

英文原版

妇科手术学

David M. Gershenson

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Stephen L. Curry

Linda Brubaker

Operative Gynecology

Second Edition



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Operative Gynecology

SECOND EDITION

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Operative Gynecology

As in the previous edition of *Operative Gynecology*, this text has been designed to present a systematic approach to the art and science of gynecologic surgery. However, this second edition is considerably more comprehensive, having been expanded from 33 to 57 chapters. This augmentation has included numerous additional illustrations.

All chapters maintained from the first edition have been either rewritten with new contributors or updated. The most remarkable additional contributions include: (1) an elaborate section on CPT coding for gynecologic procedures of all types; (2) a new section on ethics, informed consent, and risk management; (3) a significantly expanded section on preoperative and postoperative care; (4) a chapter devoted to laparoscopic instrumentation; (5) new chapters on the latest radical surgical techniques for treatment of cervical cancer; (6) new individual chapters on abortion, tubal sterilization, and ovarian cancer risk and prophylactic oophorectomy; and (7) a new section on operative obstetrics.

Most significantly, the disciplines of urogynecology and pelvic reconstructive surgery have matured considerably since publication of the first edition. Consequently, the editors would like to welcome Dr. Linda Brubaker to our midst and to underscore the import of a completely new section on Urogynecology and Reconstructive Pelvic Surgery. This section includes nine chapters authored by leaders in the field on such topics as pelvic relaxation disorders, genitourinary and rectovaginal fistulas, and urogynecologic surgical procedures.

Even more so than in 1993, the explosion of information in obstetrics and gynecology has created a situation in which there is great concern about the adequacy of surgical training within our discipline. The editors hope that *Operative Gynecology* will continue to provide practitioners and trainees with the most contemporary information to enhance their surgical expertise.

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NOTICE

Gynecology is an ever-changing field. Standard safety precautions must be followed, but as new research and clinical experience broaden our knowledge, changes in treatment and drug therapy may become necessary or appropriate. Readers are advised to check the most current product information provided by the manufacturer of each drug to be administered to verify the recommended dose, the method and duration of administration, and contraindications. It is the responsibility of the treating physician, relying on experience and knowledge of the patient, to determine dosages and the best treatment for each individual patient. Neither the Publisher nor the editor assumes any liability for any injury and/or damage to persons or property arising from this publication.

THE PUBLISHER

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Section I

History and Embryology/Anatomy

1

THE HISTORY OF GYNECOLOGIC SURGERY

KENNETH L. NOLLER

Throughout the centuries there were men who took first steps down new roads armed with nothing but their own vision.

AVN RAND

In the minds of men and women still alive are memories of a lifestyle so different from the present that reminiscences seem like fiction to today's youth. It is hard to imagine a world in which the internal combustion engine was a novelty, where roads traveled with the terrain rather than through it, and where a journey from New York to California was counted in days or weeks rather than in hours. Very recent inventions make it even harder to recall the past. For example, it is becoming hard to remember how copies of agendas were made for large committees before Xerox machines; carbon paper could make only six. Or, how did one analyze a series of 300 hysterectomies before Hollerith punch cards or personal computers?

The technical advances of the twentieth century leave us in awe. It has been said that more patents, more inventions, more breakthroughs, and more labor-saving devices have been developed in the last 50 years than in the prior 50 centuries. Yet, we must place all things in their proper historical perspective. Although technology may be mind-boggling and useful, it remains but the trade-school application of new ideas. It can be argued (with some success, depending on the occasion) that the invention of the wheel was a far greater feat than the journey to the moon. Certainly, human footsteps never would have appeared in the lunar sand without it.

Modern gynecologic surgery is much like the lunar landing: It is an important and safe experience largely because of radical, new ideas of the past. However, although the advances during the past three decades have been rapid, even a brief trip through the history

of gynecologic surgery reveals that very little is truly new in the art. Most of our modern procedures are but modifications of ideas and procedures described long ago. Indeed, one of the widely distributed histories of medicine does not list a single notable advance in gynecologic surgery in the twentieth century!

