

MILE STONES IN THE EVOLUTION
OF OBSTETRICS*

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Obstetrics is an ancient art. It dates from the earliest existence of mankind upon this sphere and probably began outside of the Garden of Eden. From the earliest dawn of history, here and there, we are able to pick up fragments of records, which give an inkling of the now well recognized principles that were observed in those early times.

The earliest known record of parturition is found in the book of Genesis where Rebecca's delivery of the twins Esau and Jacob is described as follows:—"And the first came out red all over, like a hairy garment; and they called his name Esau. And after that came his brother out and his hand took hold on Esau's heel, and his name was called Jacob." The frequency of the premature birth of twins, the hairiness and redness of the premature child, are well known truths to-day.

In the same book we have a record of spontaneous version occurring in the birth of Tamar's twins; "And it came to pass in the time of her travail, that, behold, twins were in her womb, and it came to pass when she travailed that the one put out his hand and the midwife took and bound upon his hand a scarlet thread saying, this came out first. And it came to pass as he drew back his hand, that behold his brother came out and afterward came out he that had the scarlet thread upon his hand." In the tragic death of Rachel we have our first example of neglect at childbirth. In that distant past, intuitive obstetrical practices were probably as well developed as was possible with the complete ignorance of anatomy and physiology. Old women who had borne many children, began to assist the younger during delivery and to instruct others in the art. The more ingenious and adept, no doubt, created a local demand for their services, and these women became known as midwives.

The earliest date at which the midwife is mentioned is 1725 B.C., at Tamar's delivery, before mentioned. For 3,500 years the midwife played the leading role in the art of obstetrics. It must be confessed that throughout these centuries they contributed little of real worth to the advancement of obstetrics. In earliest times when in difficulty they called upon the priests for spiritual aid; later, priests were asked for mechanical aid, as well. With the advent of Greek medicine physicians were called upon by midwives when delivery was impossible. Midwives throughout the ages seem to have resented any encroachment upon their pre-empted field by physicians; to them, the physician was useful only, to perform mutilating operations upon the

undeliverable child. Some idea of this bitterness may be imagined when one remembers that Mrs. Nihell, the Haymarket midwife, called Smellie "A great horse godmother of a he-midwife."

The midwife was not alone in her resentment. The public by their attitude towards male accoucheurs prevented science from forming the basis of obstetric art. Dr. Wertt, of Hamburg, as late as 1522, was burned alive for donning a woman's habit and observing a case of labour. To come nearer home John Hunter was compelled to remain in an adjoining room while Mrs. Stevens brought George IV into the world. Dr. Baillie, who refused to have a midwife assist him, together with Sir Richard Croft as consultant, officiated at the confinement of Princess Charlotte, in 1817. Both mother and child died. Had the child lived it would have occupied the throne of Britain. Mortification over the outcome caused Croft to shoot himself. The effect of the whole affair will be realized when one learns that in the following year a German mid-wife was sent for to officiate at the birth of Queen Victoria.

In all fairness, it must be stated that many midwives, considering their meagre knowledge of fundamentals, did accomplish much by their art. One name in particular stands out—that of Louise Bourgeois, really a pupil of Ambroise Paré. She stood in high favour at the court of France, and in her declining years after much experience and appropriation of some of Paré's teachings, produced in print much that was of benefit to other midwives. During the last hundred years the trained physician has gradually taken his place as accoucheur, and the midwife, though not extinct, is slowly disappearing.

Hippocrates, the father of western medicine, included obstetrics in his teachings. Though he had little knowledge of the anatomy of the pelvis or the mechanism of labour, his teaching and writings meant a change in practical obstetrics. Many of his shrewd observations and conclusions stand to this day. He dissociated religion and medicine and soon the physician was called upon to remove the fœtus which could not be delivered by the midwife. His teaching was disseminated far and wide, and laid the foundation for many centuries to come. The Aphorisms of Hippocrates dealing with pregnancy and delivery are known to many. His observations covered many phases of obstetrics—sterility, painless hæmorrhage during pregnancy, presentation of the fœtus, intra-uterine death of the fœtus, prolapse of the cord, pelvic inflammation and its treatment. For lavage of the uterus he advised the use of mare's milk, boiled twice, and strained. He advised cleanliness of the clothes worn, and also of the hands. Rain water, boiled to purify it, was the most suitable, he said, for washing the hands. These last admonitions were disregarded for many, many centuries.

