so rapidly spread in them. I take this opportunity of mentioning that the corporation of Dublin have lately erected, at an expense of £500, a disinfecting chamber upon the plan of that constructed at Liverpool under the superintendence of Dr. Trench, which succeeded so admirably. In this new chamber, the temperature ordinarily employed is 300°, and it is often raised to 350°. I regret that it is not very largely taken advantage by the hospital authorities. It has been used a few times by the dispensary physicians, but as yet has not grown much in public favour. I am not aware that there is any other disinfecting chamber in Europe on the same principle. It has been lately copied in New York.

Dr. ACLAND: Nothing could be more lucid and perfect than Dr. Gairdner's representation of the general condition of the population of the bad parts of our great cities. They are all very much alike, with, of course, certain local reservations. What struck me as a very admirable feature of Dr. Gairdner's communication, especially as a professional one, was its moderate and temperate character. I did not catch a word of attack on the landlords as unreasonable possessors of property, or any stigmatising whatever of persons who cannot help the circumstances in which they find themselves. Nothing, of course, can exaggerate the terrible nature of the evils, such as have been described, which are suffered by the poorer populations not only in Glasgow, but also in Edinburgh (which city I mention, as I am myself acquainted with it), and also, I believe, in Dublin, and especially in London. The condition of some of this property is such as to constitute an almost irremediable evil in the case of an enormously increasing population; that is, irremediable for a certain time, just as the unhealthy constitutions of some of the children that we see in great workhouses or Poor-law schools are at the moment irremediable. I have just come from one of the splendid schools conducted by the National Board in Ireland. I am very familiar with schools of that kind. One of the most affecting spectacles that a thinking man can behold in our age is that of the infant benches in one of the schools to which the poorer classes of our population go. You see most beautiful children, apparently perfectly healthy, as they often are in their childhood; and, sprinkled amongst them, strumous little creatures of low physical structure, and apparently destined to be unhealthy for life; and every one acquainted with our towns knows that this is a result of the unfavourable conditions in question, that they are and must be born so. How can this be remedied? By enlisting, as Dr. Gairdner pointed out, the owners of property on the side of sanitary improvements. As an illustration of the difficulties by which even those in that position are sometimes surrounded, I may mention that I happen to be trustee of an agricultural property of considerable value, on which there are about seventy cottages. That property has been in Chancery for many years. The cottages were in a horrible state; and yet I had no more power to touch them, though I was trustee, than you had. It is of no use to abuse persons so circumstanced. All we can do is to hope that, by God's blessing, the time may soon come when these things can be remedied. In the case brought under our notice by Dr. Gairdner, power has been obtained to deal with some of the evils; but it has taken from twenty to thirty years to bring this about. This Association has just appointed a Committee, on which Dr. Gairdner has been kind enough to consent to serve, and which will engage itself for the present in the very modest occupation of collecting facts; and, when these facts are collected and put before the Government, I feel no doubt that, though they do not in the least require any information of the sort, it will be impossible for them to resist employing all the compulsory powers that it would be safe to exercise in such a matter. I only repeat, that the point is, to get the holders of property to do what in them lies, by enlisting them on our side. For a time I fear that, do what we will, nothing short of the entire destruction of the property will uproot the evil. But there is one thing which ought not to be tolerated, because in truth it is intolerable; and that is, that in any town whatever, be it small or large, buildings should be allowed to be erected which are not fit for human habitations. I have no hesitation in saying that no Government, be its politics what they may, deserves the name of a Government, that in a country like ours, at the present time of day, does not bestir itself at once to enforce the rule that no house shall be built unfit for people to live in. That would put a stop at once to all aggravation of the evil. I have seen, in a district which I could name, miserable dwellings, miserable cottages, which I could prove to be more healthy than good modern houses; that is, I have seen fever in new cottages, when some tumble-down, horrible old houses were perfectly free from the disease. Why? Because the old houses had holes in the roofs—holes in the walls—holes every where; so that the poor occupants of them had air to breathe; whereas the new houses were plastered and built in such a way as to prevent ventilation. These things ought to be impossible; and every house ought to be certified to be fit for human habitation. During last winter, I had occasion to visit many parts of the eastern portion of London; and the magnitude of the mischief there

cannot, I think, be equalled either in Glasgow or in my old haunts in Edinburgh. I have no doubt that Dr. Mapother, who is to be on the Committee, will help it with some facts; and I trust that, at the next meeting of the Association at Oxford, we shall be able to report progress in aid of Dr. Gairdner's admirable and already richly rewarded exertions in his own district.

Dr. GAIRDNER: I have only to explain, that there is now complete protection in Glasgow against the construction of such houses as those referred to. One of the worst of the fever-dens was a comparatively new house; but none such have been constructed since 1862, the date at which the new Police Act was planned; and no more such will be constructed.