This brief history of gynecologic surgery is, of course, incomplete. Because we are fortunate that the practitioners of our art have, for centuries, recorded their thoughts and procedures, it would take several volumes to adequately cover the subject, and still many anecdotes would have to be deleted. In the next few pages, we explore the previous 25 centuries of gynecologic surgery in a most superficial manner, discussing only the most important breakthroughs that make modern pelvic surgery safe and effective. This history ends in 1949—the date of the publication of the last truly new gynecologic surgical procedure. Virtually everything since is but a modification of previous work. An additional benefit of the 1949 date allows the author to avoid, with one exception, mention of any surgeon still living. Although there have been tremendously important individuals with equally important techniques practicing since 1950, their stars still shine brightly in our eyes. Their stories will need to be retold in future editions of this book.

ANCIENT MEDICINE (to A.D. 500)

There Were Giants in the Earth in Those Days . . .

GENESIS 6:4

The fortunes of time have been relatively good to the medical historian. Although it is unfortunate that certain

ancient manuscripts, referred to by authorities for centuries, have been lost, it is more positive to marvel over the relatively large body of information still available from these distant times (Fig. 1-1). Three centers of medical learning are paramount in Western civilization: Egypt (Alexandria), Greece, and Rome. The dominance of each center waxed and waned during the early years of recorded history. Interestingly, the influence of an area's physicians was not necessarily related to the dominance of the area's rulers.

Our introduction to ancient medical practice comes from Egypt and its neighbors. Although few original manuscripts remain, the Ebers Papyrus (approximately 1500 B.C., some parts earlier) is extant and some sections discuss gynecology. Physiologic conditions such as pregnancy and lactation are mentioned, as well as pathologic conditions such as sterility and various menstrual disorders. Unfortunately, little more has survived of very ancient Egyptian gynecologic manuscripts.

However, we know that the Egyptians greatly influenced the development of Greek medicine, and much of that body of knowledge survives. From approximately 1250 to 300 B.C. Greek medicine dominated Western healing, and we can begin to recognize the first true foundations of modern practice. Aesculapius (fourteenth century B.C.) is one of the first of the ancients to appear through the mists of time. Although it is often difficult to separate the cult from the man, he is known

to have been a real person. His fame came largely from practicing medicine without resorting to magic. Yet by 1250 B.C., in one of the many ironies of history, a temple to Aesculapius had been erected at Titane, and a cult of medicine had arisen from his physician followers. Although little is known about the gynecology practiced by these "priests," the care provided at the temples would seem very familiar to modern practitioners. In effect, the cult of Aesculapius developed the first "hospices." The sick were taken into the temples where soothing music was played quietly. The patients were bathed and massaged and provided with comfort and dignity as they died from slowly progressive illnesses. Interestingly, no patient was allowed to die in the temples, but was carried outside at the last possible moment. The Aesculapian ministers were largely practitioners of medicine who shunned surgery. Thus, it is unusual that Macnaon (c. 1250 B.C.) was described as a son of Aesculapius, because he was a practicing surgeon. He is known to have ministered to fallen warriors at the battle of Troy. He is said to have removed arrowheads, stopped bleeding, and likely used tourniquets and possibly even ligatures.

Unfortunately, the study of medicine slowly evolved into a non-hands-on field practiced only by philosophers. No one interested in medicine would dirty his hands by actually touching a patient. After surviving for several hundred years, the philosophic period of Greek

