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THE EVOLUTION OF OBSTETRICS.*

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It has been said that history is past politics and politics present history, and so may it be said of the history of medicine. It is the record of past research, while research is present day medical history. In no other way, than by going over the accounts of medical research of the past, or medical history, can the physician learn to appreciate both the magnitude and importance of present day research. In no other way, too, I believe, can the physician gain that ideal conception of his profession, which is so necessary in elevating himself above the petty trials of a busy routine, than by studying the conditions which have prevailed in the past, by associating himself with those spirits who have struggled against the obstacles of precedent and ignorance, and by striving to obtain that perspective without which the practice of medicine, in any of its branches, becomes but a daily round of incidents.

This, I fancy, was the thought uppermost in the mind of our president of last year when he proposed, that, during the coming winter, the Academy devote a few meetings to papers dealing with the development of medical science as we know it today. The subject is a neglected one in our Detroit societies, and does not receive the attention it so justly deserves.

In speaking of the Evolution of Obstetrics, I cannot hope to bring before you any new facts, nor would I presume to attempt to present any of the old facts in a new or more interesting light, but in a brief sketch showing how the science of midwifery has evolved from a chaos of ignorance and superstitition into the most perfected of the medical sciences of today, I hope, at least, that a consciousness of just pride in our present knowledge may be aroused.

When one considers that obstetrical phenomena, which for the most part are particularly easy of observation, have been occurring the world over, thousands of times daily since man has inhabited the earth, the wonder is that the various problems involved were so slow in being solved. The reason is that for centuries there was no knowledge of anatomy and physiology and therefore no foundation on which midwifery might rest. Then, too, the study of pregnancy and the delivery of the pregnant woman were considered as subjects beneath the dignity of the medical man. When, however, with anatomy and physiology as a basis, the attention of some of the best minds of the past two centuries was given to these common, although allimportant questions.

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they were rapidly solved, so that all, I think, will agree that today there are fewer mysteries in obstetrics than in any other major branch of medical science.

I shall attempt to briefly sketch the status of midwifery in the various medical epochs, with here and there a short account of the lives of the men who were the first to contribute to certain phases of the subject. The facts have been taken from numerous sources, but especially from Baas' History of Medicine, a perfect mine of information, and from Williams' Obstetrics, which is particularly rich in historical references.

Among the ancient Egyptians, there is evidence that male physicians were called in by the midwives, but there are no records as to the knowledge which these people possessed. The Hebrew women as early as the sojourn in Egypt were attended by official midwives, as we know from the commands of Pharaoh to Shiphrah and Puah, related in the first chapter of Exodus, but that the midwives of this time had any great knowledge is not likely, as one of their duties in difficult cases was "to comfort the patient until she died."

We know more about the medicine of the East Indians that of any other ancient people, as the four sacred books of Vedas (B. C. 1500?) are still extant. In these volumes there is frequent mention of midwives, who, according to Muller were ordinary women, the wife of the washerman of the village being the official midwife. There is some evidence that these East Indians had more or less knowledge of operative obstetrics, for reference is made to Cesarean section upon women dying in the late months of pregnancy, cephalic and podalic version, craniotomy and embryotomy.

The medical knowledge contained in the Vedas is often beautifully and poetically expressed, as in speaking of menstruation—

"Then the mouth of the womb is open, like the flower of the water lily to the beams of the sun,"

Or with reference to their belief that the child turns over in utero immediately before birth—

"The child, who sat with head erect, the mouth directed toward the spine, praying therewith to God and beholding the heaven, the earth, and the regions beneath."

Among the Greeks, the midwives were called omphalotomai, or "navel cutters." They not only performed the usual duties, but led the sacred songs, without which no Greek was properly born. There is little evidence that there was much obstetrical knowledge before the time of Hippocrates, himself the son of a midwife, born B. C. 460. This was the period of the highest civilization which the world had yet known, the age of Phidias, Demosthenes, Protagoras, Aristotle, Herodotus and Sophocles, respectively masters in art, oratory, philosophy, natural science, history and the drama, a period the most favorable for the labors of the genius Hippocrates, who "a model for all futurity, taught those principles in accordance with which the medical art should be practiced."

