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A Demonstration of some Eighteenth Century Obstetric Forceps

BY

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A Demonstration of some Eighteenth Century Obstetric Forceps.

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The three obstetric forceps which I exhibit to-day are all representatives of old types of instrument in use in the eighteenth century, but long obsolete. The first and second were formerly included in the collection belonging to the Obstetrical Society of London and are now in the Museum of the Royal College of Surgeons of England as a loan from the Royal Society of Medicine, with which the Obstetrical Society was amalgamated. The third was presented to the College Museum by Dr. Clement Dukes.

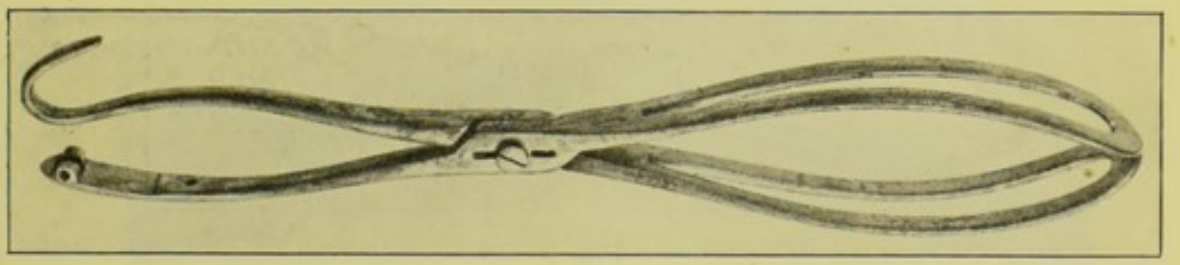

Fig. 1.

Grégoire's forceps, fitted with hinge for Freke's sharp crotchet. Loan Collection, Museum of the Royal College of Surgeons.

Grégoire's Forceps.

This first instrument to which I shall turn your notice this afternoon (fig. 1) is a good sample of a French forceps in general use before Levret devised the pelvic curve, independently, it seems, of Pugh and Smellie. It is of the type of the instrument which was designed by Grégoire fils. It differs from the Grégoire forceps represented in Mulder's standard work[1] in that the blades are much straighter and the lock is far less complicated, whilst the handle of one blade was furnished with a crotchet. In this sample the appended crotchet has been lost, but in another preserved in the Obstetrical Museum of the University of Edinburgh (fig. 2) it remains intact, as seen in these

[1] "Historia Litteraria et Critica Forcipum et Vectium Obstetriciorum," Leyden, 1794.

photographs prepared for me by Dr. R. W. Johnstone. Freke, Surgeon to St. Bartholomew's Hospital, devised a similar crotchet arrangement, figured in a drawing of his forceps in Giffard's work, edited by Hody and published in 1734, without any detailed description. I have failed to find any other record of Freke's forceps after careful search and consultation with Sir W. Church and Dr. Norman Moore, who have traced many of Freke's surgical writings. The crotchet was formed by the handle turned inwards and bifurcated, and was covered in, when not required, by a guard, a flat, oval piece of metal attached to a pivot on the inner side of the handle. In this modified Grégoire's forceps the mechanism is different. There is, as you can see, a hinge on the extremity of the handle, turned inwards. The crotchet was a separate piece of metal, bifurcated at its free end and attached at its opposite extremity to the hinge, as the photographs from Edinburgh teach us (figs. 2, 5, and 6). There was an oval metal guard, as in Freke's forceps,

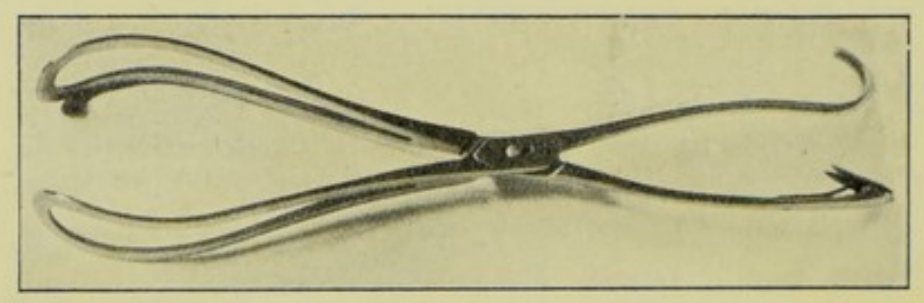

Fig. 2.

Grégoire's forceps, showing the sharp crotchet. Obstetrical Collection, Museum of the University, Edinburgh. Photographed by Dr. R. W. Johnstone. (Much reduced.)

but it was slightly concave, and arranged so as to fix the crotchet when required or to cover it in against the inner side of the handle when it was not wanted. This arrangement would seem to be an improvement on Freke's device, adapted to a French instrument. Yet it is possible that it is an original idea of Grégoire's which Freke simplified and adapted to an English forceps.

We cannot, as far as the literature of the time can indicate, feel certain that Grégoire, jun., himself did not devise or suggest this modification of his original instrument. He never published any work on his own forceps, but was saved from oblivion, indeed made famous, by Adolphus Boehmer, who had studied under Manningham, famous as the detector of the imposture of Mary Toft, the rabbit-breeding woman. Boehmer translated Manningham's work into Latin, the

title being "Artis Obstetricariae Compendium tam Theoriam quam Praxin," and it was published at Halle in 1746. Boehmer described and figured Grégoire's forceps in an appendix. A copy of Boehmer's work is preserved in the Library of the Royal Society of Medicine, but the drawing of Grégoire's forceps has been torn out. However, Mulder figures it (loc. cit., pl. ii, figs. 7 to 13), figs. 8 to 12 being devoted to the complicated lock. Kilian ("Armamentarium Lucinae Novum," 1856, pt. xiv, fig. 5) publishes one drawing of Grégoire's forceps with a lock much less complicated. A pivot projecting from the lower blade passes through a hole in the upper. This arrangement is also present in the Edinburgh Grégoire's forceps, as seen in the photograph (fig. 4—fig. 3

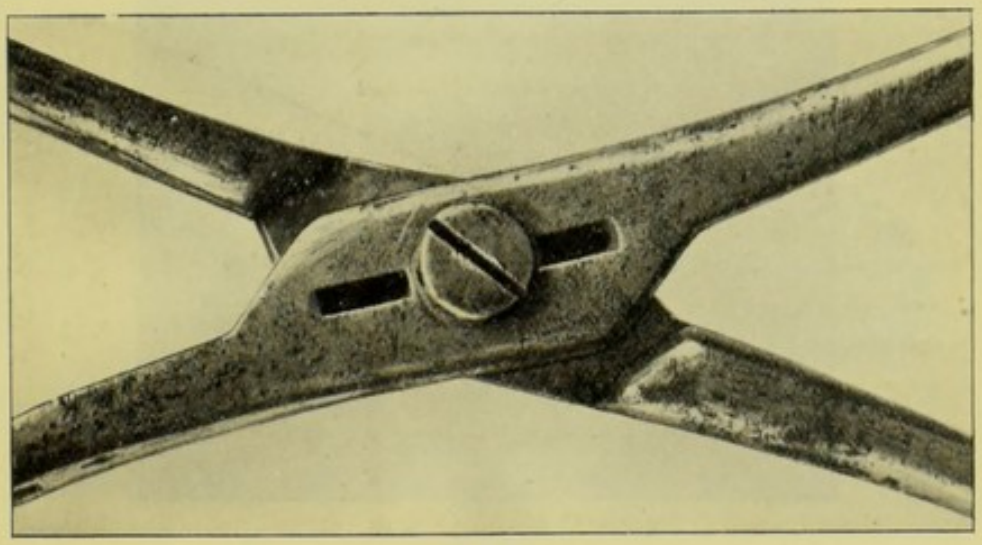

FIG. 3.

