

OBSTETRICAL-GYNAECOLOGICAL EPONYMS: JAMES YOUNG SIMPSON AND HIS OBSTETRIC FORCEPS

BY

HAROLD SPEERT

From the Department of Obstetrics and Gynecology, Columbia University, New York

THE obstetric forceps has been modified and re-designed in new form probably more times than any of the other countless number of instruments and devices that man's mind has conjured up for the diagnosis and treatment of his ills. The Chamberlen family is often credited with invention of the first safe and effective forceps, in the late sixteenth or early seventeenth century; but archaeological evidence (Fig. 1) shows the forceps to have been in use for the delivery of living infants much earlier, probably the second or third century, in the days of the Roman Empire (Baglioni, 1937). During the latter part of the nineteenth century almost every obstetrician of renown seems to have felt the need to add his own modification to the forceps; and even now scarcely a year passes without the addition of at least one new instrument to our forceps arsenal. For fully a century now, however, year in and year out, the vast majority of forceps deliveries has been carried out by means of an instrument popularized by Sir James Young Simpson and usually known as the Simpson forceps, although models embodying minor changes continue to bear the names of their new inventors.

Simpson demonstrated his forceps for the first time on 10th May, 1848 at a meeting of the Edinburgh Obstetrical Society (Simpson, 1848). "They differ from the short forceps in some points of construction," he explained, "but more particularly in regard to their mode of application and working. They differ for example in their length; in the shanks being parallel for some distance beyond the lock, an indispensable point in order to prevent them injuring the outlet; in their blades being curved; and in the part intended to embrace the head being sufficiently long and large . . . The blades are

the same as Dr. F. Ramsbotham's, but scarcely so much curved. The lock is Smellie's, but with knees or projections above it of such size as to prevent the blades readily unlocking in the intervals between the pains, these giving it the fixed character of the locks of Levret and Bunninghausen's instruments, without their complexity. The joints are made so loose as to allow of their lateral motion and overlapping to a very considerable degree, thus facilitating their introduction and application. And, lastly, the handle is that used by Naegele and other German accoucheurs, viz., with transverse knees or rests below the lock for one or two of the first fingers of the right hand to drag by, the long forceps being only properly used as an instrument of traction, not of compression. In addition, the handles are grooved and marked on the anterior side, to distinguish that from the other side when the blades are within the pelvis . . ."

The forceps were used in the management of uterine inertia, haemorrhage during labour, and other complications, "but the common reason for employment of the long forceps," in Simpson's words, "is morbid contraction of the brim of the pelvis in its most general form, and from its most general cause, viz., in the conjugate or antero-posterior diameter, from projecting forward of the promontory of the sacrum. How are the long forceps applied when used in this, the case in which they are most generally had recourse to in practice? It is first requisite to state, that under this complication the child's head is found situated in the brim, with its long or fronto-occipital diameter lying in the transverse diameter of the brim, or with the forehead looking to one ilium, and the occiput looking to the other. In other words, the long diameter of the head is not placed, as usual, in the right

diagonal diameter of the brim, but more in its transverse; for where the promontory of the sacrum forms a morbid projection, the transverse forms the longest diameter of the brim, and, consequently, the one in which the child's head comes to be placed by the uterine efforts . . . the lateral surfaces of the child's head come to be compressed between the protruding sacral promontory and the interior of the symphysis pubis . . ."

Modern obstetrical teaching emphasizes the importance of symmetric, or cephalic, application of the forceps to the sides of the foetal head. Simpson, by contrast, advised asymmetric, or pelvic, application of the blades. "The blades of the long forceps," he wrote, "should be placed obliquely upon the child's head—one, the posterior, over the side of the occiput; and the other, or anterior, over the side of the brow or temple, and consequently should be situated in the oblique diameter of the brim. (See Woodcut, Fig. 3.)—The markings on the child's head after birth always show this mode of application of the instrument: when properly applied upon the mother, and when their situation relative to the pelvis is examined, they are found to have assumed this position; and in experiments with the instrument (when the head of a dead child is fixed in a pelvis with a contracted brim), this is the position and relation which the instrument will be seen to assume with relation to the infantile head and maternal pelvis. Besides, in thus placing the instrument, while we incur less danger of injuring the urethra and other important parts, we place the blades of the instrument in exactly those parts of the pelvic circle where there is least pressure and consequently most room for them . . ."

