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Before the 1700s the practice of obstetrics had always been in the hands of midwives, but in the 18th century this field was formulated on scientific grounds and became an area of medical specialization. Important treatises were published during the century, illustrating the anatomy and physiology of reproduction. New instruments, such as forceps, were introduced and old-fashioned implements (e.g. hooks) were discarded. The art of birthing children became the subject of specialized instruction for surgeons and midwives.

In Bologna, where surgery received early scientific and academic recognition, obstetrics attracted the attention of scientists. The School of Surgery was established in 1742 and Pier Paolo Molinelli (1702-64) was appointed to head it. In 1757 Pope Benedict XIV decided to purchase the obstetric material of Giovanni Antonio Galli (1708-82). A student of Molinelli and a professor of surgery at the university, Galli directed a school of obstetrics in his own home for eight years. At his school, both physicians and midwives were taught the “science of birthing” based on a method of his own invention that included the use of three-dimensional wax tablets (some of which commissioned from Giovanni Manzolini) and clay models of uteri. In addition to being less expensive than waxworks, the clay models were also easier to handle and were thus more effective for teaching purposes. The models were designed not only to illustrate obstetrics but also to permit tactile exploration. This approach was a particularly important approach because, in the field of obstetrics, the safe delivery of a baby depends on knowing exactly how the foetus is positioned in the uterus.

In addition to funding the purchase of models, the pope arranged to set up an obstetrics course at the Istituto delle Scienze, appointing Galli to head it. The institute targeted a different group: midwives. The women accessed the obstetrics room, which was situated on the ground floor of the Palazzo Poggi, through a small door to the rear of the building. Thus, they used a separate entrance than the university students, professors and aristocrats who regularly came to the institute.

Galli’s tenure ushered in original teaching methods. Scientific knowledge and professional skills were acquired through both theoretical and practical approaches that, combined with the valuable set of teaching equipment, formed a rare example of a “school” of obstetrics as part of medical and surgical studies.

In 1782, Luigi Galvani replaced Galli as professor of obstetrics at the institute. In his Lezioni, births and pregnancies were illustrated based on accurate analysis of the neurophysiological circuit that, from the brain, governed uterine contractions. This represented a completely novel approach for the era and it heralded the theory of animal electricity, which Galvani would illustrate a short time later in De viribus electricitatis in motu musculorum commentarius (“Commentary on the Effect of Electricity on Muscular Motion”).

† The “osteomalacic bust” used by Luigi Galvani, the successor of Giovanni Antonio Galli, for his obstetric lessons.

† For the courses he held in his home, Galli used wax models commissioned from Giovanni Manzolini and other Bolognese wax modellers. For example, this model — “Twin foetuses and placenta” — was made by Niccolò Toselli (MPP photo).
In 1758, the first cycle of 60 lessons in obstetrics, taught by Giovanni Antonio Galli to midwives and obstetric surgeons, was held in two rooms on the ground floor of the Palazzo Poggi. The practical approach of Galli's lessons relied on three-dimensional models. In other words, he used wax panels, almost all of which were commissioned from Giovanni Manzolini, which are now displayed in the middle of the room and designed to provide anatomical information based on the reproductive organs, as well as coloured clay models, now in the side display cases, commissioned from Giovanni Battista Sandri, which represented the evolution of the uterus during pregnancy and the positions of the foetus inside it, the presentation of the foetus at birth, childbirth problems, techniques for manual extraction of the placenta, and so on. The six models with a "sagittal-median" view, representing the abdomen in profile and illustrating the descent of the foetus into the pelvic canal, are highly effective. The teaching tools used by Galli included drawings and natural specimens that have since been lost.

Nevertheless, the most innovative aspect of Galli's teaching method was that of practical exercises using "machines". It was through these...
called "birthing machine", which Galli himself devised, that he tested his students' practical and theoretical knowledge. This device, which is now displayed in the middle of the room, was designed to permit simulated obstetrical exercises. The model is shaped like a pelvis (wood) with a uterus at the ninth month of pregnancy (glass) and a flexible cloth doll, representing the foetus, which could be arranged in all possible positions (as illustrated by the clay models in the display cases lining the room) and manually be "delivered" naturally. Galli illustrated the proper manoeuvre to be performed based on the position of the foetus. The students could observe it through the clear glass and were then required to repeat it blindfolded. The professor was thus able to correct any mistakes and the students could repeat the concepts they had acquired, perfecting their manual and tactile skills. Consequently, repeating the manoeuvres (version or extraction of the foetus) on the machine was essential as it gave the students the empirical practice they needed in real situations. Learning through errors during simulated deliveries on the obstetric machine thus made it possible to avoid dramatic mistakes during real deliveries.

* Six models reproducing the abdomen and uterus at term sectioned along the median line, illustrating the most important phases of expulsion of the foetal head, clay, mid-18th century (MPP photo).