Grégoire's forceps, showing two slots divided transversely; the screw has been fixed just below the metal crossing between them. Loan Collection, Museum of the Royal College of Surgeons.

representing the lock in the instrument now exhibited). Dr. Hellier has described and figured a Grégoire forceps belonging to the Museum of the University of Leeds[1]; the lock is of the same type and there is a sliding bolt which fits into a groove round the neck of the pivot and grasps it firmly. The pivot mechanism is also seen in the modified Dusée's forceps,[2] preserved in the Mulder Collection at Utrecht, and in

[1] "A Pair of Midwifery Forceps of Early Eighteenth Century Pattern," *Brit. Med. Journ.*, 1912, i, p. 1027. The handles are both curved outwards as in the original, and there is no arrangement for a sharp crotchet.

[2] This instrument and Burton's forceps are figured in an article on "Burton ('Dr. Slop'), his Forceps and his Foes," *Journ. of Obstet. and Gyn. of Brit. Emp.*, 1913, xxiii, pp. 3-24.

the forceps preserved in the Library of the York Medical Society, and used by Dr. Burton ("Dr. Slop" in "Tristram Shandy") in his practice, though quite different from the instrument which he invented.

In Mulder's "Historia," the most trustworthy of the earlier illustrated works on forceps, the earliest invented instrument with the pivot arrangement is Petit's (pl. iv, fig. 9), an instrument otherwise differing greatly from Grégoire's, whilst the first where it is clearly identical with the pivot lock seen in the Edinburgh forceps is Péan's (pl. vii, p. 18); the inventor Péan, not to be confounded with the gynæcologist who flourished at the end of the nineteenth century, was an eighteenth century obstetrician whose forceps was first ascribed to Baudelocque,

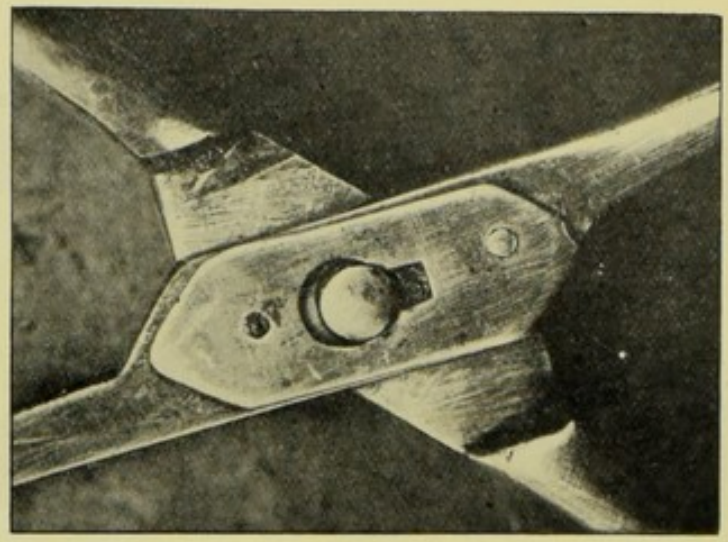

Fig. 4.

Grégoire's forceps. Obstetrical Collection, Museum of the University, Edinburgh.

sen., father of the inventor of a well-known cephalotribe. The former, according to Mulder, admitted Péan's priority. Coutouly (pl. x, fig. 1) also preferred a similar lock, Kilian ("Armamentarium," pl. xvii) representing it plainly. But it is significant that Kilian, who lived long after Mulder, represents Grégoire's forceps with the pivot just as in the Edinburgh forceps, whilst Mulder ("Historia," pl. ii, figs. 7 to 13) figures an absurdly complicated lock in his drawings of Grégoire's forceps (loc. cit., pl. ii, figs. 8 to 12).

It will be noted at a glance that the screw arrangement (fig. 3) in the lock of the modified Grégoire's forceps which I show is even simpler than the pivot in the Edinburgh sample (fig. 4). A plain screw is fitted into a slotted joint which allows of radial deviation; two slots are seen

in fig. 3, the lower separated from the upper by a narrow bar of metal, and the screw in the photograph has been fixed in the lower slot—namely, that towards the handle—an arrangement which suggests Dusée's forceps with two locks.[1] As the screw bears no thumb-piece, a screwdriver must have been employed in order to fix or remove it.

These variations in the lock of several forceps of the Grégoire type suggest that it was soon found to be much too clumsy, as devised in Grégoire's original instrument. Hence arose the adoption of simpler locks, as seen in this and the Edinburgh instrument, where a sharp crotchet arrangement is added to one handle. Possibly Grégoire himself simplified the lock. We only know of his original forceps through Boehmer, so Grégoire might have altered it after his German pupil had ended his pupilage.

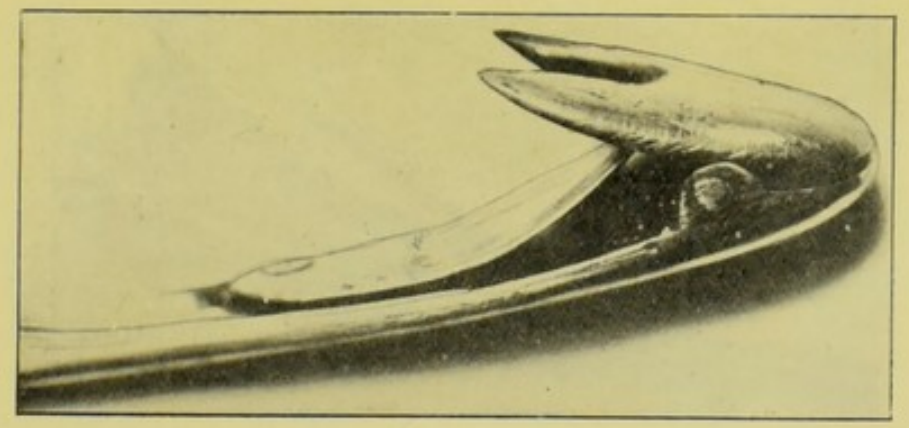

FIG. 5.

Sharp crotchet, ready for use (on No. 2).

The handle of one blade is less convex outwards in this instrument than in the typical Grégoire's forceps. The blades are very long, 8½ in. (21·5 cm.), measuring with the handles 1 ft. 5 in. (43·2 cm.),[2] the curve is wide, the extremities, 1¾ in. (4·4 cm.) in breadth and broader than the bases, are not curved abruptly inwards as in Mulder's drawing. The fenestræ measure in length 7½ in. (19 cm.), and, as in the instrument drawn by Mulder, are cut square near the lock, ¼ in. (0·6 cm.) wide, not ending in a point as usual; perhaps this was done to lighten the

[1] *See* "Dusée: His Forceps and his Contemporaries," *Journ. of Obstet. and Gyn. of Brit. Emp.*, 1912, xxii, p. 119, and "Dusée, De Wind, and Smellie," *ibid.*, p. 203.