Simpson is remembered eponymically for his forceps, but far greater to his credit was his introduction of anaesthesia into obstetrical practice. On 19th January, 1847, for the first time, he administered ether to a patient in labour, reporting the case in the March issue of the *Monthly Journal of Medical Science* (Simpson, 1847a). "The pelvis of the mother", Simpson wrote, "was greatly contracted in its conjugate diameter from the projection forwards and downwards of the promontory of the

sacrum; the lumbar portion of the spine was distorted; and she walked very lamely. The present was her second confinement. Her first labour had been long and difficult . . . delivered by craniotomy . . . Even after the cranium had been fully broken down, a considerable time and much traction had been required to drag the diminished and mutilated head of the infant through the contracted brim of the pelvis; and she was long in recovering. Contrary to the urgent advice of her medical attendant, Mr. Figg, he was not made aware of her present or second pregnancy till she had arrived at nearly the end of the ninth month. It was thus too late to have recourse to the induction of premature labour, which had been strongly pressed upon her as the only means of saving her child, should she again fall in the family way. The pains of her second labour commenced in the forenoon of the 19th. I saw her with Mr. Figg at seven o'clock in the afternoon, and again at seven. The os uteri was pretty well dilated, the liquor amnii not evacuated, the presenting head very high, mobile, and difficult to touch; and a pulsating loop of the umbilical cord was felt floating below it in the unruptured bag of membranes. From five to nine o'clock the pains seemed only to push the circle of the os uteri further downwards, without increasing its dilatation, or making the head in any degree enter into the pelvic brim. Assisted by Dr. Ziegler, Dr. Keith, and Mr. Figg, I shortly after nine o'clock made the patient inhale the ether vapour. As she afterwards informed us, she almost immediately came under the anodyne influence of the ether. But in consequence of doubts upon this point, its use was continued for nearly twenty minutes before I proceeded to turn the infant (as I had previously predetermined to do). A knee was easily seized, and the child's extremities and trunk readily drawn down; but extreme exertion was required in order to extract the head. At length it passed the contracted brim with the anterior part of its right parietal bone deeply indented by pressure against the projecting promontory of the sacrum, and the whole cranium flattened and compressed laterally. The infant gasped several times, but full respiration could not be established . . .

“On questioning the patient after her delivery, she declared that she was quite unconscious of pain during the whole period of the turning and extracting of the infant, or indeed from the first minute or two after she first commenced to breathe the ether. The inhalation was discontinued towards the latter part of the process, and her first recollections on awaking were ‘hearing’, but not ‘feeling’, the head of the infant ‘jerk’ from her (to use her own expressions), and subsequently she became more roused by the noise caused by the preparation of a bath for the child. She quickly regained full consciousness, and talked with gratitude and wonderment of her delivery, and her insensibility to the pains of it . . .”

The ensuing controversy over the use of anaesthesia in obstetrics has had few equals in the annals of medicine. Simpson’s practices were violently opposed by many of the clergy as well as his medical peers, but to each attack the articulate Simpson replied with devastating logic, impeccable taste, albeit liberally salted at times with incisive sarcasm, and extensive biblical quotations in rebuttal of his critics’ protestations against man’s alleviation of the travail of childbirth (Simpson, 1856). The distinguished Meigs of Philadelphia referred to the pain of parturition as a “physiological pain”, and the equally renowned Ashwell of London wrote in the *Lancet* (Ashwell, 1848) that to use anaesthesia in obstetrics constitutes “unnecessary interference with the providentially arranged process of healthy labour . . . sooner or later, to be followed by injurious and fatal consequences”.

