A CRITICISM OF THE MIDWIFERY FORCEPS IN GENERAL USE.¹

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As a Scotchman, it is with some degree of diffidence that I venture to introduce this subject, seeing that a well-known authority has stated that "it is not to the land of the mountain and flood that we are to look for opportunities of acquiring experience in midwifery of this difficult kind; it must be in great centres of population—London, Manchester, Liverpool, Birmingham, Dublin." However, since both his geographical and historical knowledge are at fault in making such a statement, I may take courage, and introduce a subject which is of interest not only to the obstetricians of the large centres of population, but likewise to every country practitioner.

A medical man cannot, like a dentist, provide and carry about with him a number of forceps ingeniously modified to meet varying conditions. The necessities of practice demand that he should have but *one* pair, suitable for the ordinary and easy cases, but at the same time capable of meeting any contingency; not cumbersome to carry about, and simple in construction, with no weak point, liable to snap when severely tried. It is evident that such an instrument must belong to what we may speak of as the ordinary type of midwifery forceps, and not to the complicated and formidable looking traction forceps of recent years. Most of the forceps in general use are serviceable, but each and all have their weak points or defects; none can be said to combine in themselves the best features which experience has evolved. What is required at the present time is not the invention of novelties, but the judicious combination of such characters in the various instruments that have commended themselves to the profession at large.

It would be a matter of great importance if an Association such as this (by committee or otherwise) would thus arrange an instrument which would be known as the British forceps. They could be altered, as in the course of years new modifications commended themselves to the profession; and the young practitioner, when providing himself with instruments, would be guided by the general opinion of the profession instead of that of a single person. As a contribution to this end, I would submit the following criticism of the forceps in general use.

Amongst the many contributions to obstetrics which the authority above referred to has made, not the least is the introduction of an instrument which has been largely adopted. Barnes's forceps are well-known, but those who are unfamiliar with obstetric history can but faintly realise the good service he has done in England, in combating the dread of a powerful instrument, and exposing the fallacy of there being safety in weakness.

A formidable rival to his instrument is that of the late Sir James Simpson. No single form of forceps has, perhaps, been more generally adopted. Unfortunately, however, they have become stereotyped, and have undergone no modification for more than a quarter of a century. Had he lived it would in all probability have been otherwise. The process of evolution is to be seen in his entirely discarding the short forceps; and, had it not been interrupted, his long forceps would probably have been made slightly longer, and, perhaps, otherwise modified.

These two forceps, Simpson's and Barnes's, may be taken as the types of those in general use; and a comparison of one with the other will be found to cover most of the important points to be considered. The day of short forceps has gone by, and there is a very general consensus of opinion in favour of the pelvic curve, so that the question of "straight *versus* curved" need not be discussed.

1. *The Length.*—As to the length of the instrument, those who have been accustomed to use Simpson's forceps will agree that they meet the requirements of the vast majority of cases, even where the head is at the brim. Dr. Barnes totally misrepresents the capabilities of the instrument when he states in his latest work, "if one be accustomed to use a comparatively short double curved forceps, like Simpson's, which will mostly fail to seize the head at the pelvic brim." In his writings he has several times repeated

this opinion, which is at variance with that of most men who have been in the habit of using Simpson's forceps. I have never failed with them to grasp the head, even when above the brim; still I am at one with him in regarding it as an improvement were Simpson's forceps made of equal length with those of Barnes; it would render more easy their application in the high operation and give increase in power.

2. *The Handles.*—Less attention has been paid to this point than its importance deserves. The value of a pair of forceps lies quite as much in the form of the handles as in that of the blades. To be readily serviceable they should properly balance the blades in the hand; and this principle at once discards both the very short, as seen in Matthews Duncan's forceps, and the unduly long and heavy, as in the French type. The form of the handles determines not so much the amount of force that can be exerted as the conservation of the force. What is of importance is to avoid fatigue to the operator's muscles and the preservation of "the delicacy of diagnostic touch and the exactly balanced control over the movements" which is lost when fatigue is produced. For this end I have no hesitation in discarding all others and giving the preference to the well-marked type of handle found in Simpson's, that properly should be called the German handle. More than any other form it lends itself to comfort in grasping and readiness and variety in the mode of traction. One important characteristic is the hollowed shoulder at the head of each handle. For facilitating traction it far surpasses the device of the ring in the shanks, as in Barnes's and other forceps. Dr. Barnes has admitted that the shoulders answer the purpose better than the ring, yet strangely enough he has not adopted them.

The advisability of curving the handles so as partly to meet the difficulty of exerting traction in the proper direction will be referred to further on.