[2] Mulder makes out the length of the whole instrument as "15 pol."; of the blades, "8⅓ pol."

very heavy instrument as much as possible. The greatest space between the closed blades is $2\frac{3}{8}$ in. (6 cm.), whilst at their extremities they almost touch, as in Smellie's forceps. Mulder gives a space of $1\frac{1}{4}$ in. to his Grégoire's forceps. The compressive power of this instrument, which weighs 1 lb. 9 oz. (702 grm.), must have been dangerously strong.[1]

We may dismiss this forceps as a most inconvenient instrument, which was soon discarded when Levret invented his own with the pelvic curve. It must have been more awkward than Dusée's, which Smellie himself once made use of, on Butter's recommendation, and rejected, devising the pelvic curve and the long forceps. Levret almost simultaneously introduced the pelvic curve, yet his forceps was as long, if not longer, than Grégoire's.[2] The French obstetricians believed in

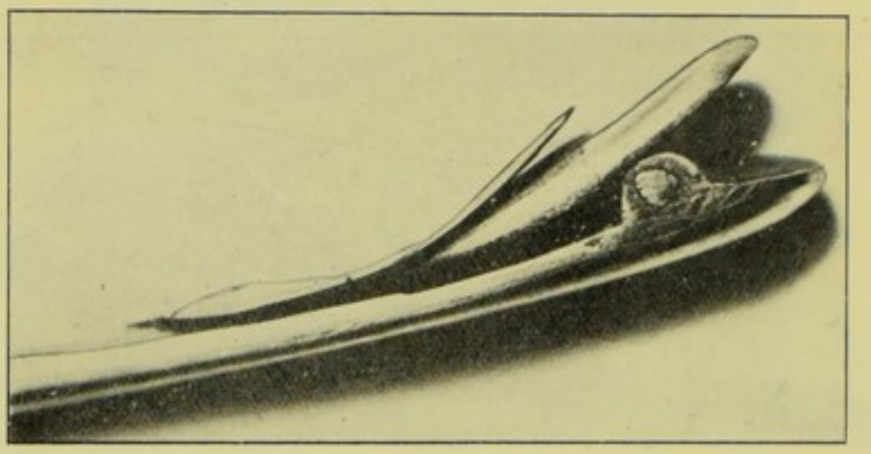

Fig. 6.

The same, closed and covered by guard.

a strong, long-handled forceps. British obstetricians, on the other hand, dreaded unduly the risks of pressure of the fœtal head and of damage to the soft parts of the pelvis through friction or slipping of the blades. Hence it will be instructive to compare this modified Grégoire's forceps with the two English eighteenth century instruments which I will now exhibit.

[1] Dr. Cordes, of Geneva, possesses a Levret's forceps which weighs 870 grm. ; it is of the same length as the Grégoire's forceps which I exhibit (17 in.), "Midwifery Forceps of Early Eighteenth Century Pattern," *Brit. Med. Journ.*, 1912, i, p. 1276.

[2] According to Mulder's tables, Levret's followers constructed forceps just as long—Petit's, 15 in. ; Coutouly's first pattern, $16\frac{1}{2}$ in. ; Péan-Baudelocque, $17\frac{1}{2}$ in., longer even than the forceps here exhibited.

Orme-Lowder Forceps.

The second instrument (fig. 7) which I exhibit this evening is also from the collection once belonging to the Obstetrical Society of London. It bears the label: "Short forceps belonging to Dr. William Ralfs, in use before 1815. Presented by his grandson, Dr. W. A. Bonney." It is of the Orme-Lowder-Haighton type, a straight and very short forceps with broad blades narrowing at the free ends, which lie far apart when the handles are closed. Its weight is 11 oz. or 312 grm. Dr. F. W. Cock informs me in a letter: "I remember my father telling me how he delivered a woman with a pair of Lowder's forceps in 1854 for a country doctor, and what a good hold they had of the child's head, unlike Denman's, which used to slip. The country doctor's predecessor, a very old man, was a Guy's or Thomas's student, and the Lowder forceps had been left 'in the practice.'"[1]

I take this opportunity of laying before you certain passages collected from the writings of Lowder, Haighton, and their pupils, as there is some obscurity about the relation of these obstetricians to their instruments; whilst Orme, who, it will be seen, devised the original type, appears to have left no writings, the witnesses of his priority being a German and a Dutchman, just as the forceps of Dusée, a Frenchman, was made known not by himself, but by a Scotchman.[2]

Lowder speaks for himself. In a manuscript copy of his lectures on the "Theory and Practice of Midwifery," dated 1782, and preserved in the Library of the Royal Society of Medicine, the following statement is to be found: "Dr. Orme thought he could improve on Dr. Smellie by shortening the forceps further, making the blades rounder and wider towards the lock to suit the parietal bones. I thought they might be improved by locking lower down in the handle to avoid pinching the mother, but when I came to use them I found they required more force to hold them together, that what I gained one way I lost on another." A plain statement, but Lowder says no more about these forceps. He implies that Orme's modification preceded his own, and the evidence of foreign obstetricians of his day confirms the precedence of Orme. In 1783, a year after Lowder wrote the manuscript lectures, Carl Gottlob Kühn described Orme's forceps in a thesis, which was reprinted in 1827

[1] Although the Osborn forceps which I show to-day looks light, it weighs almost exactly the same as this Orme-Lowder forceps (11 oz., or 312 grm.).

[2] *See* author, *Journ. of Obstet. and Gyn. of Brit. Emp.*, loc. cit., p. 122.

with his other works, as the "Opuscula Academica Medica et Philologica," a copy of which is preserved in the Library of the College of Surgeons. "Smellie's forceps was modified by Orme, Surgeon to Guy's Hospital, and *a Lowthero* (*sic*), the highly experienced obstetrician of the same hospital" ("De forcipe, Ormii," loc. cit., i, p. 113). Kühn, as will be explained, was not accurate as to the appointments of the two obstetricians. He states that he is not sure when the instrument was invented, nor whether the honour is to be accorded to Orme alone, or to Lowder as well.[1] Kühn describes Smellie's short forceps and Orme's forceps at great length, and figures them side by side. He dwells on the broad blades of Orme's instrument with the wide fenestræ, which, like the blades, are narrowest at the extremity, and the wide parting of the shanks above the lock (Blundell, the follower of Haighton, the successor of Lowder, we shall see, finds fault with the fenestræ as being too

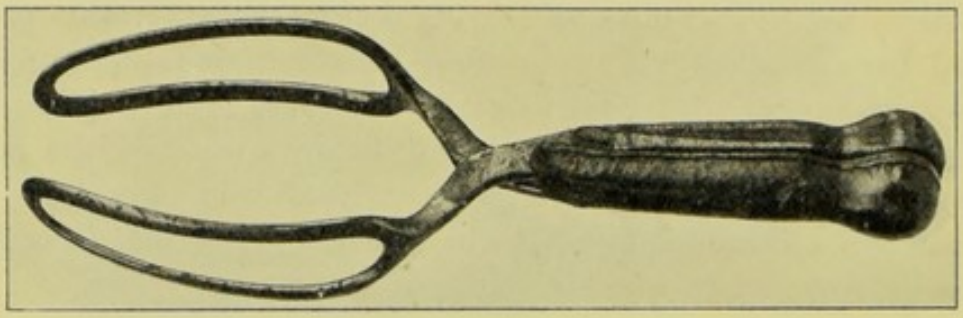

Fig. 7.

Orme-Lowder forceps. Loan Collection, Museum of the Royal College of Surgeons.

narrow). Smellie's forceps, Kühn states, has narrower blades with narrow fenestræ, widest at extremity, and the shanks do not diverge widely above the lock. When the handles are closed the extremities of Orme's blades are $1\frac{5}{8}$ in. (4·12 cm.) apart, precisely as in the forceps now exhibited, though Mulder gives a different measurement, 1 in. Kühn concludes: "Nolo jam ex his, quæ breviter de Ormianae forcipis incommodis disserui, colligere quasi animi mei hac de forcipis Smellianae immutatione sententiam. Etenim lucide apparere puto me non tantopere captum esse novitatis amore, ut vere emmendatam, et ad majorem perfectionis gradum evectam *Ormii* studiis forcipem fuisse censeam."