OBSERVATIONS ON THE CONSTRUCTION OF THE CEPHALOTRIBE.*

By GEORGE H. KIDD, M.D., F.R.C.S.I.,
Assistant-Physician to the Coombe Lying-in Hospital, Dublin.

IN 1865, during a visit to Edinburgh, I obtained one of Sir James Simpson's cephalotribes, and since then have practised cephalotripsy in all such cases as required the reduction of the size of the head to accomplish delivery. In the *Dublin Quarterly Journal of Medical Science* for February and May of the present year, I have published cases in which the operation was performed, and where there was more or less marked narrowing of the antero-posterior diameter of the pelvis. In one instance there was but one inch and three-quarters in this direction, and yet the mother was delivered safely and made a good recovery, as did the mothers in all the others, except one, where she was in a state of such extreme exhaustion when I first saw her, that I feared she would sink under any operation, and though, owing to the ease with which the head was extracted by the cephalotribe, her remaining powers were not overtaxed, she never rallied, and died in eighteen hours.

In speaking of these cases, and subsequent experience has confirmed me in the opinion, I have stated that I was convinced that the cephalotribe should be used in all cases of embryotomy in preference to all crotchets, hooks, and craniotomy-forceps, and that the use of it would reduce the dangers of embryotomy to a minimum, and allow its performance in cases where delivery could not otherwise be accomplished except by Cæsarean section, and that even though the child were known to be dead. My earliest operations were performed with Sir James Simpson's first modification of the instrument, but in the use of it I saw, from time to time, that some further changes in it were desirable, and it is my object now to show an instrument that I have found to answer all the purposes I have hitherto required. The action required of a cephalotribe is twofold:—

1st. As a compressor, to compress the head, and especially the base of the skull, so as to allow of its passing through a narrowed pelvis.

2nd. As an extractor, to hold the part to which it is applied, so as to allow of its being rotated in the smallest possible space, and of the most diminished portion of the presenting part being brought into the narrowest diameter of the pelvis. Moreover, its hold must be so secure as to allow of the use of a sufficient amount of extractive force to draw the child through the pelvis.

Authors differ as to the relative importance of the action of the instrument as a compressor and as an extractor. Hennig of Leipzig has added crotchet points capable of being projected when the instrument is applied, to increase its power as an extractor; and Depaul aims at the same object, while M. Pajot and Dr. Hodges look on its use as a compressor as the most important, and, in extreme cases, Pajot is satisfied with breaking up the head by repeated applications of the instrument, and allowing it to be expelled by the uterine contractions. I believe myself that in a very narrow pelvis the cephalotribe should be applied and re-applied so as to break up the head sufficiently to enable it to pass through with ease and safety, and that then the labour may be shortened by using a certain amount of extractive force. But, whether used as a compressor, extractor, or both, the form of the instrument should be such as to admit of its easy introduction, application, and locking, with the greatest possible facility and safety, and in the narrowest pelvis in which it could be used.

In the instrument I have had made, I have endeavoured to meet all these requirements. Instead of a blade with a pelvic curve, I have adopted a straight blade. I believe this has four great advantages. First, it permits of the head being rotated in a smaller space than with a curved blade. It seems obvious that a head seized in a curved instrument must, when rotated, either turn on the axis of the handle of

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the instrument or on its own axis. If it turn on the axis of the instrument it will pass through a segment of a circle whose diameter will be double the length of the curve. If it turn on its own axis then the handle of the instrument must sweep through the circle. Now, as the instrument is chiefly required in cases of narrowing of the antero-posterior diameter of the pelvis, and is applied in the transverse or oblique diameter, and it is desirable that when the head is crushed in this direction it shall be turned so as to bring its crushed and shortened portion into the antero-posterior diameter of the pelvis, it is of the utmost importance that it should be capable of effecting this rotation in the smallest possible space, and this, it is evident, can only be done with a straight blade.

Secondly, it is easier to guide a straight instrument when introducing it than a curved one. In introducing a straight instrument we have but

one element to consider as to its progress, whereas, with a curved blade, we have to follow with the mind's eye, not only the onward course of the point, but the peculiar direction the blade may take in consequence of its curve, and to guard against injury to the parts met with in this course; and, as it has often to be passed up far above the brim of the pelvis, the importance of this cannot be over-estimated. The pelvic curve in Baudelocque's original instrument measured three inches and three-quarters; to facilitate the turning of the head, Braun, of Vienna, reduced it to two inches. I advocate doing away with the curve altogether.