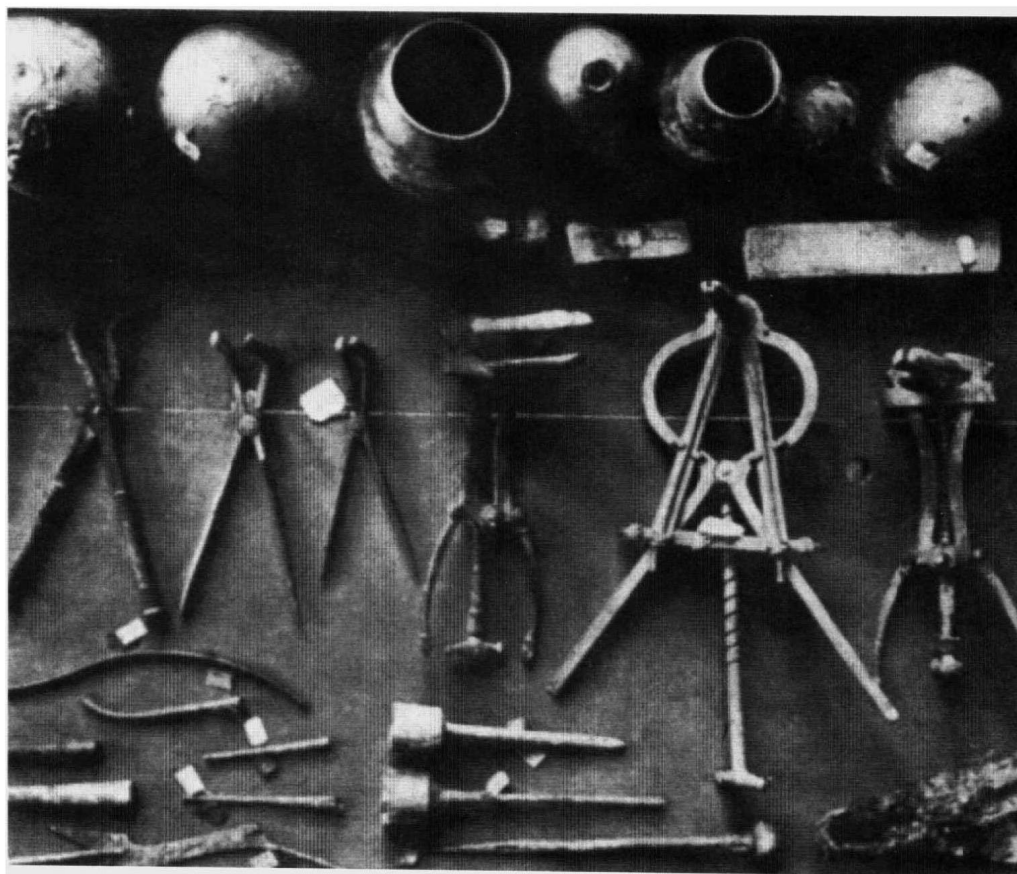


Figure 1-1

Bronze and iron surgical and gynecologic instruments found in the House of the Surgeon (c. A.D. 62-79), Pompeii. Museo Archeologico Nazionale, Naples. (From Lyons AS, Petrucelli RJ: *Medicine: An Illustrated History*. New York, Harry N Abrams, 1978.)

Figure 1-2

Aristotle Contemplating the Bust of Homer (1653), by Rembrandt van Rijn. The importance of Aristotle to Western thought—even some 2000 years after his death—is honored in this painting, in which the great philosopher-scientist also acknowledges a debt to his forebears. (From The Metropolitan Museum of Art, Purchased with special funds and gifts of friends of the Museum, 1961. [61.198] All rights reserved, The Metropolitan Museum of Art.)



medicine ended during the hundred years between 500 and 400 B.C. Once again, great men began the "practice" of medicine, meaning that patients were actually seen and talked to and, on rare occasions, actually examined. In this one century lived Euripides, Socrates, Pericles, Aristophanes, Sophocles, and Plato, to name but a few of the most remembered. Although our twenty-first-century bias is to describe these men as great "philosophers," in their time they were known for their very practical thinking. Some of these men have left us their thoughts about subjects related to medicine. For example, Aristotle was very interested in anatomy (Fig. 1-2).

Hippocrates (c. 460–377 B.C.) (Fig. 1-3) and his followers lived during the latter part of this remarkable hundred years. Their greatest contribution to medicine was to emphasize the need to observe the individual patient and to make predictions and plan therapy based on each individual's condition. They found it necessary to take medicine out of the temples and to once again remove all vestiges of magic from its practice. Although Hippocrates was very interested in the process of disease, he apparently had little interest in anatomy and physiology and was distinctly uninterested in obstetrics and gynecology.

Greek medicine practiced in Greece lost its preeminence after about 300 B.C. The greatest of the Greek physicians moved to Egypt and jointly founded the Alexandrian School of Medicine in 307 B.C. Although this school is not noted for an extensive array of original thought, it did record the writings of Hippocrates and the other Greek physicians, and these thoughts remained the basis for Western medicine for nearly 2000 years. An example of the influence of these writings, *The Nature of the Infant*, said to have been authored by Hippocrates, although this is unlikely, stated that the human maternal pelvic bones separated at birth,

allowing for passage of the infant. This error was repeated through the centuries and led to the lack of recognition of cephalopelvic disproportion. Indeed, it was not until the work of Vesalius, published in 1543, that this error was corrected!