Perhaps the most important witness as to the development of the

[1] Mulder, it will be shown, wrote in 1794 that Lowder's forceps had not then been described in print, admitting that Kühn had described Orme's very correctly.

Orme-Lowder type of forceps is Mulder. I therefore quote in full the experience of this authority, who was a pupil of both these obstetricians. The passage is from the "Historia Forcipum et Vectium," 1794, p. 66; and is also to be found in Schlegel's translation, "Geschichte der Zangen und Hebel," 1798, p. 80. A copy of the German edition is preserved in the Library of the Royal Society of Medicine; it was formerly in the possession of Dr. Rigby, and against the reference to Kühn, 1783, quoted below, there is a pencil mark, "my MS. copy of Lowder's lectures is 1776," an important piece of evidence showing that the forceps is of older date than we might otherwise suppose. Mulder's evidence is written out clearly.

"I will now relate in chronological order what several English authorities have contributed towards the improvement of the forceps.

"First I must mention David Orme and William Lowder, who are both obstetricians in London,[1] and were my teachers when in past years I was residing there. They had made use of forceps already for several years different from any previously included in my collection. They have neither described their own instruments nor had them drawn, but in the year 1783 Karl Gottlob Kühn published a description of the first —namely, Orme's forceps—and as far as I know is the first person who ever reported the instrument in print. [In a footnote Mulder refers to Kühn's thesis and considers that the description is very correct, but the drawing poor.] As chronological order is strictly followed in this "Historia," I must place this forceps first. Lowder's forceps, which has not yet been reported or figured, I will proceed to describe on account of its resemblance to Orme's, of which it is only a variety, though, according to the time when it was invented,[2] it should not be placed immediately after the former. Orme's forceps consists of two blades which have not the new (pelvic) curve, but are straight. The blades have fenestræ, and besides being not so long, differ from Smellie's in that they are broader at the base and narrower at the tip; whilst the latter run each from a narrow base to a broad free end. Again, the angle of divergence of the blades is greater in Orme's forceps, and the ends, which in Smellie's come close to each other, are an inch apart (when the handles are closed). The lock and the handles resemble

[1] Mulder, let it be noted, makes no mention of Guy's Hospital in reference to Orme or Lowder.

[2] Unfortunately, Mulder does not give the precise dates of the introduction of Orme's forceps and Lowder's, nor even state how many years the latter came into use after the former.

Smellie's. [Mulder adds in a footnote that Kühn is correct about these distinctions, as he has authenticated them by inspection of a genuine Orme's forceps in his own (Mulder's) possession.]

"Lowder made Orme's forceps 1 in. longer, but left it unaltered in other respects, save that he dispensed with the leather cover, of which Orme approved. Orme's intent in altering the (Smellie's) forceps was to ensure uniform pressure on the fœtal head, an aim which, as I know from experience of this instrument, he has not attained. The shortness of Orme's forceps—the shortest of all such instruments—must surprise everybody, but we need no more wonder when we bear in mind that Orme never applied the forceps until the vertex had come down to the coccyx and perineum. Lowder's alteration served to protect the soft parts of the mother, which are liable to be caught and bruised in the lock of the shorter forceps."

Mulder gives references to his own plates of Lowder's forceps which, as in the case of Orme's, he had drawn from instruments in his own possession. Further on, Mulder, writing on the fenestræ of different forceps, expresses his preference for the broad fenestra and the widening of the blade at the base—the main features of the Orme-Lowder type—to the broad extremity and narrower fenestra of the blade in older instruments, as Orme's forceps allows of better adaptation to the protuberance of the parietal bones. We shall see that Blundell dwelt, in later years, on this point.

Neither Mulder's original "Historia," published in 1794, nor J. W. Schlegel's German translation, published in 1798, make any mention of Haighton, although Schlegel notices some forceps invented since the issue of the original work. Yet this broad short type of forceps is often associated with his name.

After learning this valuable evidence of a pupil of Orme and Lowder, the instrument here exhibited (fig. 7) becomes of greater interest.[1] It seems to be a compromise, being longer than Orme's, yet the handles are covered with leather. "Involucrum coriaceum, quo gaudebat *Ormiana* rejecerit," says Mulder, of Lowder. Perhaps the leather was only rejected for the blades; I will return to this side of the question in considering Kilian's drawings. Mulder figures both forceps (Orme's, pl. v, figs. 1 and 2, Lowder's, *ibid.*, figs. 3 and 4). In this College specimen the shanks diverge above the lock even more widely

[1] The wide fenestræ and the broad blades perfectly level on their inner surface are characteristic of this type of forceps.

than in Orme's forceps in Mulder's plate; whilst in his drawing of Lowder's forceps he makes the shanks less divergent than in Orme's.

In Kilian's "Armamentarium Lucinæ Novum," 1856—his second and corrected atlas — Orme and Lowder's forceps are figured on pl. xviii. The Orme's instrument is very like the College specimen, though the divergence of the shanks is not so marked. He represents the leather covering of the handles continued up the shanks, only ending at the base of the blades. Possibly this was the case in the College specimen (fig. 7), as the upper part of the leather on both blades is ragged, as though it once went higher, but has broken off in course of time.

Before turning to later writers I must dwell a little on Kühn's statement as to the connexion of Orme and Lowder with Guy's Hospital and Mulder's association with those teachers. Then it will be necessary to speak of another obstetrician, Haighton.

I have endeavoured to trace Mulder's connexion with Guy's Hospital. On the title-page of his "Historia Forcipum et Vectium," he adds after his degree, "Societ. Med. Lond. in Nosocomio Guysiano Soc. honur." The Library at Guy's Hospital[1] possesses the first and third volumes of the Minutes of the Physical Society of Guy's Hospital. The first volume bears the date 1775 to 1783. Haighton joined the Society in 1778, being proposed for election by Cline. In the course of the same year Lowder was thanked for the use of his theatre, and in 1782 was President. There is no mention either of Orme or of Mulder. In 1783 Lowder seems to have been very active at the meetings, and it was in that year that Kühn's thesis was written, wherein Orme and Lowder are described as members of the staff of Guy's Hospital. The third volume of the minutes is dated 1794-98, but unfortunately the second volume is lost. It would include the meetings from 1784 to 1793—just about the time when Mulder was studying in London under Orme and Lowder. The third volume begins with the Minutes of 1794, the year in which Mulder's "Historia" was published. The loss of the intervening volume is most unfortunate. Haighton, who "improved" the Orme-Lowder forceps, read a paper on "Observations on Aneurysms" one month after his election in 1778.

I have consulted Dr. H. C. Cameron, Dean of the Medical School at

[1] I must here express my gratitude to the Librarian, Mr. Wale, for the pains he has taken in searching for these old archives.

Guy's Hospital, and he informs me that Drs. Orme and Lowder were never on the staff of Guy's Hospital, but were lecturers in the combined schools of St. Thomas's and Guy's. Mr. Henry Williams, Clerk to the Governors, kindly showed me the list of physicians and surgeons to Guy's in the eighteenth century, and the names of Orme and Lowder are, I find, conspicuous by their absence. I have further consulted Dr. Walter Tate, Dr. E. Stainer, Mr. Ballance, and Mr. G. Q. Roberts, Secretary to the Medical School, St. Thomas's Hospital. They find that there is no recorded evidence that either Orme or Lowder were ever on the staff of that institution.