Thirdly, it holds the head more securely. When the blades are applied, and we begin to make compression, if they rest near the posterior part of the head, it is liable to slip from between them, and so elude the grasp of the instrument. In one of my operations, in which

I used Simpson's instrument, this occurred repeatedly, but was obviated by fixing the head by making pressure over the pubes, which was done by my colleague, Dr. Ringland. Cazeau and Busch tried to prevent this slipping of the head by increasing the pelvic curve, but a little consideration will show that this was a mistake, for, as the head, in the great majority of cases, lies with the face to one or other sacro-iliac synchondrosis, and the occiput directed forwards, and as the point of the curved blade is always directed forwards, the curve actually increases the risk of slipping. Schölles attributed the difficulty, more correctly, to the shortness of the blades, and consequently lengthened them, and for this and other reasons I have followed his example; but while I believe the only effectual way of preventing it is to fix the head by a hand placed above the pubes, I have no doubt it is much less likely to occur with a long straight blade than with a short curved one.

Fourthly, in making extraction, the handle of the straight instrument indicates the direction in which the traction should be applied. With an instrument having a pelvic curve, a calculation has to be made at each stage of the operation as to the direction in which the force should be applied. With a straight blade, the handle changes its position as the head advances, and the force is always to be applied in the line of the instrument, as has been ably shown by Dr. Beatly, in reference to the forceps, in his *Contributions to Medicine and Midwifery*.*

The length of the blade in my instrument is ten inches, nearly equal

* The day after this paper was read, Sir James Simpson exhibited a modification of his cephalotribe, which he thought an improvement on his former one. In this instrument, the pelvic curve has been reduced by three-quarters of an inch, and the blades have been lengthened by more than one inch. I have no doubt Sir James would find a perfectly straight blade, and one even longer, still more useful.

to Baudelocque's and Scanzoni's, and greater than in most others. By this increased length the base of the skull is more surely reached, and therefore more surely broken up. The hold of the instrument is more secure, and the head less likely to slip from between the blades, and when the instrument is introduced the lock is external to the vulva, and nipping of the labia is therefore avoided. In considering the length of the blades it is to be remembered that in the cases of extreme narrowing the head is always quite above the brim of the pelvis, and the depth of the pelvis itself is often much increased. When the blades are closed, their extreme width is one inch and a-half, and the cephalic curve is formed by a curve commencing at an inch and a-half from the points. The space between the blades at the widest part when closed is one inch. The gradual cephalic curve, and the closeness of the blades, will allow of the instruments being applied in a narrower space than most others. It is true that they diminish the extracting powers of the instrument, but this I look upon as an advantage, as, for the safe use of the cephalotribe, the head should be crushed to such a degree by repeated applications that it may be extracted without force. The lock in my instrument is the reverse of that in general use. It is made so, that when the upper, or right, blade is introduced, the patient lying in the ordinary obstetric position, on her left side, the lock of that blade looks forwards. I have spoken at some length on this formation of the lock in my papers in the *Dublin Quarterly Journal of Medical Science*. I believe no change could be made in the cephalotribe, or in the midwifery forceps, that would tend more to facilitate their correct application and use than this. Formerly forceps were made in this way. I have a pair showing this, made, I believe, in 1790. In the museum of the Rotunda Hospital there is a similar pair. Dr. Radford, in his volume of *Essays* published in 1836, has devoted a section to this form of lock, but still instrument makers have not adopted it. Messrs. Fannin, of this city, however, who made the cephalotribe I exhibit, now manufacture forceps with the same form of lock, and I am greatly mistaken if any operator who has once used either instrument will ever willingly operate on a case with the head high up in the pelvis with one having the lock differently placed. The handle of my instrument is half-an-inch shorter than Simpson's or Hicks', the shortest hitherto in use. This, added to the increased length of the blades, tends, no doubt, to diminish its compressing power; but I have ascertained, by repeated experiments, that there is still abundant power to compress the most firmly ossified head, and the instrument gains somewhat in lightness and portability by the change. The screw used is the same as Simpson's, which is not only most simple and easy of application, but forms a very convenient and firm cross-handle for manipulating the instrument.

ON THE CEPHALOTRIBE.*

By SIR JAMES Y. SIMPSON, BART., M.D.,
Professor of Midwifery in the University of Edinburgh.

SIR J. Y. SIMPSON said he felt, and he was sure many of his brethren felt, that to bring any information concerning midwifery to Dublin was like bringing coals to Newcastle. The medical men of Dublin had reason to be proud of the Dublin Lying-in-Hospital at the Rotunda. He believed it was the first institution of the kind in the three kingdoms. He would address to the Section some observations in illustration of the cephalotribe.