Recalling the words of Galen: *dolor dolentibus inutilis est* (pain is useless to the pained), Simpson went further, demonstrating the mortal potentialities of pain. By widespread questionnaire study of the results of thigh amputation he showed that ether anaesthesia had reduced the mortality from the operation by almost half. “Bodily pain,” he wrote (Simpson, 1847b), “with all its concomitant fears and sickening horrors . . . is, with very few, if indeed any exceptions, morally and physically a mighty and unqualified evil. And, surely, any means by which its abolition could possibly be accomplished, with perfect security and safety, deserves

to be joyfully and gratefully welcomed by medical science, as one of the most inestimable boons which man could confer upon his suffering fellow-mortals.”

Arguing for the extension of anaesthesia to obstetrics, Simpson (1847a) made the forceful, impassioned plea: “Now, if experience betimes goes fully to prove to us the safety with which ether may, under proper precautions and management, be employed in the course of parturition, then . . . instead of determining . . . whether we shall be ‘justified’ in using this agent . . . it will become, on the other hand, necessary to determine whether on any grounds, moral or medical, a professional man could deem himself ‘justified’ in withholding, and *not* using any such safe means (as we at present presuppose this to be), provided he had the power by it of assuaging the agonies of the last stage of natural labour, and thus counteracting what Velveau describes as ‘those piercing cries, that agitation so lively, those excessive efforts, those inexpressible agonies, and those pains apparently intolerable’, which accompany the termination of natural parturition in the human mother.”

Simpson’s entreaties were met at first by the reticence characteristic of his conservative colleagues, as evidenced by his address to the Medico-Chirurgical Society of Edinburgh on 1st December, 1847. “Probably at the date at which I write,” he lamented, “there is not one in twenty—perhaps not one in a hundred—of the physicians and surgeons of Great Britain who have, as yet, thought seriously upon the propriety of alleviating and annulling the tortures attendant on human parturition; or who have acknowledged to their own minds the propriety of bestirring themselves so as to be able, in the exercise of their profession, to secure for their patients an immunity from the throes and agonies of childbirth.”

It soon became apparent to Simpson that ether suffered from certain shortcomings as an obstetrical anaesthetic, and in the autumn of 1847 he began his search for a better agent, in collaboration with Drs. Thomas Keith and J. Matthews Duncan. Their experiments were carried out at the conclusion of the day’s work, in Simpson’s dining room. A small quantity of



FIG. 1

Ancient marble bas-relief depicting a birth scene. The accoucheur, in the centre, holds a pair of obstetric forceps aloft in his right hand. This marble tablet, measuring 74×55 cm., was discovered in the early twentieth century in the vicinity of Rome. The attire and furnishings in the scene date it in the second or third century A.D. (From Baglioni).



Fig. 2
James Young Simpson (1811–1870).

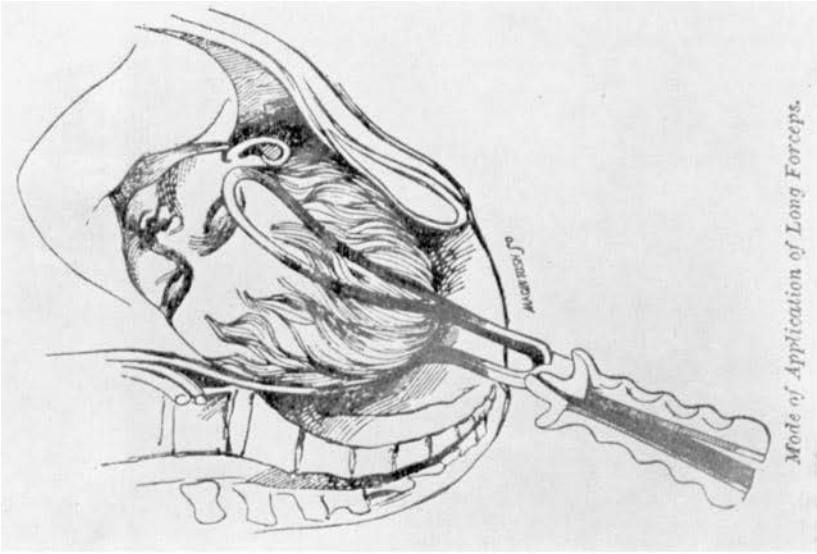


Fig. 3
Illustration from Simpson's paper, showing application of his forceps.

the test liquid was placed in a cup or drinking glass, which was immersed in hot water, if necessary, to increase the volatility. The experimenters then proceeded with their hazardous task of inhaling the vapours and noting the effects. It was in this manner that Simpson and his assistants came upon the anaesthetic properties of chloroform on 4th November, 1847.