Rome was the next great civilization to emerge in

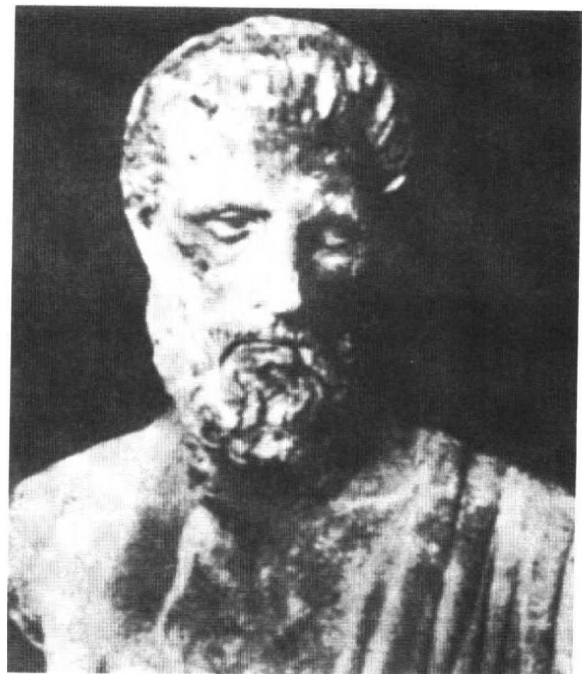


Figure 1-3

Statue, once thought to represent Hippocrates, found on Isle of Cos, where one of the great medical centers of antiquity gained fame late in the fifth century B.C. Cos Museum, Cos, Greece. (From Lyons AS, Petrucelli RJ: *Medicine: An Illustrated History*. New York, Harry N Abrams, 1978.)

the West. Whereas the Egyptians were the great recorders and builders and the Greeks were the great thinkers, the Romans were the great “users.” That is, they drew the very best from all of the known civilizations and applied that information in a practical manner. This is certainly true in the field of medicine. In the late Republic and the glory days of the Empire, Roman-born physicians were not in style and were rarely consulted by the privileged class. Most of the best-known practitioners of the time were actually Greeks who had studied at Alexandria.

As early as 300 B.C. midwifery was a practiced profession in Rome, and Herophilus is known to have written a book of midwifery approximately at this time. Caius Plinius Secundus (c. A.D. 23–79), better known as Pliny the Elder, wrote his famous text, *Historia Naturalis*, during the early Empire. This medical text is said to have been the second most commonly read book during the Middle Ages. Unfortunately, the text contained only a little about gynecology, and much of that was incorrect. Pliny, however, did expound on the magical and curative properties of menstrual blood, a falsehood that was believed for centuries because of his stature as one of the greatest Roman physicians. Indeed, in Roman times, cloths soaked with menstrual blood became marketable commodities, with the “first napkin of a healthy virgin” commanding the highest price.

Rufus and Soranus (Fig. 1–4), both of Ephesus, were Greeks who initially studied at the Alexandrian School of Medicine. When they reached Rome, they became the most famous gynecologists of antiquity. Rufus (c. A.D. 99) wrote the first anatomy text that described the female reproductive system in reasonable detail. His text became the only available anatomy tome for nearly 15 centuries.

Soranus (98–177) was by far the most important gynecologist of ancient times. His *Diseases of Women* became virtually the only text of gynecology until it was

supplanted in the Renaissance. Soranus clearly used a speculum to examine women and described uterine prolapse in some detail. Although of course Soranus never performed a vaginal hysterectomy, he is generally credited with conceiving the possibility that such a procedure might be performed. In addition to his gynecologic writings, he recorded considerable information about obstetrics, including a description of puerperal fever and podalic version. It is likely that he actually performed podalic version.

Galen (c. 130–200) was, in his time, the best-known physician in Rome and perhaps the best-known physician who ever lived. Unlike the writings of most of the ancients, his writings were generally available (and read) throughout the Dark Ages. Unfortunately, he had little interest in gynecology. Galen is generally credited with the first description of cancer.

