

THE HISTORY OF THE OBSTETRIC FORCEPS.*

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IN the annals of the obstetric art there is no more fascinating chapter than that relating to the introduction of the obstetric forceps. I use the word introduction, rather than the term invention, advisedly, because as I hope to show in the course of the paper, our ideas as to the actual origin of the instrument are vague and indeterminate. Moreover, the statements made by modern authors vary considerably and what is still more significant, do not accord entirely with the facts as laid down by the early writers, who wrote during the days when the instrument was beginning to be popular. The earliest direct evidence which we have of the use of forceps in obstetrics is the discovery of a

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crude instrument evidently intended for this purpose in the surgeon's house in Pompeii. This house is one of several early exposed by the excavations, and is referred to and described in detail by several writers. I have been unable, however, to find any extended description of the instruments discovered.

There is no reference to the use of such an instrument in the works of Hippocrates, Celsus, Galen, Paulus Aegineta, or in the writings of any of the early Greek or Roman scholars. This omission was possibly due in part to the fact that midwives conducted most of the obstetrics during the early centuries. That this is not a valid argument, however, appears from the fact that Hippocrates devoted considerable space to subjects connected with obstetrics, including chapters on Accouchement, and on The Extraction of the Dead Fetus. It appears probable, therefore, that he had no knowledge of the use of the forceps.

The first writer who mentions the use of the forceps for the extraction of the living child is Avicenna, an Arabian physician, born A.D. 980, died A.D. 1037. His writings were translated into Latin, the common language of science, first by Gerard of Cremona, later by Andrea Alpago of Basle, and still again by Benedictus Rinius of Venice. The latter translation was published in 1555 and in it is found the following chapter:¹

Cap. 28. De regimine ejus cujus partus sit difficilis causa magnitudinis fœtus.

Oportet obstetrix bonam faciat retentionem hujusmodi fœtus: quare subtilietur in extractione ejus paulatim: tunc si valet illud in eo, bene est: & si non liget eum cum margine pani, & trahat eum subtiliter attractione post attractionem. Quod si illud non confert, administrentur forcipes, & extrahatur cum eis. Si vero non confert illud, extrahatur cum incisione, secundumque facile fit & regatur regimine fœtus mortui.

In another chapter he gives directions for the extraction of a dead child, emphasizing the fact that his mode of procedure differs according as the child is alive or dead.

This may be freely translated as follows:

Chapter 28. Of the conduct of that (case) the delivery of which is difficult because of the size of the fetus.

It is necessary that the obstetrician exercise a good holding back of the fetus of this kind. Wherefore particularly in the extraction of it (it should be done), gradually; then if that avails for it, it is well; and if not he may bind it about with a border of cord, and may draw it carefully, with repeated tractions. But if that does not bring it on, forceps may be used, and it may be extracted with them. If in truth that does not bring it on, may be extracted by incision and according as it may be easy, and may be treated in the manner of a dead fetus.

His statement as given above will be seen to be a very direct reference to the possibility of delivering a living child by means of forceps, and is the first mention of such employment of them to be found in literature. The earlier writers did indeed mention instruments for the delivery of a dead child, such as the crotchet and the blunt hook, but here we find an explicit description of the use of instruments to preserve the child's life, and so far as is known this is the earliest description. Other writers after this date also mention a similar use of the forceps, but notwithstanding these references, we have no evidence as to who first devised the plan of so aiding Nature. It was probably a gradual outgrowth of experience, and an attempt to substitute an instrument for the hand of the accoucheur.

Among these later writers Jacobus Ruoff should be especially mentioned. He lived in the sixteenth century and was a native of Zurich. He wrote a treatise on obstetrics which was published in 1524, and in it describes and illustrates a long and a short forceps which he had invented. He expressly states that his instrument has on it no teeth, and that the child may be easily delivered by means of this forceps, if it be possible to apply them to the head. The forceps described by these various writers were crude affairs, the blades being solid and the two joined at a fixed point, and therefore they could be introduced together only, and then adjusted about the head. A moment's thought will enable one to appreciate how difficult this may have been in many cases, and as a result, how limited was the field of usefulness of the instrument.

During the next hundred years no advance was made either in the construction or in the use of the forceps. In the seventeenth century, however, the noted family of Chamberlens did so much in both regards that by many writers they have been described as the veritable inventors of the forceps. That this at least is not true, we have already seen, and this family, famous though it may be, deserves credit only for improving the construction of the instrument, and for bettering the technique of its use. How these results were obtained we shall now see. This famous family was originally resident in Paris. William Chamberlen, the founder of the English branch, was forced to leave Paris on account of his religious beliefs, and went to England in 1569. He was probably a surgeon. His eldest son, Peter, lived in London and had a fashionable practice there. He died in 1631. William had a younger son, named also Peter, and known as Peter the Younger,

who was born in 1572, and who is recorded as a licensee in midwifery. He died in 1626, leaving a son named Peter, who is known as Doctor Peter, he being the first member of the family to possess the degree of M.D. He received his degree from Padua in 1619, and later from Oxford and Cambridge. He, too, had a large and lucrative practice and died in 1683, at Woodham, Mortimer Hall, in Essex. Here it was that four forceps were found in 1818, which were exhibited before the Medico-Chirurgical Society of London as the original Chamberlen forceps.* Dr. Peter had several sons, of whom Hugh only requires special mention.