Exhilarated by his new discovery, Simpson employed chloroform in the confinement of the wife of Dr. Carstairs of Edinburgh 4 days later, the child being named "Anaesthesia". Simpson reported the event to the Medico-Chirurgical Society of Edinburgh on 10th November, 1847 in the following words (Simpson, 1847c): "The lady to whom it was first exhibited during parturition had been previously delivered in the country by perforation of the head of the infant, after a labour of three days' duration. In this, her second confinement, pains supervened a fortnight before the full time. Three hours and a half after they commenced, and ere the first stage of the labour was completed, I placed her under the influence of the chloroform, by moistening, with half a teaspoonful of the liquid, a pocket handkerchief, rolled up into a funnel shape, and with the broad or open end of the funnel placed over her mouth and nostrils. In consequence of the evaporation of the fluid, it was once more renewed in about ten or twelve minutes. The child was expelled in about twenty-five minutes after the inhalation was begun. The mother subsequently remained longer soporose than commonly happens after ether. The squalling of the child did not, as usual, rouse her; and some minutes elapsed after the placenta was expelled, and after the child was removed by the nurse into another room, before the patient awoke. She then turned round and observed to me that she had 'enjoyed a very comfortable sleep, and indeed required it, as she was so tired but would now be more able for the work before her.' . . . In a little time she again remarked that she was afraid her 'sleep had stopped the pains'. Shortly afterwards, her infant was brought in by the nurse from the adjoining room, and it was a matter of no small difficulty to convince the astonished mother that the labour was entirely over, and that the child presented to her was really her 'own living baby'."

Three weeks later, at its meeting on 1st December, 1847, Simpson employed his most impassioned oratory in an address to the same Society. Singing again the praises of anaesthesia for childbirth, and especially of the newly-discovered merits of chloroform, he stated: "I do not remember a single patient to have taken it who has not afterwards declared her sincere gratitude for its employment, and her indubitable determination to have recourse again to similar means under similar circumstances. All who happened to have formerly entertained any dread respecting the inhalation, or its effects, have afterwards looked back, both amazed at, and amused with, their previous absurd fears and groundless terrors. Most, indeed, have subsequently set out, like zealous missionaries, to persuade other friends to avail themselves of the same measure of relief, in their hour of trial and travail. . . . All of us, I most sincerely believe, are called upon to employ it by every principle of true humanity, as well as by every principle of true religion. Medical men may oppose for a time the super-induction of anaesthesia in parturition, but they will oppose it in vain; for certainly our patients themselves will force the use of it upon the profession. The whole question is, even now, one merely of time. It is not—Shall the practice come to be generally adopted? but, When shall it come to be generally adopted? Of course, it will meet from various quarters with all due and determinate opposition. Medical men will, no doubt, earnestly argue that their established medical opinions and medical practices should not be harshly interfered with by any violent innovations of doctrine regarding the non-necessity and non-propriety of maternal suffering. They will insist on mothers continuing to endure, in all their primitive intensity, all the agonies of childbirth, as a proper sacrifice to the conservatism of the doctrine of the desirability of pain. They will perhaps attempt to frighten their patients into the medical propriety of this sacrifice of their feelings; and some may be found who will unscrupulously ascribe to the new agency any misadventures, from any causes whatever, that may happen to occur in practice. But husbands will scarcely permit the sufferings of their wives to be perpetuated, merely in order that the tranquillity of this or that medical

dogma be not rudely disturbed. Women themselves will betimes rebel against enduring the usual tortures and miseries of childbirth, merely to subserve the caprice of their medical attendants. And I more than doubt if any physician is justified, on any grounds, medical or moral, in deliberately desiring and asking his patients to shriek and writhe on in their agonies for a few months or a few years longer—in order that, by doing so, they may defer to his professional apathy, or pander to his professional prejudices.”

