posed and practised by Mr. Barwell, for the first time on February 4th, 1878. It consists in a double procedure with a considerable interval of time between. First, he divides the femur with a chisel a little above the epiphysal junction for about its external third. Macewen's line of division is on the inside of the femur to the same extent. He then straightens the limb, and allows the gap thus left in the end of the femur to fill up and consolidate. When this has taken place, he completes the second step of the operation by division of the fibula (obliquely) and the tibia (transversely) about one inch below the joint, and by then bringing the limb into a perfectly straight line. No very great advantages have been generally recognised for this operation. Its disadvantages are apparent: a double osteotomy where one will suffice, and so increased danger and loss of time; a gap left at the lower end of the femur, to be filled up by material which may afterwards yield before quite solid to the weight of the body; and this, instead of a lesion (Macewen's operation), resembling more an impacted fracture than anything else. The operation is described in the *BRITISH MEDICAL JOURNAL* of May 25th, 1878.

You have now, gentlemen, had a brief sketch of the various operative procedures for the removal of the deformity of genu valgum which have been published; and you have seen the development out of what may be called rather rude beginnings of the more perfect operations of to-day. You have had, besides, an opportunity of judging of the results for yourselves on cases treated in this theatre by the different methods. There now only remains to glance at the statistics as regards mortality, etc. In doing this, it may be better to group, in the first place, the results of all four last methods together as tolerably similar. Now I think I have collected very nearly all, if not quite all, the cases of the kind recorded up to the present in this country and abroad in the various surgical periodicals. And without giving (for the sake of brevity) a list of the names of the operators which I have before me, I may say that I have collected fifty-five operations by Ogston's method, seventy-two by Macewen's, and fifty-seven by Reeves's, with allusions to others not actually published. But of course many others have been performed. Here, then, we have at least one hundred and eighty-four osteotomies of the femur for genu valgum. Now, admitting it to be possible that others ending fatally may have occurred and not have been recorded, I can only find one fatal case directly due to the operation: namely, that already alluded to. This was operated on by Ogston's method strictly. Another death is recorded by Thiersch (Langenbeck's *Archiv*, April 1879) as following six weeks after the same operation; but this cannot be regarded as the result of the latter. The patient was a sickly girl, and died with uræmic symptoms, her kidneys being found after death to be of the small contracted kind. A drawing of the condition of the joint in this case six weeks after the operation, which I now hand round, appears to me particularly interesting as showing the lesion of the bone produced by the saw-cut, the shifting upwards of the loose internal condyle (doubted hitherto by some), and the filling up of the irregularities so produced by plastic material. Now, supposing we were to admit (which I do not for a moment propose to do) that the fatal termination in this last case was due to the operation, we still have a percentage of deaths of only about one per cent.; a very small one, you will admit. And as to other unfavourable results of the procedures, we have very few to note; such as ankylosis after articular suppuration, useless limbs, etc. Stiffness lasting in the knee for some time has been noticed, but was soon overcome. And all this, in spite of the fact that some accidents have happened during the operation here and there, which would formerly have been regarded as very dangerous. Thus several surgeons at home and abroad have noticed the free entry of air into the joint with no subsequent troubles; this occurred in one of my own cases. Again, Kolaczek (*Centralblatt für Chirurgie*, No. 14, 1879) mentions that, in one of the operations in Breslau, the point of the saw broke off, and remained between the bony surfaces without producing any ill effect. The only other troubles that I can find attributed to the operation are recorded by the last observer; namely, that in two cases, paralysis of the bladder appeared, and lasted two days; and, in another, transient paralysis of the extensors of the leg.

In conclusion, gentlemen, I think you will agree with me that, however promising these methods of correcting the deformity of genu valgum may appear at present, we must still wait, observe, and collect facts in regard to them on a much larger scale, before deciding definitely what place the various procedures shall take among the regular operations of surgery.

PROFESSOR E. NEUBAUER, the celebrated chemist, died in Wiesbaden on the night of June 2nd. Dr. Neubauer was the author, together with Dr. Vogel, of a well known manual on the chemical examination of urine, a translation of which was published some years ago by the New Sydenham Society.