There is no field of medicine but that was enriched by the keen observation of this man. Among obstetrical themes he discusses the position of the woman during labor, advocating kneeling in bed or sitting upon the delivery stool. The delivery of the placenta is to be accomplished by placing the child, with cord uncut, upon a bladder filled with water. A prick is then to be made in the bladder, the water gradually flows away, the cord is pulled upon and thus the placenta is born. He recognized that vertex presentations were normal, and breech presentations dangerous, so that cephalic version alone is recommended. The viability of the fetus at seven months is affirmed, and the change in the uterine os during pregnancy recognized. In opposition to the prevailing Grecian ideas of the period, artificial abortion was rejected. Embryotomy was performed by means of a hook. He taught that the birth of the child was effected by its own exertions, by pushing with its feet against the fundus, hence dead children are unable to bring themselves into the world and their birth is dangerous. A few other obstetrical and gynecological questions are discussed, but there being practically no anatomical knowledge, there was no recognition of the true mechanism of labor, nor was there any knowledge of the pathology of pregnancy.

I have dwelt at some length upon the obstetrical learning of Hippocratean times because of the influence which it had upon the knowledge of the Arabians and the Romans.

It must be remembered that the Romans had no medical learning of their own. What they knew of medicine, as of culture in general, was derived from the Greeks, for the early medical men among the Romans were Greeks, and these, for the most part, inferior repesentatives, whom the Romans regarded with contempt. Pliny said—"The dignity of the Roman does not permit him to make a profession of medicine, and the few Romans who begin to study it are venal renegades to the Greeks."

In obstetrics, however, there was some advance beyond the teachings of Hippocrates, as is shown by the writings of Soranus who was born at Ephesus, but lived in Rome from about 98 to 138 A. D. He enjoyed a large practice and a great reputation both as a physician and obstetrician. Records exist of fourteen of his writings, four of which are extant. One of these, his "Diseases of Women," is the only ancient work written for midwives still in existence. Some of the points mentioned by Soranus are that artificial abortion (much practiced by the Romans) is least dangerous at the third month, although it may become so if tetany supervenes. If the placenta is not separated, both ends of the cord must be tied. A labor stool is carefully described. A careful description of the requisites of a wet nurse are given. In passing, it may be said that nowhere in ancient medical writings, is there anything about the artificial feeding of infants. It is possible that this is because there may have been an ample supply of wet nurses among the female slaves. Soranus speaks of vaginal examinations made by the oiled finger, of the knee chest posture, of versions, and of embryotomy.

In the writings of the other eminent physicians who lived during the Roman Empire, Aretaeus, Celsus, and Galen, there is little concerning midwifery.

There is a great hiatus in the history of medicine, (as in general history) between the time of Galen, who died in 210, and the time of Vesalius who lived and worked during the first half of the sixteenth century. During these dark ages there was no productive investigation, either in medicine or in the other sciences. The sciences were supposedly perfected by the ancients and the scientist of these many centuries contented himself with "collecting, copying, and copying again the science of the ancients, usually without any critical comments." It is a mistake, however, to regard the dark ages as altogether unproductive in medicine. Unproductive they were in the science of medicine it is true, but there was slowly advancing that interest in humanity, which was evidenced in medicine by the Christian care of the sick and the development of monastic medicine. Practice was in the hands of the monks and obstetrics in the hands of women. The condition of obstetrical knowledge may be judged from the few records extant, as for example, the recommendation of Aetius of Amida, an Armenian of the sixth century, that in faulty positions of the child, the upper and, if necessary, the lower extremities should be severed, the head cut off and the various members then delivered with a sharp hook.