The most distinguished of the ancient writers on obstetrics was Soranus of Ephesus, who lived in Rome early in the second century. "His

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writings and teaching mark the highest development of the obstetric art in ancient western civilization. Fathered by Hippocrates, fostered by Celsus, it was perfected by Soranus with whom independent original work and progress ceased for fifteen centuries" (Engleman).

His writings were practical, giving detailed instructions in gynæcology, obstetrics and pediatrics. He showed how midwives might improve their technique and methods and how the new born infant should be cared for. Ophthalmia neonatorum was observed and to prevent it he recommended cleansing the eyes of the newborn. As causes of prolonged labour, he discusses premature rupture of the amniotic sac, atonia of the uterus, a full bladder or rectum and contracted pelvis; apparently he also recognized the male type of pelvis. He used postural treatment for prolapse of the arm. He was the first to advise support of the perinæum during delivery of the foetal head. Though he realized vertex delivery was best, in certain malpresentations he advocated extraction by the feet, and to him must be given credit for paving the way for podalic version.

From the time of Soranus until the middle of the sixteenth century the art of obstetrics made no advance. If there was any change it was for the worse, and it must be confessed that through "the middle ages" obstetrics consisted in "neglect of the normal, and butchery of the abnormal cases." True, during this period two obstetrical works came into being. *The Rosegarten* of Eucharius Röslein appeared at Worms, in 1513, and was more or less duplicated in our own language, in 1545, by Thomas Raynalde, under the name *The Byrthe of Mankynde*. These publications were founded upon the writings of Soranus and contained little new.

During the sixteenth century the renaissance not only of midwifery but of western medicine took place. Padua, the reputed resting place of the bones of St. Luke, was at this time the most distinguished university in Europe. From this centre of learning emanated the principles which were to make medicine in all its branches a science as well as an art. Of the Paduan teachers, to whom we owe so much, probably Vesalius and his successor Fallopius were the most distinguished.

In addition to the impetus given to medical learning by the Paduan school at this time, another and independent source of advancing thought arose in France. Surgery and midwifery in particular were placed on a much higher level owing to the untiring energy and the teaching and writings of Ambroise Paré. Paré, by sheer professional ability, made himself indispensable to the élite of France, and by his personal charm and generous nature became the sought after companion and friend of those worth while at the court of France, and in this way did much to raise the social status of the surgeon and physician. This man of humble origin, by dint of hard work, courage and full use of nature's

mental endowment, rose to the highest pinnacle of the profession in France. His life history reads like a romance and even the most blasé must admire his ability, honesty, humility and generosity. By royal command, he remained near the King, and was thus saved from a tragic end on the night of St. Bartholomew.

During his many campaigns he revolutionized war surgery. During his long and successful practice in Paris he taught many improvements in the art of obstetrics. Though not claiming originality, we owe to him the revival of podalic version and breech extraction. His detailed description of these procedures were most complete and lucid. He originated the premature induction of labour in cases in which the mother's life was jeopardized by the continuation of the pregnancy. A collection of his works were first published in 1515, and in that portion entitled *The Generation of Man* his obstetrical principles are laid down. These works published in French marked a new era for surgery and obstetrics. Personal experiences combined with a knowledge of the science of surgery and obstetrics replaced the theoretical and traditional dogma of centuries.

We now turn to one of our own kith and kin, William Harvey, one to whom medicine of to-day pays just homage as one of the outstanding names in medicine of all time. Apart from many well known contributions to medicine, he definitely laid the foundation for our knowledge of embryology, and of the physiology of pregnancy, parturition and the puerperium.