REMARKS

ON

FORCIPRESSURE AND THE USE OF PRESSURE-FORCEPS IN SURGERY.

BY T. SPENCER WELLS, F.R.C.S.,

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[Concluded from vol. i, page 928.]

THE use of forcipressure in surgery may be considered under three heads: first, as one way of carrying out the principle of Esmarch's "bloodless surgery" during an operation; secondly, as a mode of dispensing with either the cautery or the *écraseur* as alternatives for knife or scissors; and, thirdly, as a substitute both for torsion and the ligature for permanently closing bleeding vessels.

Few can estimate more highly than I do the great advantages gained by the use of Esmarch's elastic bands and bandages in amputations, excision of joints, or in any operation where they can be conveniently applied. But in the operations which of late years I have been most frequently called upon to perform—the removal of large ovarian and uterine tumours, and amputation of the breast, the cure of ruptured perineum and vaginal fistulæ, or the removal of large tumours in various regions—Esmarch's proceedings are quite inapplicable. I have occasionally had Lister's tourniquet for compressing the aorta applied as a precautionary measure; but have only twice had to exert compression. In every other case, pressure-forceps have always been sufficient for the suppression of hæmorrhage, at least until the completion of the operation. Any vessel divided in the first incision through the skin and integuments, either of the abdominal wall or any other part of the body, may be seized almost as soon as divided, and the forceps left hanging on as long as necessary. Deeper vessels may be secured in the same way. I have removed very large mammary tumours, one weighing nine, and another thirteen pounds; sometimes putting the forceps on a large vessel before dividing it, sometimes directly after the division, until from twelve to twenty forceps had been used, and thus large vascular tumours were separated with scarcely any loss of blood. In ovariectomy, shreds of vascular omentum or mesentery may be thus secured before separating them from the cyst, or any vessels which bleed after separation from the cyst may be made safe until the pedicle has been secured and the tumour removed. If it be inconvenient to tie the pedicle before dividing it, then two or three pressure-forceps may be applied, one at each extremity of the pedicle, and one or two more towards the middle; and the tumour may be cut away without any fear of losing the end of the pedicle or its vessels. In Cæsarean section, splenotomy, nephrotomy, and the removal of a large undescended testicle in a man, forcipressure has proved quite as useful to me as in ovariectomy or hysterotomy. In operating for the cure of old ruptures of the perineum, troublesome bleeding often occurs as the mucous membrane is denuded. If ligatures be used, they may interfere with union between the raw surfaces when they are brought together by suture; but, as a rule, pressure-forceps amply suffice for stopping all bleeding until the sutures have been passed and are ready for closing. A little pressure is then all that is needed. So in operating on vaginal fistulæ, very troublesome bleeding, which would interfere with accurate paring of the edges and passing of the sutures may be immediately and effectually controlled; and if the forceps be left on until it is time to fasten the sutures, it will almost always be found that bleeding has ceased.

I need now say very little as to the use of the *écraseur* or the cautery. There are cases where one or the other may be preferred to the knife or scissors. But, with a sufficient number of pressure-forceps at hand, the fear of hæmorrhage need not influence the decision.

The permanent closure of vessels divided during an operation, or by an accident, is a question of greater importance than the mere temporary stopping of bleeding. Acupressure, filopressure, and uncipressure have all failed to gain general acceptance by practical surgeons. Torsion, though deserving of far more general adoption than it has hitherto attained, has made but very slow progress. But I have never yet found anyone who has tried forcipressure who has not been immediately convinced of its convenience and the great advantages obtained, at least in the temporary suppression of hæmorrhage. Confidence in forcipressure as a substitute for the ligature, or as a mode of permanently closing considerable arteries, is attained more slowly, and requires much more observation and more extended trials before its real value can be accurately estimated. On this point, rather than rely on my own trials,

I prefer giving a short *résumé* of the experience of Kœberlé, Péan, and Verneuil.