In 1853 John Snow, the first full-time physician anaesthetist, administered chloroform to Queen Victoria during the birth of Prince Leopold, her eighth child; and Her Majesty was lavish in her appreciation of the new agent and the pain relief it provided. This, probably more than any other single event, bowled over most of the remaining opposition to anaesthesia in labour and led to the rapid and widespread acceptance of chloroform in obstetrical practice. Not long thereafter Simpson was made a baronet, the inscription on his coat of arms reading “VICTO DOLORE” (pain conquered).

With his characteristic vision Simpson (1847b), after he introduced ether into obstetrics, foresaw the advantages of a special anaesthesia room for surgical patients, for in September, 1847 he wrote: “In our surgical hospitals, if a ward immediately adjoining the operating theatre were set aside for operation cases, it would in this way facilitate the process of etherization, and ensure more certain and perfect results from it.”

James Young Simpson was born 7th June, 1811 in Bathgate, Scotland, the youngest of seven sons of the village baker (Anderson, 1911; Ballantyne, 1911; Barbour, 1911; Croom, 1911; Findley, 1939; Hart, 1911; Robinson, 1946; Simpson, A. R., 1911; Simpson, E. B., 1911; Watson, 1936, 1948). At age 14 he enrolled in the University of Edinburgh, with the help of his family's combined resources, but withdrew from the arts course two years later to pursue the medical curriculum. After three years of medical study, when Simpson had completed all the required courses, he passed his final examination and received the diploma of the Royal College of Surgeons. Being only 18 years old, however, he had to wait two more years for his licence to practise. During the interim he undertook

further studies in midwifery, alternately assisted the professor of pathology at the university and Mr. Dawson, the family doctor in Bathgate, and visited the clinics of France and England. Simpson then returned to Edinburgh and entered general practice, but devoted his principal attention to midwifery. He soon obtained an appointment at the Lying-in Hospital and in 1838 began giving courses of lectures in midwifery on his own. When he was only 28 years old he became a candidate for the recently vacated chair of midwifery at the university, waging his campaign for this coveted position in a manner reminiscent of today's political contests. When his state of bachelorhood was mentioned in argument against his appointment, Simpson promptly took unto himself a wife. The Town Council finally elected him to the chair by a single vote's margin over his chief rival, Evory Kennedy, Master of the Rotunda in Dublin. Simpson's wife is said to have subsequently “poured out more tea than any woman in Scotland”.

The lectures of the newly-elected professor attained a new high in popularity, surpassing in attendance all the other medical courses in the university. In addition to his forceps and his introduction of anaesthesia, Simpson made a number of other important contributions to obstetrics and gynaecology. He invented a cranioclast for fracturing the base of the foetal skull, and contrived the uterine sound and the sponge tent for dilating the cervix, thereby providing access to the uterine cavity for the removal of endometrial polyps. Almost at the same time as Semmelweis he called attention to the contagiousness of puerperal fever, giving the most convincing exposition until then of the similarity between this scourge and surgical fever; but he failed to encourage Lister, working contemporarily at the University of Edinburgh, in the latter's experiments on antiseptics, and never accepted Lister's concept of the bacterial origin of infection. He wrote on hermaphroditism and on the freemartin, and dispelled the widely held but erroneous belief that among human twins the female was sterile if her co-twin was a male. Simpson was probably the first to stress the importance of bimanual examination of gynaecological patients. “In making this

examination," he wrote in 1850, "as in making most other examinations of the uterus, a rule requires to be followed which is too often forgot, namely to use both hands for the purpose. For if we are examining the uterus internally with the forefinger, or fingers of the right hand, the facility and precision of this examination will be found to be immensely promoted by placing the left hand externally over the hypogastric region, so as to enable us by it to steady, or depress, or otherwise operate upon the fundus uteri. The external hand greatly assists the operations of that which is introduced internally; and farther we can generally measure, between them, the size, relation, &c., of the included uterus."