At the age of 22, William Harvey went to Padua and was there imbued with the spirit of the great teachers of that university. Upon his return home he continued with renewed vigour the work in which he had become interested in Padua. No one dare even guess what this man might have accomplished had the facilities at our disposal to-day been his. With his simple lens or "perspective," as it was then called, the accurate, minute and oftentimes original details observed in the almost daily dissection of the embryos of birds, animals and man was nothing short of miraculous. He made many dissections of human embryos of all sizes "from the bigness of a tadpole and so upwards to the birth." His careful observations and descriptions of the foetus and its viscera at various ages, as published in *Generation*, commands our warmest admiration. His essay on childbirth, *De Partu*, is the first original English work on midwifery.

The scientific part of the work is based upon his own observations, and by them he eliminated many previous opinions on the anatomy of the foetus and the physiology of pregnancy and parturition. He advocated patient watchfulness and gentleness, the imitation of nature in ordinary cases, and podalic version in difficult ones. He was the first to accurately describe the foetal circulation; he discussed the lie of the foetus and length of pregnancy; breech delivery and involution; and said there was no direct communi-

cation between the maternal and foetal circulation. The following extract will give you some idea of his obstetrical outlook. "If you carefully ponder nature's works, you shall find none of them in vain but all directed to some end and some good." He rebuked the younger, more giddy and officious midwives, who, "lest they should seem unskilful at their trade, do mightily bestirre themselves and provoke the expulsive faculty by medicinal potions, whereby they rather retard and prevent it, and make it an unnatural and difficult delivery and, vainly persuading the woman to their three leg stoole, weary them out and bring them in danger of their lives. It is much happier with poor women, and those that dare not own their great bellies where the midwives help is never required, for the longer they retain and retard the birth, the easier and more successful proves the delivery."

During the seventeenth century obstetrics made much headway, and the profession began to take more interest in the science and art of midwifery. The influences of the teachings of Paré in France, and Harvey in Britain, were having their effect. The French school in particular was active, with Mauriceau and La Motte as the outstanding teachers and authors. Mauriceau is said to be the first physician to devote himself exclusively to the study and practice of obstetrics. Van Deventer in Holland at the end of the century did much to raise the standard and to him we owe a debt for the first clear and concise description of the mechanism of labour.

Peter Chamberlen, in the first half of the sixteenth century, invented the obstetrical forceps, but as the succeeding generations of the Chamberlen family tried to keep their invention a secret and attempted to sell it from time to time for financial gain, it was almost two hundred years before this instrument became generally known to the profession. In a hidden attic of a house in Essex, for many generations in the possession of the Ingraham family, the original Chamberlen forceps is said to have been found in 1815.

Many improvements have been made upon the original invention; many of these modifications bear the names of the most illustrious obstetricians of the eighteenth century. Unfortunately, the abuse of this instrument, as a dilator and cork screw, has been great, nevertheless its skilled use has been of tremendous benefit to the practice of midwifery.

During the eighteenth century steady progress was made and science gradually took its proper place along with art in obstetrics. "Obstetrics was divorced from its intimate connection with surgery and also disencumbered from the trammel of ignorance, superstition and empiricism which has so greatly retarded its progress." Of the many whose names became outstanding there was Smellie and Wm. Hunter in Britain, Auld in Dublin, Baudelocque in France, and Roderer in Germany.

Smellie, a pupil of the French school, after his return to London, began to teach obstetrics in

his own house using a leather-covered manikin for his demonstrations. He improved the obstetric forceps, and in his book *Midwifery*, he laid down rules for its use. He also differentiated the contracted pelvis from the normal pelvis by actual measurement.

Wm. Hunter was a pupil of Smellie. Unlike his teacher, Hunter opposed the use of forceps. Wm. Hunter, perhaps overshadowed in some respects by his illustrious brother, stands out as the leading obstetrician and consultant in London at that time. His marvellous work *The Anatomy of the Human Gravid Uterus* is a classic known to all. A retro-displaced gravid uterus when seen, even to-day, immediately brings to mind Hunter's drawing and description of that condition. He laid the foundation for modern knowledge of placental anatomy and physiology.