M. Verneuil, in 1875, published several very interesting papers on Forcippresure in the *Bulletins et Mémoires de la Société de Chirurgie de Paris*. He explained how he had been led, in several cases where ordinary methods were inapplicable, simply to leave in the wound the forceps which he had used to seize the wounded vessel. His first case, about 1865, was an uterine polypus with a long pedicle. He cut the pedicle, and was surprised by free bleeding from a considerable artery. Cold injections proving useless, he seized the end of the pedicle by his polypus-forceps, tied the handles together, and left them in for two days without inconvenience to the patient. In 1869, he treated an artery deep in the palm of the hand in a similar manner, leaving the forceps for five days. In 1870, a wound of the internal mammary artery was also successfully treated, the forceps being removed after forty-eight hours. In 1873, in removing the coccyx, the lateral sacral artery was wounded and secured by forceps, which were left in for four days. In 1874, a very vascular naso-pharyngeal polypus was removed by a wire *écraseur*; and, very free bleeding not being stopped by plugging, the bleeding surface was seized by forceps, which were left in till the next morning and then removed without any recurrence of bleeding. Equally successful cases of wounds of the radial artery, of bleeding from the tonsils after removal, and from the interosseal artery after trephining, are also related. A large nævus was surrounded by ten forceps (which were left on till they fell off on the fifth and seventh days), and the growth was thus removed without the loss of one drop of blood. The remarks of M. Verneuil on these cases, on the varieties of forceps successively constructed, on the use of compressors of arteries by Assalini and others for the cure of aneurism, on the movable forceps of Nunneley and the "cannula artery-forceps" of Wolfe of Aberdeen (described in the *BRITISH MEDICAL JOURNAL* in 1867), the "self-acting wire compress" of Taylor (described in the same *JOURNAL* in 1868), and Richardson's tubular compress (in the *Medical Times* in 1869)—are all worthy of attentive perusal. He then analyses the results of forcippresure in 27 cases of forcippresure of large vessels—I axillary, 1 subclavian, 17 femoral, 2 tibial, 2 brachial, 3 of the forearm, and 1 radial in the hand. In 22 of these cases, the success was complete. The forceps were left on for various periods from twenty-four hours to the fifth or sixth day, and four times until they came away spontaneously. In only one of the 27 cases was there secondary hæmorrhage. The inconvenience to the patient and the interference with the healing of the wound has been greatly exaggerated.

As a means of preventing or anticipating hæmorrhage, M. Verneuil also shows how forcippresure becomes useful before paring the edges of hare-lip, or removing epithelial growths of the lip or cheek, or portions of the tongue, in compressing the spermatic cord before castration, and in removing growths from the neck of the uterus.

The concluding portion of M. Verneuil's papers, on multiple and prolonged forcippresure as a mode of permanently stopping bleeding, is perhaps the most important of all. He shows that M. Péan has carried out this practice far beyond other surgeons. In comparing the relative advantages and disadvantages of leaving several forceps or several ligatures in a wound, it is thought that both are equally efficacious if the forceps be left on long enough. In rapidity of application, the advantage is altogether on the side of forcippresure. The sponging and irritation of the wound necessary for the ligature are spared, and the pain after recovering from anæsthesia is said to be less, if forceps are properly supported, than from ligatures. In quiet patients, forceps may be left in the mouth, vagina, or rectum; but with timid or restless persons the ligature should be preferred. But the main advantage of forcippresure is that the forceps need not be left on more than a day or two, perhaps not many hours; whereas ligatures separate slowly, and if not cut short retard the healing of wounds.

In the account of M. Péan's practice, given by Messrs. Deny and Exchaquet, a number of general observations on the different modes of suppressing hæmorrhage are followed by examples of the use of forcippresure, *before* operating, as a means of *preventing* hæmorrhage; and particular forms of forceps are described for the tongue, lips, and neck of the uterus. Then a number of cases are related, where forcippresure was not only of temporary utility, but as permanently stopping bleeding, "*moyen d'hémostase définitive*":—amputation of the breast and limbs; resection of joints; operations on the scalp, mouth, tongue, neck, trachea, and rectum; castration, and gastrotomy; also on vessels not divided, as in aneurism and varices; the general conclusion being that the forceps may be removed in from two to thirty-six hours after the operation.