The Museum of Guy's Hospital possesses a forceps marked "Lowder," very like a Lowder's forceps in its proportions, but the blades as well as the handles are entirely covered with leather. The handles and blades are wrought in one piece, but wood is let into the metal along the handles. The blades are $2\frac{1}{2}$ in. (6·35 cm.) apart when the handles are closed. Close by it is another forceps of the Orme-Lowder type with shanks running upwards almost parallel to each other for over an inch, then they diverge at an angle of 70° to join the blade. The blade is not much broader at the base than at the free end, which lies $1\frac{1}{2}$ in. from its fellow when the handles are closed. The fenestræ are much narrower than in Mulder's type. Perhaps this is the instrument of which Blundell complains on that account. It looks more like a primitive instrument than the well-known later modifications. There remains a third forceps in this series, the most remarkable of the three. It is marked "18th Century," but bears the name "Ferguson, Giltspur Street," a maker associated with St. Bartholomew's Hospital rather than with Guy's. Possibly it is simply a recent model, made for a class. It resembles in its general characters an Orme-Lowder forceps, but bears a Brunninghausen or German lock—a pivot with a broad, flat head, $\frac{7}{8}$ in. (2·2 cm.) in long diameter, fitting into a notch in the opposite limb, and it is not lined with leather, but enamelled. The shanks, $1\frac{1}{2}$ in. long (3·8 cm.), are considerably divergent, and the fenestræ very broad. Mr. Barry Hopkins informs me that a forceps of this type was once well known in the trade, and ascribed to Brunninghausen himself. The blades are similar to those of Haighton's forceps, but longer and not so square. Haighton's name has been closely associated with this type of forceps; indeed, many dealers and practitioners took it for the generic denomination of the type, ignoring Orme and Lowder. It is, however, as may be seen at a glance (fig. 8) clearly a development of its prototype—Orme's instrument.

Although its deviser, Haighton, was a co-lecturer with Lowder, Mulder's teacher, it is not figured in the "Historia," and, strange to say, Kilian does not represent it in his "Armamentarium" (1856). Yet it was once well known in England, and in 1825 David Davis wrote of it as the widest-bladed forceps ever invented before his own.[1]

John Haighton,[2] born in 1755, lectured in conjunction with Lowder on midwifery at the united schools of St. Thomas's and Guy's Hospitals, but was never appointed physician to either. His nephew, Blundell, assisted him in his lectures in 1814, and took the whole course four years later. Haighton died in 1823. He was a distinguished physiologist and an excellent obstetric operator. Among his writings we find "An Experimental Inquiry (*sic*) concerning Animal Impregnation,"[3] and "An Enquiry (*sic*) concerning the True and Spurious Cæsarean Operation."

Dr. Fawcett and Dr. Cock, who directed my attention to the eighteenth century forceps in the Museum of Guy's Hospital, to which I have already alluded, pointed out a "Haighton's forceps" in that collection (fig. 8). Probably invented about 1790, but possibly a few years later, it is an Orme's forceps with exaggerated breadth of the blades, which are broadest at the base, but narrowing to but a slight extent towards the tips, so as to look almost oblong. The fenestræ are $1\frac{5}{8}$ in. (4·12 cm.) wide at the lowest and widest part, where the width across the blades is $3\frac{1}{4}$ in. (8·2 cm.). The shanks part widely as in the College forceps, but are thinner; the handles, on the other hand, are very similar, they are lined with leather reaching close up to the lock, and, as in this College specimen (fig. 7), it is not clear whether the leather lining ended below the lock or covered the shanks up to the base of the blades, as in the Orme's forceps figured in Kilian's "Armamentarium." The blades in the Guy's Museum forceps are $\frac{3}{4}$ in. longer than those of the College forceps and the fenestræ are broader, whilst the space between the tips of the closed blades is, on the other hand, $\frac{1}{2}$ in. less.

Unfortunately, Haighton himself has left no published account of his forceps. "A Syllabus of the Lectures on Midwifery," delivered at Guy's Hospital by Dr. Haighton, is preserved,[4] with some MS. notes

[1] "Elements of Operative Midwifery," p. 38.

[2] Article "Haighton, John," Sir S. Lee's "Dictionary of National Biography," and Wilks and Bettany's "Biographical History of Guy's Hospital," p. 363.

[3] *Philosoph. Trans.*, 1797, lxxxvii, p. 159.

[4] In the Library of the Royal Society of Medicine.

by Blundell. The date is 1811. At p. 50 the syllabus reads: "The *Forceps:* A variety of specimens are shown and their disadvantages considered." Had the variety been described in detail much of the lost history of the Orme-Lowder forceps would have been saved. A valuable copy of the Syllabus bearing the date 1803, once in the possession of Dr. Harry Blaker, of Brighton, and now in the Library at Guy's Hospital,[1] and a copy of Haighton's Lectures in manuscript, in the same Library, contain much of interest, but not a word about Orme, Lowder, or their forceps.

Dr. James Blundell, born in London in 1790, studied at the United Borough Hospitals under Haighton, his uncle. He was for many years connected with Guy's Hospital as Obstetric Physician and Lecturer on Midwifery. He died in 1877, leaving a fortune of £350,000. We find in his "Principles and Practice of Obstetricy" (*sic*), 1834, p. 520, an

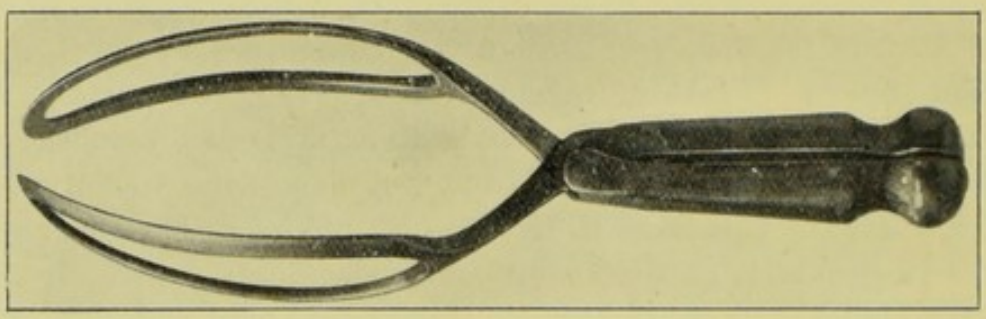

FIG. 8.

Haighton's forceps. Museum of Guy's Hospital.

important statement. Orme and Haighton are mentioned, but Lowder is ignored.

"Now, of the straight forceps there are two forms which, I think, deserve your approbation, though much nicety in the shape of the instruments is really not of much importance. The two forms of forceps are those of Dr. Orme and those of my predecessor, Dr. Haighton, a man to whom I owe everything that is good both in precept and example. Dr. Orme's forceps are to be commended for their exact adaptation to the sides of the head, and are formed with the blade of (*sic*, corrected in the second edition into 'and') the fenestra so narrow that the opening will scarcely admit the forefinger. The main defect chargeable upon this instrument is, that when laid over the side of the head in the

[1] Presented by Dr. Galabin.

usual manner the limbus (the bar of iron forming the blade and containing the fenestra) enlarges the cranium, where if instruments really be required, it is generally already too large; I mean over the protuberances of the parietal bones. Now Dr. Haighton's instrument has the advantage of a large fenestra, the limbus being made a little thinner; so that the protuberance of the parietal bones lying in the fenestra on a level with the blade, or even projecting a little beyond, there is no addition of bulk over the protuberances. If there be any defect in Haighton's forceps it consists in the breadth of the blades, which is so great that they are not very easily passed up through the genital fissure."[1]

There remains some uncertainty about Haighton's forceps. It would seem, according to the evidence of his nephew and pupil, that the essential feature of his forceps was its wide fenestræ, yet Kühn made out that Orme's had wide fenestræ as an essential feature. A later writer, Radford, figures what he specifically distinguishes as Haighton's forceps in his "Essays on Various Subjects connected with Midwifery" (1839), in a plate, "Division No. 2 A, 1 and 2." The forceps is represented as quite different from the instrument which I exhibit and from Orme and Mulder's forceps. There is no wide divergence of the shanks, and the handle is much more slender. Possibly it is a late modification that Radford represents in his "Essays."

