of set purpose, in all cases, such a diminution of the base as had been accidentally produced in this. In the following year, he published a lecture on the subject. Some years later, when Simpson had begun to modify the cephalotribe, and practised sometimes cephalotripsy, sometimes cranioclast, Professor Carl Braun von Fernwald, of Vienna, took up the cranioclast, constructed one of larger size, and having a screw to fix the extremities of the handles (see Fig. 19); and found that he obtained better results with it than with the cephalotribe. The publication of his observations led to the more frequent adoption of the cranioclast in Germany and on the Continent generally, where it is gradually superseding the cephalotribe. Every year fresh proof is given of its superiority in practice, and the results of clinical experience have been confirmed by the experimental researches of Auvard and others.

4. *Cephalotomes*.—It should not be forgotten, however, that proposals have been made for securing the diminution of the head by cutting or sawing it through with special instruments. Thus Van Huevel, of Brussels, contrived a saw-forceps, by which the head of the child, grasped between forceps-blades, could be sawn through with a chain-saw working from the shanks towards the tip of the blades. This costly instrument has not been much used out of Belgium; and the suggestion of Dr. R. Barnes, to cut the head through from above with an *écraseur*, is not easily carried out in practice.

5. *Basilysts*.—There remains for mention a fifth variety of instrument for comminuting the head, and it promises better results than all the rest. I have stated how Sir James Simpson perceived the importance of lessening the size of the basis cranii; and it seems strange that obstetricians, who met with difficulty in the extraction of the head, after having picked away all the bones of the roof, did not set themselves determinedly to contrive some means of breaking up the base. Osborn tells us that he tried to break the cranial base of Elizabeth Sherwood's child with his crotchet, and failed. Duges, indeed, proposed his terebellum for the very purpose, because he failed in an attempt to tear up the base with a pair of Smellie's scissors, pushed into the foramen magnum; but we do not read that he ever put his own proposal to the proof. I find Kilian stating that Melzer, of Laibach, had also proposed to effect what he described as *basio-cæsure*.

by means of a basio-castrum. But from the drawing which Kilian gives of the instrument, it is difficult to see how it could have effected its purpose; and I do not find any hint of its having proved serviceable. The brothers Lollini, of Florence, constructed a forceps with a terebrator, which could be screwed first through the vault, and then the base; but it has hardly been used out of Italy. The same may be said of the tenaglia of Professor Fabbri, of Bologna, which is a pair of bone-pliers fashioned like a parrot's beak, and intended to gouge out fragments of bone from the base of the skull.

The first fruitful suggestion for effecting a dissolution of the bones of the base was made in 1860 by Professor Hubert, of Louvain, who laid before the Academy of Medicine in Brussels, a proposal to break up the head of the child by a process which he at first called sphenotresia. In this operation, an olive-shaped screw, at the point of a long steel rod, is used, as I have already indicated (see Fig. 11), first for perforating the vault, at its most easily accessible part, and is then to be passed on and screwed into the base of the skull. An unfenestrated blade, passed over the head of the infant, is fixed at its proximal extremity, close to the handle of the steel rod, and receives into a depression near its tip the point of the screw, when this has transpierced the cephalic structures. As the base may be bored through at any part, and the sphenoid bone is not necessarily transfixed, Hubert afterwards gave to the operation the designation of transforation; and his son and successor has been able to report most satisfactory results from its employment. In 1865, M. Guyon, of Paris, began to work in the same direction, and put in practice a proceeding which he called intracranial cephalotripsy. (See Fig. 10.) An open-

Fig. 20. —Basilyst screwed into the Base of the Skull.

ing having been made in the vault with a trephine (c), a smaller trephine (o) was passed over a stilette (A D), which guided it to the base of the skull, out of which a disc was sawn. Several discs might thus be removed, if necessary; and then, a slight cephalotribe (B), applied to the sides of the fetal head, could crush it effectively with the pressure of the hands without any screwing apparatus. This is an extremely satisfactory operation, as I had myself an opportunity of proving in the one case in which I put it in practice, five years ago; and I was not surprised to find it in use as the favourite procedure in the Milan Maternity, in the hands of Professor Chiara and his assistants. But the apparatus is not one for the general practitioner. It is costly and cumbersome; and, moreover, as Hubert points out, when the internal trephine is applied obliquely to the base, there is a risk of its edge passing through the fetal skin, and wounding the uterine surface.