Ancient Rome’s last contribution to medicine was the establishment of the first institution that is reminiscent of the modern hospital. At first, these buildings were exclusively for the use of wounded soldiers and closely resembled the cloisters of the later monasteries. Eventually, civilians were allowed to become inpatients. St. Jerome tells us that in c. 380, the first nonmilitary hospital in Rome was established by a female physician, Fabiola.

MEDIEVAL EUROPE (A.D. 500–1500)

Witchcraft, Herbs, and Demons

Every school child knows of the Middle Ages. It was a time of knights and maidens in distress, castles and moats, and sorcerers and magic. Yet the romantic tales that have become a part of our collective memory do little to provide a clear picture of the actual state of affairs during this period of time. During the Dark Ages, Western civilization virtually ceased to exist as a recognizable entity, as the extensive central administration of the Roman Empire disintegrated. Life became centered around the local village. Indeed, Western civilization at this time reverted to near tribal status. It is easy to recognize that this type of existence would not support an academy of medicine devoted to philosophic and scientific thought.

Much has been written about the role of the monasteries in the preservation of learning during the Dark Ages. However, it is only recently that we have come to realize that the monasteries did little to maintain the medical works of the ancients and that it was primarily the Alexandrian libraries and schools of thought, and later the important Moslem centers of learning, that preserved for us the medical knowledge of the Egyptian, Greek, and Roman empires. Although the monasteries preserved much ancient learning, they were not particularly interested in medicine. Apparently, for institutions that believed that all misfortune was punishment from God, too many of the illnesses and prescribed remedies resembled witchcraft.

Some few advances were made in Western medicine

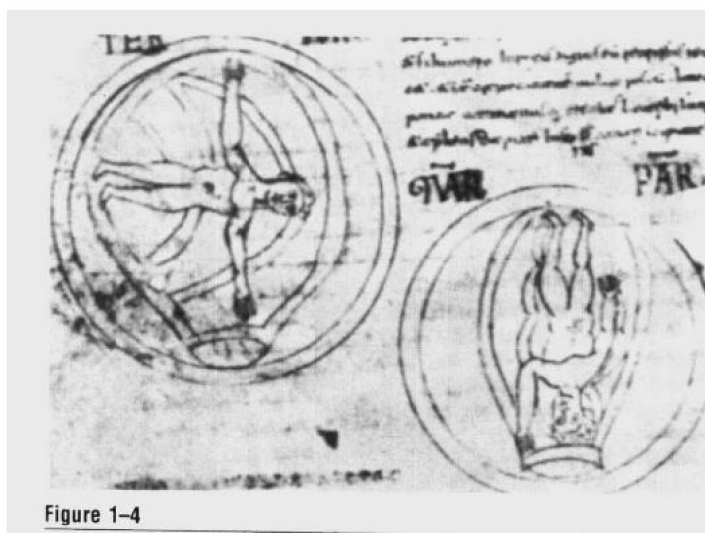


Figure 1–4

Illustration of fetus in utero, from a twelfth-century manuscript based on writings of Soranus of Ephesus, a first-century Roman doctor whose writings on obstetrics and the diseases of women were considered authoritative for many centuries. Codex 1653, Royal Library, Copenhagen. (From Lyons AS, Petrucelli RJ: *Medicine: An Illustrated History*. New York, Harry N Abrams, 1978.)

during this period of history along the fringes of Western civilization, most notably in the Near East and Egypt. Aëtius of Amida (502–575) copied the gynecologic works of Soranus, and these copies became the gynecology texts that were later used at the first medical school at Salerno. Aëtius' contribution to gynecology was to describe the various positions for vaginal examination. Certainly these examinations included the use of a speculum. Paulus Aegina (635–690) is known primarily as the first male midwife in recorded history. Avicenna (980–1037) is credited by some authorities as being one of the greatest physicians of all time, but he was not interested in gynecology.

The establishment of a "medical school" at Salerno in approximately A.D. 650 marked the first major step forward in medicine in several centuries. The founders of this school were wise enough to include scholars from all of the great civilizations. Thus, Christian, Jewish, and Moslem physicians practiced and taught side by side. Unfortunately, those of the Moslem faith were later purged; like so many advances, the Salerno school teaches us bittersweet lessons. Medical discussions were once again allowed to take place in the open, the ancient texts were reviewed and updated, and general interest in learning about the nature of diseases laid the groundwork for the rapid advancement that occurred during the Renaissance.