The history of this period should not be passed over without a mention of the School of Salerno, which forms a kind of connecting link between ancient and modern medicine. Beautifully located in the Province of Naples, it was a favorite watering place and site of a Benedictine Monastery, both factors in making it a medical center. It had a continuous existence from the sixth century until 1811, when the faculty was dissolved by Napoleon. It was here that the title of "Doctor" was first bestowed upon medical graduates, and it was here that women first became professors. Among them was Trotula de Ruggieri who wrote a manuscript entitled "De Passionibus Mulerium Ante, In et Post Partum," in which were first given directions for the repair of the perineum.

In the sixteenth century, the century of Vesalius, Eustacchius and Falloppius, the era of what has been called "the golden age of anatomy," there was some reform in obstetrical practice, but it was meager enough.

This reform came about through the study of the pelvis and the rediscovery of podalic version. This latter operation is often credited to Ambrose Pare (1509-1590), who was famed in his day as an obstetrician as well as a surgeon, but its revival should be attributed to Eucharius Roesslin (died 1526), a physician of Worms-on-the-Rhine. Roesslin wrote the first separate treatise on obstetrics in the German language. The book is entitled "Der Swangeren Frauen und Hebammen Rosengarten." This "Rosegarden" deals for the most part with medical midwifery, but contains enough of the operative side to show what massacres at that time were perpetrated in the name of science. The introduction of podalic version, however, was a great step in advance.

Cesarean section on the living woman, said first to have been done

by Xufer, the pig sticker, became popular through the writings of Francois Rousset (1580?), who reported 15 successful cases. The sixteenth century also furnished accouchment forcé and the artificial removal of the placenta.

During the seventeenth century, obstetrics began to be practiced by the surgeons, the midwives not being so exclusively employed as formerly. Practical instruction in midwifery, as a distinct branch, was nowhere yet imparted to men, and there was but one school of midwives—that at the Hotel Dieu in Paris, where a course of three months was given to women, the last six weeks of which were devoted to practical work. In Germany, guild instruction still prevailed, the older midwives taking younger women under instruction. With the advancement of knowledge in anatomy and physiology during this century came many advancements in midwifery. Although the forceps were invented during this century, little benefit was derived from them as they were kept secret for so long a time that it was well into the next century before they came into anything like universal use. Podalic version was, however, much practiced.

The story of the invention of the forceps has been so many times repeated that time will not be taken to discuss it. Suffice to repeat that they were invented by Peter Chamberlen, the son of the original William Chamberlen, the French Hugenot, who landed, a refugee, at Southampton, in 1569. The son, Peter, who is considered the inventor, died in 1631. The device was kept secret through four generations and was revealed by Dr. Hugh Chamberlen, an eminent London practitioner in the eighteenth century.

The names of two obstetricians stand out prominently in the seventeenth century—Mauriceau and Van Deventer.

Francois Mauriceau, who died in 1719, was the most prominent of the French accoucheurs. His teaching, at least a portion of it, is still followed in what we now call the Mauriceau-Smellie-Veit manoeuver. He advanced the knowledge of the normal course of labor, and introduced new methods of treating placenta-praevia. Mauriceau also did much to controvert the prevailing idea of the separation of the pubic bones during labor.

Hendrik Van Deventer (1651-1724), was apprenticed to a goldsmith, but at the age of 17 began the study of medicine at Groningen. He later studied in Copenhagen, but returned to Holland to practice. Van Deventer was one of the first to thoroughly study the anatomy of the pelvis and elucidate the mechanism of labor. He was also a pioneer in the study of contracted pelves, describing the flat and generally contracted pelves. His work, "A New Light for Midwives" (1701), contained much, at that time much needed, advice on the management of normal labor and the puerperium.

The earliest obstetrical work in the English language was written by James Wcolveridge and was entitled "Speculum Matricis, or the Expert Midwives' Handmaid, Catechistically Composed." It appeared in London in 1671.