3. *The Lock.*—The general consensus of opinion is so strong in favour of the Smellie or English lock, that it need not be discussed in comparison with the button and mortice, or the screw. The fancied gain in the Ziegler lock is delusive; if there be a difficulty in locking, the blades are not in a position for traction; if the latter are so placed that traction can be made, there will be no difficulty in locking.

4. *The Parallel Shanks* have now been adopted in all the best forceps. It is here that a slight addition to the length is required in Simpson's forceps, so as to bring the lock more external in the higher operations. If the German handle be adopted, there is no need for the semicircular bow which forms a ring with its fellow when locked.

5. *The Pelvic Curve* has also now been decided, and does not differ in the two types of forceps under discussion.

6. *The Form of the Blades.*—The objection to thin springy blades is now well understood; several specimens of the Barnes's forceps I have seen err in this respect, a fault probably of the instrument maker more than the author. The actual form of the blades is to a large extent dependent upon the fenestræ. One extreme is found in Taylor's narrow forceps, so made for a special purpose; the other extreme is met with in several of the American forceps, as in those of Hodge, Smith, and Wallace. In them the fenestræ is wider than in the English types. An intermediate form is preferable. In both Simpson's and Barnes's the fenestræ are too narrow. An increase was first suggested to me by a pair of forceps by the late Dr. Angus Macdonald, and since I have adopted this modification I have been fully conscious of the improved grasp, and greater retentive power of the blades so obtained. Slight as the modification is, I am certain no greater improvement could be made on the present type of forceps.

7. *Axis-traction Rods.*—It is extremely doubtful that the profession will ever lay aside the ordinary forceps, and take to one or other modification of Tarnier's instrument. The latter are essentially so much more complex and cumbersome that it would require a much greater deficiency on the part of ordinary forceps than actually exists to produce the revolution in general practice. Still it must be admitted that a defect in the ordinary curved instrument has been pointed out. This question I have discussed at length in this JOURNAL (August 28th, 1886), and have shown that the defect may be overcome by a much simpler method. Increasing experience in the use of the simple tractor, in the form of a hook, assures me that all the advantages claimed for the complicated apparatus can be obtained by the simple contrivance readily applicable to any forceps. It enables the operator to change the direction of the force in any way required, and gives much greater facility in employing both hands at once; it likewise diminishes the risk of

¹ Read in the Section of Obstetrics at the Annual Meeting of the British Medical Association held in Dublin, August, 1887.

fatigue by diminishing the strain upon the hands, and is simplicity itself in construction. The same end cannot be gained by curving the handles, as proposed by Aveling and others. The object is thereby attained in part only, for whilst traction can certainly be made with curved handles more directly in the required axis, yet a change in the direction of the force can only be made by changing the hold upon the head. With the tractor, on the other hand, the direction of traction can be changed at will without changing the grasp of the blades on the head.

The forceps which I now recommend are Simpson's, modified according to the opinions stated above, and embody such changes as we can suppose Sir James Simpson would himself have adopted had he lived. The instrument is lengthened by an inch added to the shanks, and the fenestræ are increased in width on the convex side by a quarter of an inch. The changes appear trifling; but experience has convinced me that they materially enhance the usefulness of the instrument. With them I would couple the simple forceps tractor, and, so armed, I am certain the practitioner will be able to cope with any difficult case where forceps are applicable, whilst at the same time the simplicity of the instrument is retained.

ON THREE CASES ILLUSTRATIVE OF RENAL SURGERY.¹

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THE surgical treatment of stone in the kidney is of such recent date that I need offer no apology for bringing forward at this meeting of the British Medical Association three cases, the first in Ireland, in which operative measures have been resorted to. Taken together, these cases are very instructive, each of them presenting features, both in regard to their history and the results of operation, which I think are well worthy of consideration. The first case has already been published in the *Annals of Surgery* for January, 1887. It represents a case in which a stone, which when dried weighed 171.3 grains, was readily detected both by the finger and by an exploring needle through an incision in the left loin. The second case was one in which the symptoms were almost conclusive of renal calculus, and yet through a lumbar incision careful manipulation with the fingers and free use of exploratory punctures failed to reveal the presence of a stone. In this case the kidney was not incised. The third case was one in which exploration with the finger and exploring needle also failed to detect a stone, and yet, after a free incision was made into the substance of the organ, a small calculus lying in an abscess cavity was found to exist. These cases, then, are typical cases of the varying conditions which may confront the surgeon in his search after a stone in the kidney; and as they open up several practical fields of thought, I will shortly sketch the history of each.