In M. Kœberlé's work, the same order is followed. Into the question of priority at issue with M. Péan I need not enter; nor into the difference between the instruments of Paris and Strassburg, as I think

those of London far superior to both. But I join heartily in the concluding remarks of Kœberlé, to the effect that forcippresure is easy and rapid, enabling the surgeon to do without assistants—thus remarkably simplifying the practice of operative surgery. When divided vessels are small, the pressure exerted during the operation is quite long enough. When vessels are large, the forceps may be left in for some hours, for a day or more. Thus ligatures may be entirely suppressed, except in some few cases where forceps cannot be left; even then, they facilitate the application of ligatures. After the removal of the forceps, which may be looked upon as a ligature or compressor removable at will, no foreign body remains in the wound.

My own experience fully bears out the conclusions of the French surgeons; and I feel certain that, if good forceps are used, forcippresure will soon become very general in the practice of British surgeons.

[To be continued.]

ON A NEW ACOUSTIC APPARATUS; AND ON INTENSIFIED SOUND AS A CURATIVE AGENT.

By WILLIAM A. MCKEOWN, M.D.,

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I HAVE pleasure in bringing to the notice of the profession an acoustic apparatus, constructed with a view to aid the deaf in the most convenient and useful manner. Whilst this is the immediate object of the invention, I shall endeavour to show that its long continued use will exercise a curative influence over certain rebellious diseases of the ear, hitherto practically beyond the pale of medicine and surgery.

As the latter consideration is of even greater importance than the former, I will first deal with the grounds for my belief in the curative influence mentioned.

Toynbee's Pathological Researches show that *Vibratory Motion* ought to be a rational remedy for many cases of Deafness. To Toynbee the world is probably more indebted than to any other man, living or dead, for having put aural diseases on a scientific basis. From his tables, giving the results of his dissection of upwards of 1,000 diseased ears, it appears that a large proportion showed lesions in the conducting apparatus of the middle ear. I extract the following figures:

126 cases—membrani tympani thicker than natural.

59 cases—adhesions of membrana tympani to different parts.

202 cases—membranous bands between ossicles.

99 cases—ankylosis of stapes to fenestra ovalis.

66 cases—too rigid attachment of stapes to fenestra.

I am aware that doubts have been suggested by subsequent writers as to the pathological character of some of the bands described, and, also, that Hinton thinks that Toynbee's proportion of rigid and ankylosed joints is excessive, because the most of the subjects were old and more exposed than people in general to influences likely to disorganise the auditory apparatus. Still, that the condition of rigidity is one of most frequent occurrence in practice does not admit a doubt; indeed, it is highly probable that a large proportion of the cases described in books as "Chronic Inflammation of the Drum", and "Dry Catarrh of the Drum", are cases of simple rigidity of some of the parts induced by the advance of age or constitutional causes. These terms are often only a cloak for defective knowledge, and serve the same purpose as the term "Nervous Disease of the Ear" used to do. Besides, in cases in which there has been undoubtedly a chronic inflammation, this generally brings about a lasting deafness by the induction of rigidity. In any event it will be wiser, instead of trying to explain away Toynbee's results, to accept them as a fair index of the pathological condition in many cases of chronic deafness in old people, and as a guide to rational treatment. We have, I submit, clear grounds for dealing with stiff joints in the ear as we would with a stiff knee or ankle-joint, viz., by appropriate motion.

The Structure of the Ear points to Vibratory Motion as Curative.—The structure of the ear, constituted as it is of vibrating membranes, of ossicles with joints, of fluid, and of vibrating parts in connection with the nervous elements, points to it as a mechanical organ, and as one likely to require treatment on mechanical principles. For a stiff joint we prescribe exercise, for a rusty hinge we employ motion. If the muscles and joints of a pianist become impaired in their delicacy of movement, we prescribe much practice. By use, the hinge comes to work sweetly, and the muscles and joints often re-acquire their lost powers; so it is reasonable to infer that the stiff membranes, joints, and other structures of the ear, being brought into exercise by vibratory motions sufficient to set them in play, may advance more and more to a condition of health.