In the curve of the shanks of the forceps which I bring before you, it resembles Conquest's short forceps as figured in Kilian's "Armamentarium" (pl. xxvii, fig. 1). I have, however, read through an article written by Conquest himself, "Practical Remarks on Obstetric Instruments," in the *London Medical Repository*, March 1, 1820, where the author's short forceps is figured. The blades are much thinner than those of the College instrument and do not widen out at their junction with the shanks. Besides, the essential feature in Conquest's forceps (absent in the Orme-Lowder type) was a screw arrangment by which the upper blade could be detached from its handle so that there should be "no difficulty in introducing the upper blade of the short forceps directly over the vertex, without changing the position of the patient. After the blade is fixed the handle is to be screwed on, and the instrument used as any other" (loc. cit., p. 188). Reflecting or movable

[1] In an American edition of Denman's "Introduction to the Practice of Midwifery" (New York, 1821), the editor, Dr. John W. Francis, observes in a footnote (p. 370) that Haighton's forceps was, at the time he wrote the note, the popular form of that obstetrical instrument in use in the United States. As said above, Haighton's name usurped that of Orme and Lowder, and hence possibly the earlier type was often misnamed in America as in England.

handles were in vogue when Conquest wrote this description of his forceps.[1]

There is no arrangement for detaching the blade in the College forceps which, according to its donor, was in use before 1815. Conquest was born in 1789, and did not take his Doctor's Degree at Edinburgh until 1813. He did not practise midwifery until a few years later. It is clear that his forceps was of an early nineteenth century type based on Orme's instrument and its modifications, though the screw arrangement represented a complete departure from the original forceps.[2]

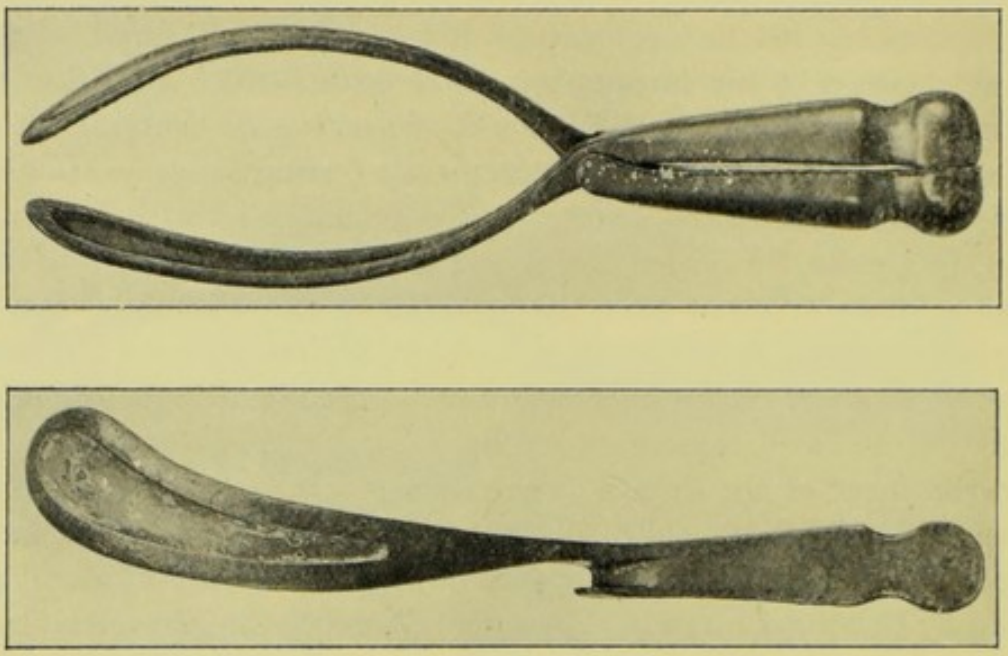

FIG. 9.

Osborn's forceps. Surgical Instrument Collection, Museum of the Royal College of Surgeons.

OSBORN'S FORCEPS.

The last instrument which I show to-day was presented to the Museum of the Royal College of Surgeons by Dr. Clement Dukes, who had received it from an old practitioner. As the great Denman testified in 1783, it is a miniature Levret, intended to combine the qualities of the long and the short forceps. Osborn's forceps (fig. 9) is

[1] *See* David Davis's "Elements of Operative Midwifery," 1825, pl. i to v.

[2] A drawing of Conquest's forceps is also to be found in his "Outlines of Midwifery," 1854, p. 134, but it is not so good as the drawing in his "Practical Remarks."

completely enveloped in leather, fenestræ included. It is a strange thing to contemplate in these days of asepsis; yet many authorities and hundreds of practitioners used instruments of this and other types similarly covered with leather well into the middle of the nineteenth century. One of David Davis's forceps, in use in 1825, had its blades coated with two layers of leather and a third of flannel between them, and the blade bore a complicated hinge-joint near its extremity! McClintock, in the notes to his well-known edition of Smellie's "Treatise on the Theory and Practice of Midwifery," declares that in 1861, when the edition was published, the leather lining to the blades had been abandoned by all obstetricians, except Roberton, of Manchester. This forceps precisely corresponds to a full-sized drawing in Osborn's "Essays on the Practice of Midwifery" (1792) opposite p. 50, where he describes it[1] as "the instrument which I should recommend in preference to all others." He says no more about it, nor does he explain how it differs from Smellie's short forceps, an important matter, as the blades of Smellie's short forceps had no pelvic curve. In the introduction to his chapter on forceps he speaks in general terms of that instrument, how it should be adapted to the maternal pelvis, and so on. *The measurements given under Osborn's engraving correspond precisely to those of this forceps in the College Museum:* "Whole length, 11¼ in. [28·125 cm.]; from the angle of the joint, 6¼ in. [15·8 cm.]; handles to the angle of the joint, 5 in. [12·7 cm.]; breadth between the blades at the widest part of the curve, 2¾ in. [7 cm.]; breadth of blade near point, 1½ in.[2] [3·8 cm.]; breadth of blade at centre, 1¼ in." [3·17 cm.]. Osborn gives no other measurements. The distance between the extremities of the closed blades is ¾ in. (1·95 cm.), and the leather-covered fenestræ are 1⅞ in. (4·75 cm.) wide at their widest point. It weighs 11 oz. (312 grm.), precisely the same weight as the Orme-Lowder forceps here exhibited. Like most British forceps of its day, the handles have the usual palm-rest, and taper to the lock without any flange or finger-rest. The lock is of the English type. There is no distinction between shank and blade, and the blades, moderately broad, bear a pelvic curve, and are broadest at the end and not very far apart there when the handles are closed. It thus differs conspicuously from the Orme-Lowder and Haighton type. Osborn, like

[1] The quotation is from a copy of the Essays in the Library of the Royal Society of Medicine.