During the eighteenth century, obstetrics as a separate branch became thoroughly established. Men with the true scientific spirit took up the study of its many problems, particularly the problems of normal labor. The indications for operative interference were differentiated and there was a growing tendency to interfere less and less with "nature." So great had become the furor for Cesarean Section, and so frightful was the mortality, that a conference of physicians was called in London in 1756, to devise means of discouraging the fad. At this period no sutures were placed in the uterus, the contractions being relied upon to stop the bleeding. From seven to nine women out of every ten, upon whom the operation was performed died of hemorrhage or infection. The operation continued to be popular, despite the London conference, until 1777, when Jean Rene Sigault performed the first symphysiotomy in Paris. This operation attracted wide spread attention and the patient, some months later, was exhibited before the Academie. Suffice it that she walked with difficulty, had a prolapsus of the uterus and a vesico-vaginal fistula, from which she never recovered.

Among the men who molded obstetrical thought during the eighteenth century several deserve special mention.

The French continued during this time to take the most prominent part in midwifery and undoubtedly the greatest of the French teachers was Andre Levret (1703-1780), who had pupils from all over the world under instruction at Paris. Levret's most important contribution was the addition of the pelvic curve to the Chamberlen forceps.

Jean Louis Baudelocque (1746-1810), contributed important facts concerning the pelvis and invented the first pelvimeter. His "L'art des accouchements" describes only 96 positions of the fetus!

Among the Germans, the foremost obstetrician was Johann Georg Roderer (1726-1763), who was born at Strassburg. In 1751, he was called to Gottingen as the first German professor of midwifery. He established there the first lying-in hospital for scientific study and instruction in Germany, and as he also taught anatomy, he went from the dissecting room to the confinement chamber, without fear. We owe to Roderer much of our knowledge concerning the pelvic axis and pelvic inclination.

In England, William Smellie (1680-1763), was the most eminent in obstetrics during this epoch. Indeed, he was the first Englishman, if we except the Chamberlens, who made lasting contributions to the science of obstetrics. He had a splendid knowledge of the pelvis and the mechanism of labor; recognized several forms of contracted pelvis; contributed to the procedure of extraction. (Mauriceau-Smellie-Veit manoeuvre); invented the English forceps lock; and made known the estimation of the conjugata vera from the measurement of the conjugata diagonalis.

Other Englishmen of the period who deserve mention are Thomas Denman (1733-1815), who first recommended the artificial production of labor to replace Cesarean Section in contracted pelvis, and who is said to have recognized the infectiousness of puerperal fever; William

Giffard, "Surgeon and Man-midwife," who was the first to recommend attempts at the preservation of the perineum; and Bartholomew Mosse (1712-1749), who founded the Dublin Lying-In Hospital, which later became the famous Rotunda Hospital of Dublin. This was the first British maternity hospital.

During the nineteenth century the science of obstetrics, as that of every other branch of medicine, made tremendous advances. The establishment of maternity hospitals and clinics progressed rapidly throughout the civilized world and gifted men devoted their lives to the elucidation of the many unsolved and half solved problems. Theoretical speculation was indulged in but little, attention was ever directed towards the practical and the humane, and the rights of the unborn child became more and more recognized. As the decades advanced, the operative furor calmed down and there were no longer published such statistics as those of Osiander, professor at Gottingen after Roderer, who proudly writes that he terminated 1016 of 2540 labors with forceps.

It became recognized that the pregnant woman deserved better care than she had been getting. The matter of diagnosis, particularly by external examination, was worked out, and the management of the different stages of labor, especially of the third stage, was elucidated.

To mention the many men who have played a part in these great advances would consume more time than is at our disposal.

Important as are these advances, they are of but minor significance compared to the two magnificent discoveries of the middle of this century—discoveries the beneficient results of which obstetrics shared with surgery—anesthesia and antisepsis.

It may have been noticed that no mention has been made of America in speaking of the evolution of obstetrics. American research is of too recent a date to have contributed greatly to the knowledge of midwifery, but the one great contribution which America has made—that on puerperal fever—was the greatest contribution ever made to the science and to America belongs the credit of having first pointed the way to the saving of thousands and tens of thousands of lives each year.