In was in the way of a substitute for such a complicated and costly set of tools, that I proposed the use of the basilyst (see Fig. 12), which I described in speaking of the perforators. It is only an incidental, though not insignificant, advantage of this instrument, that it dispenses with the necessity of having any supplementary perforator. For the opening is first made with it in the vault; and then the operator passes his finger through the aperture, so as to guide the point of the

screw to some part of the base of the skull (see Fig. 20). Into this it is screwed; and there is no risk of perforation of the skin, far less of danger to uterine structures, as it cannot pass through the bones beyond the shoulder at the base of the conical screw. It may be used simply in this way, screwed in up to the shoulder in various directions, at different points in the base. The result will be loosening of the basic bones. But each time it has been screwed in, the operator compresses the handles, and thus loosens further, and tears apart the bones. In this way the base is broken up so thoroughly that it becomes flaccid, and is easily moulded to the outlines of the pelvis, so that the head may, in some cases, be expelled by the natural efforts, or extracted with the fingers passed through the calvarian aperture. It will always be a desirable procedure to bring about the softening and slackening of the head by manœuvres conducted entirely within the fetal cranium; and it was with the view of fixing the attention of my fellow-workers on the desirability of securing efficient means of acting expressly on the cranial base, that I ventured to speak of the operation under the name Basilysis.

It is, to me, a great confirmation of the correctness of my views to find that my illustrious friend, Professor Tarnier, of Paris, has contrived an instrument which he laid before the Parisian Academy of Medicine last year, and which he designates the basiotribe. It is a somewhat complicated instrument, consisting of a perforator, which is screwed through the vault, and then on into the base, and of two blades, as of a strong forceps or small cephalotribe, which are fixed successively to the perforator, and applied to opposite sides of the head for its compression. In this direction, then, the obstetric mind is working now, and cannot work in vain.

Extractors.—In extracting the child we have seen that, from the earliest times, hooks were made use of for getting hold on some portion of the head. Sharp or blunt hooks, sometimes on straight, sometimes on curved stems, are even now occasionally used. But their use has always been a source of danger, and that not to the poor patient alone; but, as Smellie, and his latest editor, Dr. McClintock, from their own experience confess, even when they advocate the use of the crotchet, the operator runs the risk of injuring himself. In many cases, some of

Fig. 21. —Basilyst-Tractor.

the modifications of the Mesnard forceps served to extract the head; but in the difficult cases they could not be relied on.

The cephalotribe, powerful as it is for crushing the head, is a bad extractor. It often enough has been found to slip. It always elongates the head in the direction opposed to that in which it compresses it. Hence, in traction, it does not permit the normal moulding of the head; much of the space of a deformed pelvis is rendered unavailable; and the elongated diameter of the head endangers, in its descent, the soft parts of the mother. These dangers are still present in the basiotribe, though in a less degree than in the cephalotribe, which is gradually being altogether abandoned as an extractor. This it is that leads to the preference for the cranioclast over the cephalotribe. So dangerous is the cephalotribe as an extractor that some obstetricians follow the practice of Pajot, and use it solely as a crusher, without ever making any tractive effort with it. The cranioclast, though contrived for fracturing the base, does so but imperfectly, but it holds more tenaciously than the cephalotribe; it favours the normal elongation of the head, and allows its moulding and adaptation to the pelvic space. Hence it is that it is being more extensively appreciated, and that suggestions for its improvement multiply, both in France and in Germany.

I am persuaded that all the virtue of the cranioclast as an extractor can be imparted to the basilyst by the addition to it of an extraction-blade, as in the instrument I show you (see Fig. 21). The three essentials for every possible case of reduction and extraction of the head are present in it in their simplest and most effective forms. If it be a case where only the vault has to be perforated, the perforation can be made either in the form of a smooth-edged circle or of a more widely gaping gash. If further comminution be required, it dissolves the bones of the unyielding base, so that the head becomes all soft and compressible. If, finally, extraction be demanded, the perforating and dilating stem is left *in situ* inside the cranium, to serve as the

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.