He was born about 1630. He was an accoucheur, but it seems to be doubtful whether he had a degree. He possessed the knowledge of the forceps, and in 1670 visited Paris and there met Mauriceau, the famous obstetrician. Hugh stated that he could deliver the most difficult case "in the half of a quarter hour," and he was finally asked by Mauriceau to deliver a woman who had been in labor about five days. He failed after three hours' exertion, and the mother died undelivered twenty-four hours after this attempt at delivery. Mauriceau stated later that the uterus was badly lacerated by Chamberlen's attempts. Notwithstanding this failure, Chamberlen and Mauriceau became good friends, and after Chamberlen's return to England he translated Mauriceau's work on Obstetrics into English, and it ran through many editions.

Dr. Hugh was also an economist of some note, and because of some of his radical views was forced to leave England, and he removed to Amsterdam, where he died. While residing there he sold the so-called family secret to Roonhuysen, an obstetrician there. It is believed at the present time that Chamberlen disclosed to him the use of only one blade of the forceps, thus deceiving even when in straitened financial circumstances. Dr. Hugh left a son also named Hugh, who became a prominent physician, and who is said to have been the one who ultimately made public the family secret. The authenticity of this statement I cannot vouch for, and I am unable to find any direct reference to the publication of the family's method of delivery. This Dr. Hugh Chamberlen died in 1728, and was buried in Westminster Abbey. I have recounted these details regarding this family, because its members are generally considered to be the true inventors of the forceps. They claimed to have done this, and they kept for their own financial gain the knowledge

of this valuable and life-saving instrument. Not only did they keep it a secret, but openly declared their ability to deliver patients whom other physicians could not deliver, and also declared their intention of keeping the secret in the family.

We have seen that they did not discover or invent the forceps, and it can hardly be denied that others of their day must have known of the use of such an instrument as described by some of the earlier writers. What did this family do?

I have already mentioned the discovery in the old homestead in Essex, of four forceps, which are thought to have belonged to various members of the family. By comparing these with the description of the crude forceps, given by Jacobus Ruoff, it will be seen that the Chamberlens simply improved this old model. They disconnected the blades so that they might be introduced separately. They made the blades with fenestra and enlarged them somewhat. For doing these things the family deserves great credit, no doubt, but the base and mercenary way in which they kept the knowledge from their fellow practitioners almost clouds any luster which may have been added to their names by their ingenuity, and stamps them as utterly disreputable. An examination of these four forceps will also show how the models were gradually improved. The first is an extremely rough instrument, while the last differs in no important particular from the forceps in use at the present day.

We have now shown that the members of the famous Chamberlen family did not discover or invent the obstetric forceps; that they were ingenious and simply improved upon models with which they were undoubtedly familiar through the writings of their predecessors; that they kept their additions a profound secret and probably never willingly divulged it, and finally, that however much we must condemn their conduct, we must admit that they did more than any one to increase the value of the instrument. Such is the connection of this family with the forceps.

We have next to ask, how did the use of the instrument become general? This link in the chain is, up to the present time, missing. Hugh Chamberlin, the younger, died in 1728. We know that about this time Palfyn, a Dutch surgeon, showed and used a form of forceps. Drinkwater, an obstetrician of England, left at the time of his death, in 1728, a pair of forceps,³ and others mention such an instrument in their writings. We do not know, however, whether these various obstetricians independently devised the instruments used by them, or whether they had knowl-

edge in some way of the Chamberlens' instrument. However this may be, two writers deserve especial mention as being instrumental in publishing descriptions of forceps, and urging their use. These two men are Edmund Chapman and William Giffard. Most writers state that it was Chapman who first described the forceps, and published accounts of patients delivered by means of this instrument. On consulting the contemporary writers, and the writings of the two authors themselves, we find, however, that to William Giffard belongs the honor of the introduction of the forceps into use as an obstetric instrument.

The facts are as follows: William Giffard was a man-midwife of extensive practice in London. He died about the year 1731. After his death, in 1734, a book entitled "Cases in Midwifery," written by Giffard, was published by his friend Edward Hody. The cases recounted were seen during the years 1724 to 1731, and the earliest case in which he used his so-called "Extractor," which was the forceps, was recorded on April 8, 1726.⁴ This patient he failed to deliver with the forceps, and was forced to perform craniotomy. His first recorded successful case of forceps delivery is mentioned under the date of June 28, 1728.⁵

He gives accounts of 225 cases, in many of which he used his "extractor." In a number of cases also, he reports having used one blade only of the forceps. But what is chiefly of interest to us, he gives illustrations of the instrument as used by him, and also of a model "as improved by Mr. Freke, surgeon to St. Bartholomew's Hospital."