Unfortunately, the school at Salerno also gave credence to the *humoral balance theory*. Although this idea was first conceived in approximately 600 B.C. by the Greek physician Empedocles, it was not generally accepted until it was widely proclaimed by the Salerno scholars. According to this theory, blood (fire), phlegm (earth), black bile (water), and yellow bile (air) were the four physical observations that represented the four basic forces of nature, and harmony of these forces was responsible for good health. It follows from this theory that imbalance of the four "humors" caused all disease, and all cures required restoring them to their native balanced state. Over time, urine and blood became the two signs that were most carefully observed (and remain so to this day). Although this theory led humankind away from the concept of the infectiousness of many diseases, one benefit that is important for this history of surgical gynecology was the need to return the humor blood to its proper balance. This led to the practice of bloodletting, which required that professionals who were willing to stain their hands with blood be employed in the practice of medicine. Thus, after a hiatus of 10 centuries, surgery began to be reintroduced into Western medicine. However, this evolution did not come easily. In 1163, the Council of Tours, predominantly a religious meeting, decreed that surgery should be abandoned by all medical schools and should not be practiced by "decent" physicians.

Europe was nearly ready to lift the veil of the Dark Ages and return to scholarly activities. The rise of nationalism in the thirteenth and fourteenth centuries resulted in the reemergence of a form of centralized government. Scholars were again able to meet at central points to discuss and advance medicine. Perhaps the best example that times were changing is the work of

Mondinus of Bologna (1275–1326). This physician began to perform human dissections for the first time in over 1000 years. His colleagues at the new University of Bologna were stimulated by the remarkable discoveries that were made from this previously sacrilegious activity. Although several human dissections were performed during the next few decades, most of the work was done on animals.

THE RENAISSANCE (A.D. 1450–1600)

Art, Music, and Medicine

The revolution in the fine arts that occurred first in Italy and then in the rest of Western Europe was accompanied by a revival in medicine. Although the Medical Renaissance properly begins in 1315 with Mondinus' first dissection, the start of the Renaissance is usually given as 1453, the date of the fall of the Eastern Roman Empire. This date also marks the end of the Crusades and the gradual decline in the influence of the Church. England, France, Spain, and Portugal were developing as national entities, with central schools and hospitals.

An example of the new attitude toward disease can be recognized by contrasting the approach to the epidemic of syphilis that was rampant in Western Europe in the first years of the sixteenth century with the epidemics of the Dark Ages. During the fourteenth century, the bubonic plague (black death) traveled across Europe in several epidemics, eventually resulting in the death of more than one half of the population. This single disease resulted in the appearance of ghost towns throughout large areas of what are now France and Germany. Despite this devastation, little attempt was made to discover the cause of the disease or its treatment, even by the monastic centers of learning. Rather, new religious orders were formed to make the afflicted comfortable in their last days, and to dispose of the bodies.

The syphilis epidemic of the early 1500s resulted in a far different response. Scientists and physicians attempted to learn the origin of the disease and its mode of transmission and to develop forms of therapy. The use of reason, championed by the great philosophers and scientists of the Greco-Roman period, was rediscovered and applied to this disease. Although the humoral disease theory was to persist for another 400 years, almost all of the Renaissance scientists regarded syphilis as a contagious disease linked to sexual activity.

Leonardo da Vinci (1452–1519) extended the work of Mondinus and accurately described his 30 human dissections. Although his books were not studied in any depth for the next two centuries, he made unbelievable contributions to anatomy. He was the first to accurately draw the human fetus in the womb and to describe the unilocular nature of the uterus. Because many animals have paired uterine horns that appear to be grossly separate, before da Vinci it was assumed that the human uterus had the same shape.