Under certain circumstances in practice, obstetricians were often obliged to reduce the size of the child's head, and for that purpose they had recourse to a variety of measures, craniotomy being one. At present that was not a very favourable operation in hospital practice. He (Sir James Simpson), having looked at Dr. Churchill's book, found that there were 310 cases of craniotomy performed in the Dublin Hospital. Out of these 65 died, or more than one-fifth. The operation was attended with great danger for various reasons; and especially for this reason, that when we perforate the child's head and take away a piece of bone, we are extremely apt to injure the vagina; and, again, by the operation, the size of the child's head was often increased. Dr. Hamilton, many years ago, was in attendance on a young woman whose pelvis was very deformed, and, in order to deliver her, he had to remove the whole arch of the cranium; and he states that after having done it, which took him eight hours, he had to be rolled up in blankets and carried home himself; so what must have been the state of the patient when the doctor was so bad? Notwithstanding all that, they had the base of the skull quite entire; and in putting on the cephalotribe it broke the head at once. In reference to the size of the pelvis, M. Pajot stated that he delivered women with a pelvis of an inch and a-half. That,

in Sir James Simpson's opinion, was too small a pelvis to be delivered at all, and it was one where the woman ought to submit at once to the Cæsarean operation. He himself had attended a case where a very deformed woman was attempted to be delivered by craniotomy. He used that instrument (exhibiting a cephalotribe), and the delivery was over in two or three minutes. The instrument used was quite curved, and the advantage of it was, that it would not slip when a straight pair would. One of the great difficulties is this, that after fixing the head it slips backwards. The instrument needs to be pushed very far forward, and with a long straight forceps it is almost impossible to hold the head. The instrument exhibited was a very powerful one and very heavy. The cephalotribe, with teeth for fixing the scalp of the child, he regarded as a great improvement; but it is a little more complicated in its arrangement than others. It was an instrument capable of crushing any head, and rendered the operation of craniotomy easy and safe for the patient.

THE CEPHALOTRIBE.*

By J. BRAXTON HICKS, M.D., F.R.S.,

One of the Lecturers on Midwifery, and Assistant-Physician-Accoucheur at Guy's Hospital; Physician to the Royal Maternity Charity; Examiner in Midwifery at the University of London; etc.

In exhibiting the modification of the cephalotribe already described by me in the eighth volume of the *Transactions* of the Obstetrical Society of London, I may remark that it is very nearly similar to that of Sir J. Simpson as regards the blades, both as to size and form, the difference being chiefly in the mode of applying the power by the screw. I may mention that I have found it, in my own practice, the most convenient arrangement. I have employed it in four cases, and am led to the conclusion that, as an addition to the obstetric bag, it is a very valuable one.

From numerous experiments on heads of still-born children, I have arrived at the following conclusions, which I will state as concisely as possible.

1. If an endeavour be made to crush the foetal head before perforation, a very powerful instrument will be required. Besides which, from the shape of the head, there is a constant tendency in it to glide from beneath its influence. Thus a serious addition is made to danger of the operation.

2. If perforation be undertaken before the use of the cephalotribe, the vault of the cranium forms very little resistance; and then an instrument like that of Sir J. Simpson will be sufficient for crushing the head; and there is little tendency to its gliding away under these circumstances.

3. When the instrument is applied to the perforated head, it may act beneficially in two ways—(a) by completely crushing the base, thereby flattening sideways the whole head, or doubling up the base; or (b) by the slipping of one of the blades inwards a little, whereby the base is tilted edgewise, and the skull flattened by the pressing inwards on to the base of the squamous portion of temporal bone and the parietal.

4. Under either of these processes, the head can be so flattened as to allow the blades to meet.

5. Generally speaking, two applications will suffice to effect cephalotripsy.

6. The flattening is much more commonly in the transverse diameter of the foetal head, than in the longitudinal; which, however, is seldom elongated by the lateral pressure.

7. The thorax and pelvis of the foetus form no appreciable resistance to the instrument.

From the above results, I have been led to advise that it should be a general rule, that perforation should precede cephalotripsy; for, where it is impossible to perforate, it will be exceedingly difficult to apply the cephalotribe. The case would, in that case, fall under treatment by Cæsarean section. When it is said "as a general rule," it is admitted that a few instances may occur where the crushing may be tried first.

From these experiments, and from consideration of the cases in which I have used the instrument, I regard it rather as a substitute, in the severe forms of obstruction, for the other craniotomy instruments after perforation; and not so much as a substitute for Cæsarean section. It is, no doubt, very valuable both in doing away with the danger arising from spicula of bone, and from the crotchet, etc., as well as tending to shorten the duration of the operation; but, if we rely upon it as an instrument capable of accomplishing the whole delivery by itself, we shall be overrating it, and exposing ourselves to disappointment. For it is not a tractor; and therefore, should pains be absent, we shall generally have to draw down the head by some other means. When it is regarded as a substitute for the Cæsarean section, it seems that the advan-

* Read before the Midwifery Section at the Annual Meeting of the British Medical Association in Dublin, August 1867.

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