With these dates in mind let us now consider the claims to priority of Edmund Chapman and his supporters. His book entitled "A Treatise on the Improvement of Midwifery, chiefly with Regard to the Operation," was published in London in 1733. He states in his introduction that the secret by which the Chamberlens were enabled to deliver patients "was as is generally believed, if not past all dispute, the use of the forceps, now well known to all the principal Men of the Profession, both in Town and Country." Later in the book he extols the instrument highly, and states that "no person has as yet more than barely mentioned it." He goes into details as to the construction and use of the instrument, and criticises other models, but in his first edition gives no cuts, and, as a reviewer of his book states, does not describe his own forceps. This review appeared in a book entitled "Medical Essays and Observations," published in Edinburgh in 1737,⁶ and elsewhere in this work also there is the statement that

Chapman kept the form of his forceps secret.⁷ In Chapman's third edition⁸ he apparently recognized his error, when too late, and publishes an illustration of his instrument, with an apology for not having introduced it into the earlier edition. Thus he virtually admits that he had not published full details as to the instrument in his early editions. It will thus be seen that while the works of Chapman and Giffard appeared at about the same time, Giffard was the one who published illustrations and a full description of the instrument, while Chapman did not do this until his third edition appeared in 1759. Moreover, Giffard's book was written prior to 1733, and the writer died before Chapman's work was issued. The exact date of the death of Giffard I have been unable to find, but in the preface of his book, written by Edward Hody, and dated July 30, 1733, he is mentioned as "the late Mr. William Giffard." In addition, in the account of one of his cases, added by the editor of the work, March 6, 1730-31, is referred to as being a few months before Mr. Giffard died.

From this survey of facts as derived from the original sources, it is clear that Giffard was the altruistic and honorable physician who should receive full credit for introducing the forceps into common use in England.

The next notable name connected with the early history of the forceps is that of William Smellie. He was an eminent physician practicing in London. He was born in 1680 and died in 1763. He had a good knowledge of mechanics, and modified the forceps and laid down directions for its use, based on sound reasoning. Indeed, many of his statements are to-day accepted as correct, and the forceps as at present used, especially in England, differs but little from his perfected model. He lengthened the instrument as then used, covered the blades with leather, and devised the lock now known as the English lock. In his large work on obstetrics⁹ he calls attention to the fact that "the common way of using them (the forceps) formerly was by introducing each blade at random, taking hold of the head anyhow, pulling it straight along, and delivering with downright force and violence; by which means both os internum, and externum were often tore, and the child's head much bruised. On account of these bad consequences, they had been altogether disused by many practitioners." Observing the harm often done by the forceps, he "began to consider the whole in a mechanical way, and reduce the extraction of the child to the rules of moving bodies in different directions." As a result of his studies, he gives explicit directions as to the

application of the instrument, urging that it is never to be applied until the cervix is fully dilated, and also advising the application to the sides of the child's head. He also recommends that the blades should be newly covered with strips of washed leather after each use.

His directions for manual dilatation show that his method was almost exactly that in vogue at the present day, and in this as in many other details he made a greater step forward than any obstetrician of his time.

The pelvic curve was added to the instrument by Levret, about 1747, and has been almost universally retained in the later instruments.

With Smellie the early history of the obstetric forceps may be said to end. And indeed while many different models were suggested and made during the next hundred years, no important advance was made until within our own memory, when Tarnier showed before the Paris Academy of Medicine his first axis-traction forceps. The principle had been recognized for some years, and various attempts had been made to construct a forceps which should bring the line of traction into coincidence with the pelvic curve. Tarnier had been occupied with the problem for a long time, and finally on Jan. 24, 1877, he presented two instruments at the meeting of the Academy of Medicine. Much discussion followed his announcement of his design, and much adverse criticism was heard. One writer after a rehearsal of the views of various authors, concludes with the remark that "experience must determine whether or not the innovation of Tarnier is advantageous."¹⁰ Experience has indeed determined, and the axis traction instrument of Tarnier is now recognized as being the most practical and best of all such instruments designed, and the principle of axis traction is universally held to be correct.

Since 1877 there has been no noteworthy advance either in the construction or technique of the forceps, and the history of the instrument may be said to end with the great addition of Tarnier. I can close this account with no more fitting words than those of Chapman: "All I can say in Praise of this noble Instrument must necessarily fall far short of what it demands. Those only who have used it, and experienced the Excellency of it to their own advantage and the Security of their Offspring can be truly sensible of its real Worth."¹¹

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242 BROAD STREET.