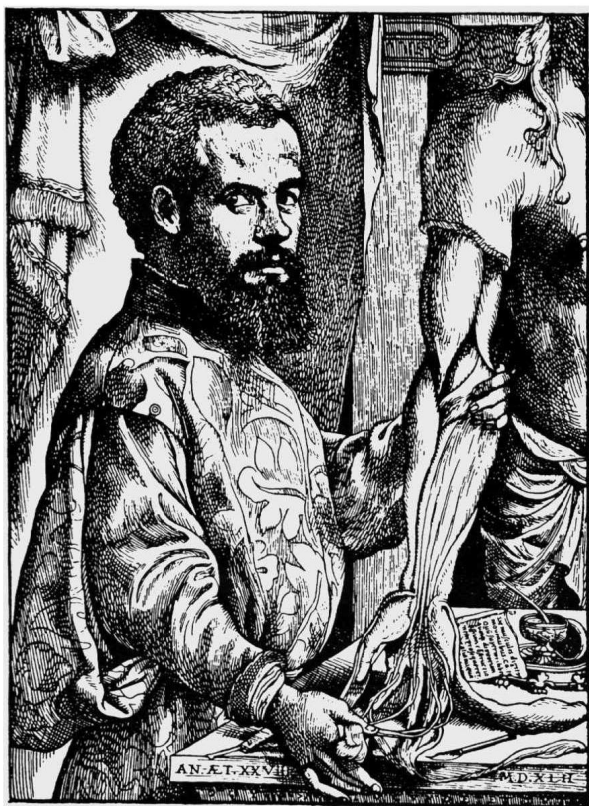


Figure 1-5

Portrait of the great anatomist Andreas Vesalius at the age of 28, from his masterpiece *De humani corporis fabrica* (1543). World Health Organization, Geneva, Switzerland. (From Lyons AS, Petrucelli RJ: *Medicine: An Illustrated History*. New York, Harry N Abrams, 1978.)

As great an anatomist as Leonardo was, he was outshone by Andreas Vesalius (1514–1564) (Fig. 1-5). Although da Vinci was interested in anatomy, he was distracted by so many other interests that he did not concentrate on this field. On the other hand, Vesalius apparently devoted much of his life to accurately describing the human body in anatomical terms. His work *De humani corporis fabrica* is probably the most famous anatomy text ever written. Besides giving accurate illustrations of the correct position of the female genital tract, Vesalius was also the first to demonstrate that the bones of the female pelvis did not separate at the time of delivery; thus he provided the groundwork for the identification of the entity cephalopelvic disproportion. The error of Hippocrates was finally corrected after more than 10 centuries.

Gabriel Fallopius (1523–1592), Vesalius' pupil, apparently subspecialized in female anatomy. His was the first precise description of the clitoris, the ovaries, and the tubes that were later to bear his name.

The field of obstetrics was dominated by midwives, but significant advancements were made by physicians. However, it was a sow gelder, Jacob Nufer (c. 1500), who performed the first successful cesarean section (on his wife). No prior cesarean section had resulted in both a living mother and a living infant. Perhaps as many as 15 additional cesarean sections were successful and were reported during the next century. Scipione

Mercurio (Hieronymus) (1550–c. 1595) observed two cesarean sections and described them in detail. He also performed external version—the Braxton Hicks maneuver—250 years before the birth of Braxton Hicks.

However, the most remarkable gynecologist of this era is better remembered as the father of surgery. Quite rightly, he should also be known as the father of gynecologic surgery and the father of obstetrics. Ambroise Paré (1510–1590) (Fig. 1-6), a nonphysician, is the first of several surgeons mentioned in this chapter who combined serendipity (chance) with an acute sense of observation and a keen wit. In 1536, Paré was serving as battlefield surgeon at Tourin. At that time, gunpowder was widely believed to be poisonous and the standard treatment for any gunshot wound was to apply boiling oil to it as soon as possible. Fortunately, Paré ran out of oil during a particularly long battle and was forced to treat the remainder of his patients that day with only cleansing and dressings. His diary reflects his grave concern the next morning when he expected to find ill or dead all of his patients from the previous day who had not been treated with oil. Certainly, he was not the first battlefield surgeon to run out of oil in the heat of battle. However, he was the first to observe and record carefully the fact that the men who had failed to receive the hot oil treatment actually healed more quickly, and with less infection and pain, than those who had been treated with oil. Despite much initial criticism by his colleagues, he never again treated a gunshot wound with oil.



Figure 1-6

Woodcut portrait of Ambroise Paré, at age 68, who, without academic training, revolutionized the treatment of battle wounds and wrote the innovative treatise *A Universal Surgery* (1561). New York Academy of Medicine, New York. (From Lyons AS, Petrucelli RJ: *Medicine: An Illustrated History*. New York, Harry N Abrams, 1978.)