[2] In the College specimen it is as broad as 1⅝ in. [4·12 cm.] just 1 in. from the tip.

the better-known Denman, and a teacher called Thynne, preferred his forceps broadest at the extremity.

Osborn, we can see, did not give a full account of his forceps. The indefatigable Mulder, on the other hand, not only quotes Osborn in his "Historia," but gives a drawing of the whole forceps and of one blade placed sideways after the inventor's sketch. He quotes the "Essays" as "a very useful book," and adds, "see Osborn's drawing which represents only one arm, but when I was in London I sketched the instrument itself, as well as those of Denman and Thynne." Orme's and Lowder's instruments, we explained, were also drawn by Mulder himself. We can place much confidence in so careful an author, hence his account deserves to be quoted in full: "William Osborn, a teacher of obstetrics in London, has made use of a special forceps for several years, but only described it at the end of the year 1792 and published a drawing." Mulder's "Historia" appeared in 1794. He adds in a footnote the passage above quoted relating to the sketching of several English forceps by himself. "Osborn's forceps consists of two arms, the blades are fenestrated and have the *curvatura nova* (pelvic curve) much as in Saxtorph's.[1] The arms are united by a joint (English), and the handles are of wood. Save in some of its measurements, this instrument differs little from Smellie's curved forceps, as will be seen in my table of measurements under the names of Smellie and Osborn." Mulder then states that, like several other English authorities, Osborn never applied the forceps as long as the head was above the brim and that he applied the first blade over the fœtal ear.

Mulder's measurements are reproduced at the end of these notes. We saw that he likened Osborn's forceps to Smellie's *curved* instrument, but it will be seen that the latter, "Smellie II," measured 12½ in. The measurements of "Smellie I," the short straight forceps, correspond much more closely to his (Mulder's) measurements of the Osborn's forceps in his possession. "Forceps *Osbornii* constat ex duobus Brachiis quorum Cochlearia fenestrata curvatura habent *novam*," writes Mulder, and

[1] Mulder gives the date of the publication of Saxtorph's forceps as 1791, Osborn's appearing in 1792. Saxtorph's was, like Osborn's, a miniature Levret, a short, curved forceps in fact (Levret I, 18 in. long; Levret II, 16¼ in.; Saxtorph, 12 in.; Osborn, 11¼ in.). Its handles were jointed so that it might be folded up and carried in the obstetrician's pocket (*see* Mulder, loc. cit., pl. vi, figs. 3 and 4). In 1866, Nyrop, of Copenhagen, exhibited a Saxtorph's forceps at a conversazione held by the Obstetrical Society of London. It is figured in the catalogue published that year. Nyrop particularly drew attention to the small pelvic curve, and declared that most old practitioners in Denmark still used it (i.e., in 1866).

"novam" is in italics in the original text. In short, according to the testimony of Mulder, Osborn's forceps with the pelvic curve was of the dimensions of Smellie's short straight forceps. This, it will be seen, corresponds with Denman's remarks on Osborn's instrument. Osborn's own measurements correspond more closely than Mulder's with those of the instrument I exhibit, as will be seen from the appended tables.

The very similar forceps of Denman and Thynne were drawn *ad ipsa instrumenta* by Mulder, whilst Kilian, in his "Armamentarium," gives drawings of both and represents both (pl. xx, figs. 1 and 2) with a piece of metal in the lower part of the blade[1] cut out to lodge the leather which invested it, as it is invested in his drawing of Orme's forceps, though in that instrument there was no notch. Mulder ("Historia," pl. vi, "Denman," figs. 7 and 8, "Thynne," figs. 9 and 10) does not represent any notch. Neither Osborn himself, Mulder, nor Kilian, show a notch in Osborn's forceps, nor is it represented in the College specimen. We may conclude, therefore, that the forceps was sometimes modified by the inventor himself, or altered after his death.

A few words must be said about the two other forceps just mentioned. The measurements of all are given in Mulder's "Historia," and reproduced at the end of this communication.

We must now consider Denman himself. We shall find that he recognized Osborn, described the precise characters of that obstetrician's forceps, and devised a forceps of his own, but we know that though short, light, and with slender blades, broadest near the free ends, like Osborn's and Thynne's, the blades were straight, and there is no evidence that Denman ever contrived a modification of his own forceps with curved blades.

Thomas Denman (1733-1815), the son of a country doctor in Derbyshire, began life as a Navy surgeon and afterwards became one of Smellie's numerous pupils. He lectured on midwifery, and in 1769 was elected Obstetric Physician to the Middlesex Hospital, holding that appointment for nearly twenty-five years. He distinguished himself in his advocacy of the induction of premature labour. His son became the eminent Lord Chief Justice, Lord Denman, and one of his twin daughters married Matthew Baillie, the other becoming the bride of the ill-fated Sir Richard Croft, who attended the Princess Charlotte and committed suicide. Had he made use of his father-in-law's forceps how English history would have been altered! That Denman was an

[1] In Osborn's, Thynne's and Denman's forceps there is no conspicuous distinction between shank and blade, so prominent in Orme's instrument.

eminent man there can be no doubt. He was apparently the first to interpret the true nature of the "snuffles" in syphilitic infants. He was far better known and has been much longer remembered than the two other obstetricians who contrived short light forceps. He testifies to Osborn's priority as early as in 1783.[1] "The curve of the Levrett's (*sic*) forceps seems the most convenient and Mr. (*sic*) Osborn has contrived a very elegant pair, by diminishing the size of Levrett's and very little alteration besides." Thus he advocated a short forceps *with* the pelvic curve. Denman's own views of the use of the forceps are well known. They are most conveniently arranged in detail in the second edition of his "Introduction to the Practice of Midwifery" (1801). He commends Smellie as the inventor of a "kind of forceps more convenient than any before contrived" (loc. cit., p. 98), and does not speak of his own modification. In looking over the fifth, or 1805, edition, I find on p. 357, in his chapter "On the Forceps," the following important statement: "The *common curvature* was varied according to the opinion entertained of the form and dimensions of the head of a child at the time of birth; but the *lateral curvature* was given for the accommodation of the instrument to the form of the pelvis, or for lessening the pressure, and of course the danger, of lacerating the external parts whilst the child was extracting." Then Denman proceeds to commend Smellie's instruments as "being simple in their (*sic*) construction, applicable without difficulty, and equal to the management of *every case in which the forceps ought to be used.*" Lastly, Denman states that "I have, with *very little alteration*, adapted the following *rules* to them."

In the above quotations the italics are my own. Denman, as we learn from the last sentence, did not even allude to his modification of Smellie's forceps, for his "very little alteration" referred to the "rules" for application of that instrument of Smellie's. But, writing earlier in 1783, Denman advocated Osborn's forceps, which he rightly described as a miniature "Levret," which had the pelvic curve. In the 1805 edition of his Introduction he speaks of the "lateral curvature," apparently with approval, and forthwith teaches that Smellie's forceps was fit for "every case in which the forceps ought to be used." There is some obscurity here, but most reasonably we may assume that Denman was referring to Smellie's *curved* forceps.

[1] This quotation is taken from "A Vindication of the Forceps described and recommended by Dr. Leake: by a late Pupil of Dr. Leake's," 1783, p. 19. Leake devised a three-bladed forceps.