Then came a black page in the history of obstetrics—thousands of young mothers were dying from puerperal infection. For almost one hundred years the medical profession refused to listen to, or accept the teachings, warnings and pleadings of a few pioneers that puerperal fever was contagious. The profession seemed to resent the implication that it was possible for them to be responsible for the transference of infection from one patient to another. Not until the blame was placed upon medical students would the profession as a whole, accept the theory. For this reason Semmelweis has, it seems to me, received more than his share of credit as being the first to bring before the medical world the fact that puerperal fever could, to a great extent, be prevented. He believed that decomposed animal matter only, brought into contact with the genitalia of the parturient woman, could cause the fever and deprecated the belief of a few, particularly in Britain, that the disease was contagious.

Before the time of Semmelweis, (his publication appeared in 1860) free ventilation, absolute cleanliness of lying-in wards, disinfection of the hands, and abstinence from practice if previously in contact with many cases of puerperal fever, were growing principles in various centres of Britain. The late Dr. Adami, in his Lloyd Roberts Lecture of 1921, in no uncertain language brings out many of these points and attempts to place honour where honour is due.

True, we owe a great debt to Semmelweis for driving home the nail at a psychological moment of receptiveness in the profession, but we cannot hold that his theories correspond as nearly to present day understanding as did those of several British clinicians and at least one in America.

To Charles White, of Manchester, must be given credit for first drawing the attention of the profession to the necessity of good ventilation and clean surroundings in the prevention of puerperal fever. His work first appeared in 1773. In it he says, "In hospitals, if separate apartments cannot be allowed to every patient at least as soon as the fever has seized one, she ought immediately to be moved into another room, not only for her immediate safety but that

of other patients; or it would be still better if every woman were delivered in a separate ward and was to remain there a week or ten days, until all danger of the fever is over. Whenever a patient has recovered from the fever and is removed to another room, the bedding and curtains should be washed, floor and woodwork should be cleansed with vinegar and even better if it were stoved with brimstone."

Gordon of Aberdeen published a treatise on puerperal fever, in 1795. May I quote from it: "This disease seized such women only as were visited or delivered by a practitioner or taken care of by a nurse who had previously attended patients affected with the disease. I had evident proofs of its infectious nature, and that the infection was as readily communicated as that of smallpox or measles." He admitted that he himself was responsible for carrying infection in some cases. Collins of Dublin, in 1835, published his treatise in which he described the absolute elimination of puerperal fever from his wards by disinfection of wards, beds, linen, etc., by chloride of lime.

In 1843 Oliver Wendell Holmes published his essay on *The Contagiousness of Puerperal Fever*. With few exceptions, abuse was all he received at that time from his confrères. It was not, however, until the antiseptic principles handed down by Lord Lister in 1867, were given to the profession, that the hopes of all these pioneers were realized. It was the "one thing needful," and might well have been in the mind of Browning when he wrote "Oh! the little more and how much it is, and the little less and what worlds away." It revolutionized obstetrical methods. Puerperal fever still exists, but is now considered preventable.

Sir Jas. Y. Simpson, in 1847, first used ether during parturition, but soon substituted chloroform as a more suitable anæsthetic for childbirth. This marked a new and great advance in midwifery. From this beginning numerous methods have developed in the endeavour to lessen pain during parturition. Simpson improved the obstetrical forceps; the type bearing his name is the most popular even to-day. The uterine sound and sponge tent are products of this ingenious obstetrician. He strongly advocated version in deformed pelves.

Credé, of Germany, a little later explained how the placenta could be removed by external manipulation. He is responsible for the use of silver nitrate in the eyes of the newborn.

Braxton Hicks gave to us the combined external and internal method of podalic version. He described the condition of the uterus during labour, and, in 1872, recognized and gave the name to concealed accidental hæmorrhage.

Many names, well known to all, come to mind in considering the great teachers of our own time. The great advance of the last fifty years has taken place in the last twenty, in the form of prenatal care. Ballantyne, of Edinburgh, stands out above all others in that he struck the keynote

of prevention in obstetric practice, and laid down definite lines for the profession to follow with this end in view.

As in the last twenty years prenatal care has come to the fore, so in the next twenty years, postnatal care will result in another move forward towards making obstetric practice meet the ideal of a healthy, happy mother and child.