Simpson's interests ranged wide beyond the limits of his profession. He published extensively on archaeological subjects, became an ardent and authoritative antiquarian, and remained constantly engrossed in literature, philanthropical enterprises, medical reforms, and civil and university politics. He served as President of the Edinburgh Obstetrical Society from 1841 to 1858. His nephew and successor to the chair of midwifery in the university, Sir Alexander Simpson, later spoke of Simpson's house as "a rendezvous for all sorts and conditions of men. The strangest streams of life were constantly flowing through it. Candidates for seats in Parliament or in the Council Chamber of the city, for vacant chairs in the University, for posts in the Infirmary, for lectureships in many schools of medicine, and for pulpits in town or country—all came to seek his advice and bespeak his influence. Antiquaries came with their latest finds; artists and architects sought his opinion of their designs; poets brought him their new poems, and novelists their stories; the Arctic voyager, the African explorer, the traveller from Mecca, missionaries from all parts of heathendom, came with news and gifts of every kind." A companion who accompanied him to a reception in Madame Victor Hugo's salon in Paris reported that "the excitement was something tremendous, and for a time you could

hear the sound of ss ss ss running through the room as there passed from mouth to mouth the exclamation 'C'est Simpson, C'est Simpson'" (Simpson, A. R., 1911).

Simpson died of coronary disease on 6th May, 1870, at age 58, and was buried in Warriston Cemetery in Edinburgh, alongside the five of his nine children who had predeceased him. A day of public mourning was declared in Edinburgh, its shops and the University were closed, and it is said that thirty thousand bereaved citizens attended the funeral. A bust of Simpson, erected in Westminster, bears the inscription, "To whose Genius and Benevolence the world owes the blessings derived from the use of Chloroform for the relief of suffering," a fitting but modest tribute to one of nature's true noblemen.

REFERENCES

- Anderson, J. (1911): *Edinb. med. J.*, n.s. 6, 516.
 Ashwell, A. (1848): *Lancet*, 1, 291.
 Baglioni, S. (1937): *Fisiol. e Med.*, 8, 169.
 Ballantyne, J. W. (1911): *Edinb. med. J.*, n.s. 6, 554.
 Barbour, A. H. F. (1911): *Edinb. med. J.*, n.s. 6, 534.
 Croom, H. (1911): *Edinb. med. J.*, n.s. 6, 523.
 Findley, P. (1939): *Priests of Lucina. The story of obstetrics*. Little, Brown & Co., Boston. p. 234.
 Hart, D. B. (1911): *Edinb. med. J.*, n.s. 6, 543.
 Robinson, V. (1946): *Victory over pain*. Schuman, New York, p. 191.
 Simpson, A. R. (1911): *Edinb. med. J.*, n.s. 6, 491.
 Simpson, E. B. (1911): *Edinb. med. J.*, n.s. 6, 482.
 Simpson, J. Y. (1847a): *Month. J. med. Sci.*, 7, 721.
 Simpson, J. Y. (1847b): *Month. J. med. Sci.*, 8, 144.
 Simpson, J. Y. (1847c): *Account of a new anaesthetic agent, as a substitute for sulphuric ether in surgery and midwifery. Communicated to the Medico-Chirurgical Society of Edinburgh at their meeting on 10th November, 1847*. Edinburgh. (Reprinted in New York, 1848.)
 Simpson, J. Y. (1848): *Month. J. med. Sci.*, 9, 193.
 Simpson, J. Y. (1850): *Month. J. med. Sci.*, 10, 3.
 Simpson, J. Y. (1856): *The obstetric memoirs and contributions of James Y. Simpson, M.D., F.R.S.E.* Edited by W. O. Priestley and H. R. Storer. Lippincott, Philadelphia. Vol. 2, p. 463.
 Watson, B. P. (1936): *Amer. J. Obstet. Gynec.*, 32, 547.
 Watson, B. P. (1948): *Amer. J. Obstet. Gynec.*, 56, 205.