Yet by "Denman's forceps" we generally understand a short instrument with blades rather slender and broadest at the free ends, as in Smellie's, and unlike Orme's, and with a space between the free ends when the handles are closed as in Orme's but not in Smellie's. The blades, however, are straight, that is, there is no pelvic curve. *On donne toujours aux riches.* There seems to be an idea that Denman devised another short forceps *with* the pelvic curve. I suspect Osborn's has been ascribed more than once to Denman. Osborn preceded him; he was born in 1732 and was a pupil of Levret's and also of William Hunter's. Now we can see that Denman's observations above quoted implied that Osborn's forceps was constructed before his own, just as Lowder admitted in his lectures that Orme was his predecessor. Denman, born in 1733, was only one year younger than Osborn and studied under Smellie, but he became a Navy surgeon and took to the practice of obstetrics later than the less remembered obstetrician.

Mulder's description of Denman's forceps, as he carefully compared the three instruments, deserves to be reproduced: "Although Thomas Denman, teacher of obstetrics in London, contended that the vectis was safer and more handy and, indeed, preferable in certain cases, nevertheless, a forceps bearing his name is known in London and he is accustomed to use it. This instrument has two arms with straight, fenestrated blades. They are joined by an English lock and the handles are wooden. They differ from Smellie's forceps mainly in the relation of the handles to the blades, in the distance of the blades from each other and in their breadth, all made clear in the tables of measurements." Mulder says nothing about a pelvic curve, and represents Denman's forceps as straight. As Dr. F. W. Cock informs me, there is a genuine Denman's forceps, still partly covered with leather, in the Museum of Guy's Hospital, the property of the late Dr. Tait, about 1837.

Thynne has sunk into oblivion even deeper than Osborn. The Library of the Royal College of Surgeons possesses a quarto note-book. On one back is written, "Lectures on the Theory and Practice of Midwifery and the Diseases of Women and Children, by Drs. Osborn and Clarke, 1790-1791, in two Books—Book 2nd." On the opposite back is written, "Abstract of Dr. Thynn's Lectures, 1805." In neither manuscript abstracts is there any allusion to the place where the lectures were delivered, and as for orthography, it is not clear whether that of the writer or that adopted by Mulder is correct. The Thynn end, as we may rightly call it, of the note-book concerns us at present. There is no mention of forceps except at p. 36. "The forceps he described as

a very useful and safe instrument, the *(sic)* were invented by Chamberlen and much improved by Smellie." There is no allusion to Thynne's own or any other special kind of forceps. On the Osborn-Clarke side of the note-book there is nothing about any forceps. Osborn, the annotator records, taught his pupils that the habit of drinking "is certainly the worst thing that a medical man can be guilty of, *as it always must*

TABLE OF MEASUREMENTS OF FORCEPS.

	Length of forceps	Length of blade	Length of handle	Greatest breadth of blades	Distance of broadest part from tip	Greatest space between blades	Distance between tips when closed	Length of fenestra	Greatest breadth of fenestra
	in.	in.	in.	in.	in.	in.	in.	in.	in.
Grégoire, Mulder ...	15	$8\frac{1}{3}$	$6\frac{2}{3}$	$1\frac{2}{3}$	1	$2\frac{1}{6}$	$1\frac{1}{4}$	$5\frac{5}{6}$	$\frac{5}{6}$
Grégoire, Museum of the Royal College of Surgeons	17	$8\frac{1}{2}$	$8\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$	None	$7\frac{1}{2}$	$\frac{7}{8}$
Smellie I (straight), Mulder	11	$6\frac{1}{2}$	$4\frac{1}{2}$	$1\frac{1}{6}$	$1\frac{1}{4}$	$3\frac{2}{3}$	None	4	$\frac{3}{4}$
Smellie II (with pelvic curve), Mulder	$12\frac{1}{2}$	$7\frac{3}{4}$	$4\frac{3}{4}$	$1\frac{1}{3}$	$1\frac{3}{4}$	$3\frac{1}{4}$	None	5	$\frac{3}{4}$
Orme, Mulder	$10\frac{1}{3}$	$5\frac{5}{6}$	$4\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{1}{4}$	$2\frac{3}{4}$	1	$3\frac{1}{2}$	$\frac{5}{6}$
Lowder, Mulder	$11\frac{1}{3}$	$6\frac{1}{2}$	$4\frac{5}{6}$	$1\frac{1}{2}$	4	$3\frac{5}{12}$	$\frac{3}{8}$	$4\frac{1}{2}$	$1\frac{11}{12}$
Orme-Lowder, Museum of the Royal College of Surgeons	11	$5\frac{1}{2}$	$5\frac{1}{2}$	$1\frac{3}{4}$	4	$3\frac{1}{4}$	$1\frac{5}{8}$	$4\frac{1}{4}$	$1\frac{1}{5}$
Haighton, Guy's Hospital	11	$6\frac{1}{4}$	$4\frac{3}{4}$	$1\frac{7}{8}$*	4	$3\frac{1}{4}$	$1\frac{1}{8}$	$4\frac{1}{2}$	$1\frac{5}{8}$
Osborn, Mulder	$11\frac{1}{4}$	$6\frac{3}{4}$	$4\frac{1}{2}$	$1\frac{1}{3}$	$1\frac{1}{6}$	$3\frac{1}{4}$	$\frac{11}{12}$	$4\frac{1}{3}$	$1\frac{11}{12}$
Osborn, Museum of the Royal College of Surgeons	$11\frac{1}{4}$	$6\frac{1}{4}$	5	$1\frac{5}{8}$	1	$2\frac{3}{4}$†	$\frac{3}{4}$	$4\frac{3}{4}$	1
Denman, Mulder ...	$10\frac{3}{4}$	$6\frac{7}{12}$	$4\frac{1}{6}$	$1\frac{5}{12}$	$1\frac{1}{6}$	$3\frac{5}{12}$	$\frac{1}{6}$	$4\frac{1}{2}$	$1\frac{1}{12}$
Thynne, Mulder‡ ...	11	7	4	$1\frac{1}{3}$	$1\frac{1}{6}$	$3\frac{1}{4}$	$\frac{7}{12}$	$4\frac{5}{12}$	$1\frac{1}{12}$

* In the original "Haighton" the blades, very broad, diminished but little towards the tip.

† Same as in Osborn's "Essays." Mulder makes this measurement half an inch more.

‡ Mulder's "pol." is rendered as "in." (inch) throughout. The actual length of a Dutch inch being uncertain and the majority of these measurements being taken from the "Historia Forcipum," "pol." has not been reduced to centimetres.

cut up his practice." Then he mentions the name, we regret to say, of a misguided obstetrician who attempted version when under the influence of alcohol and ruptured the uterus.

Mulder, it will be seen, teaches us more about Thynne's instrument than can be learnt from the scanty records left by that obstetrician himself. "Thynne, a teacher of obstetrics in London, makes use of

a forceps which closely resembles Osborn's. The blades are, as in the latter, fenestrated, and are also curved. The lock is likewise a hinge (Mulder means an English lock without a pivot, such, as he shows, was adopted by Chapman and then by Smellie), and the handles are also wooden. The main difference is that in Thynne's forceps the proportion of the blades to the handles is greater,[1] and the distance between the blades at the tips is wider, whilst, on the other hand, the angle at which the blades diverge is less.

[1] *See* "Tables of Measurements" (p. 22). Though Thynne's forceps was only 11 in. long the blades took up 7 in. In Saxtorph's, the first miniature Levret (*vide supra*), the instrument was 12 in. long, yet only 6¾ in. were taken up by the blades. Osborn's had blades 6¾ in. in length, whilst its entire length was 11¼ in. Thus his blades were proportionately longer than Saxtorph's, and Thynne's were proportionately and absolutely longer than Osborn's or Saxtorph's. It is unfortunate that no record of an unprejudiced and experienced critic as to the relative merits of these three miniature Levret's forceps has been preserved.

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