The first case was that of a man, aged 28, a silk weaver by trade, on whom I operated on May 6th, 1886, for stone in the left kidney. The history of this condition dated back for about six years. He had previously enjoyed good health, but had been a heavy ale-drinker. In the winter of 1879-80, during one of his drinking bouts, he had rigors, followed by a feverish attack, and a fortnight later suppression of urine, which lasted three days. When the urine was again secreted it was passed mixed with blood. Concurrently with the hæmaturia severe and paroxysmal pain came on. It began in the left groin and hip, and sometimes shot down into the left testicle. Though varying in intensity, it was continuous during the six years previous to operation. The hæmaturia did not entirely cease for three months. When admitted to hospital the urine contained pus. I had him under observation for over six months. During this period he never passed blood, but the amount of pus was variable, sometimes amounting to a third. The urine was always acid, though sometimes extremely fetid. The specific gravity was about 1017. The microscope revealed pus cells and crystals of uric acid, but there were no pyriform cells and no tube casts. On examination of the site of pain nothing abnormal could be detected but well-marked tenderness over the last rib and below it, immediately external to the erector spinæ, that is, over the region of the left kidney. He could not lie on the right side without increased pain. My colleague, Dr. Wallace Beatty, who examined the case with great care, concurred entirely

in the view I took of it, and accordingly I operated in the usual way, choosing the lumbar incision. When the kidney was reached a hard mass could be felt in the pelvis, and an exploratory puncture with a long needle showed that this was a calculus. It was about two inches in length, and completely filled the pelvis. An incision two inches long was made through the substance of the kidney down to the stone. The hæmorrhage at first was very brisk, but a finger passed through the wound served as a plug, and it quickly became checked. The stone was friable and chalky, but was so firmly embedded in the pelvis that it had to be crushed with a forceps and removed piecemeal. Part was hooked out with the finger and part with the assistance of a lithotomy scoop. The debris were washed out by means of irrigation. A drainage-tube was placed external to the kidney and brought out at the lower angle of the wound. The incised parts healed by first intention, excepting along the track of the drainage-tube, which was not finally closed till between the fourth and fifth week. After operation he was able to lie on the right side, and since he left hospital has been able to resume his work, which he had been obliged to give up entirely. He is now in good health, although the urine still contains a small amount of pus.

The second case was that of a farmer, aged 40, on whom I operated on February 24th, 1887. His renal history dated back to an accident he met with in August, 1885. A horse kicked him in the right groin; he fell backwards, striking his left side and back against a heap of stones on the road. He was stunned for a few minutes, but, on recovering, he experienced a sharp pain over the two last ribs on the left side. About a week later he noticed that the act of micturition caused him pain, which was most acute at the glans penis. It was increased in frequency, and was often followed immediately by the passage of a few drops of blood. These symptoms lasted for a fortnight, and then he was more or less free from them till September, 1885, when the hard work of the harvest brought them all back again. They continued without improvement till he came under my care. He then complained of pain over the left kidney, of a dull aching character, and continuous. It was increased by lying on his back or on his left side, or by exertion. It shot down into the left groin and into the penis, especially if he experienced a jolt. There was tenderness on pressure over the region of the left kidney. The urine was pale in colour and cloudy; it contained a small quantity of pus, and occasionally a little blood; it was acid, with a specific gravity of 1020; the microscope showed some renal cells, but no tube casts.

As some of the symptoms pointed to the possibility of a vesical calculus, he was sounded twice for stone, the second time under chloroform, but nothing abnormal could be felt except an increased rugosity of the lining membrane of the bladder. I therefore made an exploratory lumbar incision, and exposed the left kidney. I pressed it carefully all over between my fingers, but beyond an apparently thickened condition of the pelvis, I was unable to detect the presence of any stone. The kidney was then punctured systematically with a long needle, but nothing was found. I accordingly closed the wound, which healed rapidly, union being complete in a week, and he was then allowed to return home. Six weeks later I heard that he had returned to the country in "fairly good spirits and health, and that he had not much urinary trouble." But at the end of this period he got a chill from exposure, with high fever, rapid pulse, and he soon became delirious; but during the attack the urinary symptoms were not aggravated. He died on April 15th, the gentleman who attended him not having been able to arrive at a diagnosis as to the cause of death. It does not however appear to have been in any way connected with the renal trouble or with the exploratory operation. I should add that the pain in the side was materially improved by the operation, no doubt the result of the division of some of the nerves.

Though operation in this case failed to detect the stone, as has happened in many other cases, I have not hesitated to communicate it, as it forms a strong contrast with the third case, in which similar difficulties were encountered. This was the case of a married woman, aged 34, who was admitted to the Adelaide Hospital on February 16th, 1887. In 1869 she suffered for about a year from anæmia, but subsequently she enjoyed good health up to January, 1885. In the meantime she had married and had become the mother of four children. She became pregnant for the fifth and last time in May of that year. In the preceding January (that is, 1885), she began to suffer from a burning pain, not very severe in the region of the right kidney. It was accompanied by

¹ Read in the Section of Surgery at the Annual Meeting of the British Medical Association, held in Dublin, August, 1887.