Homer to Hippocrates

Early Greek Medicine

Although the Greeks created rational medicine, their work was not always scientific in the modern sense of the term. Like other Greek pioneers of science, doctors were prone to think that more could be discovered through reflection and argument than by practice and experiment. There was not yet a distinction between philosophy and science, including the science of medicine. Hippocrates was the first to separate medicine from philosophy and to disprove the idea that disease was a punishment for sin. Much of the traditional treatment for injuries and ailments stemmed from folk medicine, a practice which uses the knowledge of herbs and accessible drugs, collected piece by piece through the ages, to cure everything from toothaches to infertility.

Red Figure, Attic Vase, 490 BCE, Philoctetes bitten by a snake on Lemnos. While en route to Troy with the Greek army, the hero Philoctetes was bitten by a snake as he participated in a sacrifice to Chrsé, a minor deity. The wound was so malodorous and caused Philoctetes to utter such inauspicious cries that his comrades marooned him on the island of Lemnos for the duration of the war. Philoctetes treated his wound with unspecified herbs until he was finally rescued from Lemnos and cured by the military doctors at Troy.
Mythology and Medicine

Stray references in Greek literature give us a better understanding of folk medicine and magic in Greek society. In Sophocles's tragedy Philoctetes, the hero Philoctetes treats a snakebite on his foot using an unspecified herb as a palliative. The practice of singing incantations over wounds is mentioned in Homer's Odyssey. Odysseus, wounded in his youth at a boar hunt, is said to have been skillfully bandaged by the sons of Autolycus, who then stopped the bleeding with incantations (Odyssey XIX, 455-458).

One of Hippocrates's predecessors was Alcmaeon of Croton. In operating on the eye, Alcmaeon discovered 'passages' linking the sense organs to the brain, which he recognized as the seat of thought and feeling (an idea adopted by Plato, but not Aristotle). Alcmaeon was probably the first physician to formulate the doctrine of health as a balance among the powers of the body, these powers being constituent fluids with definite qualities and causal properties.

Fragment of a grave stele, Ionian, 5th century BCE: East Greek Tombstone of a Doctor. This tombstone can be identified as belonging to a doctor by the two small cupping vessels at the top of the stele. Because the marker is damaged, we cannot know whether the figure standing at right was a patient or an assistant.

Health, or _isonome_ ("equality before the law") was a balance between these fluids. When one dominated over another, illness, or _monarche_, developed. These terms, in another context, refer to the struggle between opposing political factions. Among the many qualities that needed to be held in balance were heat and cold, moisture and dryness, and bitterness and sweetness. This doctrine was later parlayed by Hippocrates into the Theory of the Four
Humors, which provided the basis for medical theory up until the time of the American Revolution.

The philosophers/physicians Empedocles and Anaxagoras were contemporaries of Alcmaeon. Like other scientists of their day, they inquired about such quasi-medical topics as the composition of matter (is the primary element earth, fire, or water?), the seat of the human soul (some believed it to be the heart, some the liver, and still others the diaphragm), and the procreative process of humans (most held that the male sperm was exclusively responsible for conception).

A cursory survey of medical thought and practice throughout antiquity makes two underlying themes apparent. Throughout antiquity and into the Middle Ages there was a nexus between medicine and philosophy. Scientists in the ancient world often were philosophers as well as physicians, and the distinction between the two fields was often blurred. At its inception in the sixth century BCE, ancient medicine was a mere branch of natural philosophy. Even in Late Antiquity, when the philosopher/physician Galen reigned supreme, philosophy was considered a necessary part of medical training.

Unlike philosophy and medicine, which worked in harmony, the tension between medicine and religious belief often stifled or impeded physiological research. Throughout antiquity, rational medicine and faith healing existed side by side, never fully divorcing themselves from one another. Roman medicine, especially, was an eclectic blend of rational Greek medicine, folk remedies, and religious cult practice. Like so many other aspects of antiquity, medicine was truly interdisciplinary, influencing and in turn being influenced by art, literature, philosophy, politics, and in no small way, religion.
We pass from myth to the opening of history. The central historical figure in Greek medicine is Hippocrates. The events of his life are shrouded in uncertainty, yet tales of his ingenuity, patriotism, and compassion made him a legend. He provided an example of the ideal physician, after which others, centuries after, patterned their existence.

He was associated with the Asclepium of Cos, an island off the coast of Asia Minor, near Rhodes, and with a group of medical treatises known collectively as the Hippocratic Corpus. Hippocrates was the first to give the physician an independent standing, separate from the cosmological speculator, or nature philosopher. Hippocrates confined the medical man to medicine. At the same time that he assigned the physician his post, Hippocrates would not let him regard the post as sacrosanct. He set his face against any tendency toward sacerdotalism. He was also opposed to the spirit of trade-unionism in medicine. His concern was with the physician's duties rather than his “rights.” Hence, the greatest legacy of Hippocrates: the Hippocratic Oath.
The father of medicine as envisioned by a Byzantine artist. Portraits of Hippocrates represent the physician with a noble face and impressive body to match his intellectual attributes. Various dignified ancient busts have been said to represent Hippocrates, yet no original Greek portraits have survived; hence, our evidence comes from Roman copies.

The Hippocratic Oath

The so-called Hippocratic Oath was unquestionably the exemplar for medical etiquette for centuries, and it endures in modified form to this day. Yet uncertainty still prevails concerning the date the oath was composed, the purpose for which it was intended, and the historical forces which shaped the document. The date of composition in modern debate varies from the sixth century BCE to the fourth century CE.

In antiquity, it was generally not considered a violation of medical ethics to do what the Oath forbade. An ancient doctor who took the Oath was by no means in agreement with the opinion of all his fellow physicians; on the contrary, he adhered to a dogma which was much stricter than that embraced by many, if not by most, of his colleagues.

I swear by Apollo the Physician and Asclepius and Hygeia and Panaceia and all the gods and goddesses, making them my witnesses, that I will fulfill according to my ability and judgment this oath and this covenant:

To hold him who has taught me this art as equal to my parent and to live my life in partnership with him, and if he is in need of money to give him a share of mine, and to regard his offspring as equal to my brothers in male lineage and to teach them this art—if they desire to learn it—without fee and covenant; to give share of precepts and oral
instruction and all other learning to my sons and to the sons of him who has instructed me and to pupils who have signed the covenant and have taken an oath according to the medical law, but to no one else.

I will apply dietetic measure for the benefit of the sick according to my ability and judgment; I will keep them from harm and injustice. I will neither give a deadly drug to anybody if asked for it, nor will I make a suggestion to this effect. Similarly I will not give a woman an abortive remedy. In purity and in holiness I will guard my life and my art.

I will not use the knife, not even on sufferers from stone, but will withdraw in favor of such men as are engaged in this work.

Whatever houses I may visit, I will come for the benefit of the sick, remaining free of all intentional injustice, of all mischief and in particular of sexual relations with both female and male persons, be they free or slaves.

What I may see or hear in the course of the treatment or even outside of the treatment in regard to the life of men, which on no account one must spread abroad, I will keep to myself holding such things shameful to be spoken about.

If I fulfill this oath and do not violate it, may it be granted to me to enjoy life and art, being honored with fame among all men for all time to come; if I transgress it and swear falsely, may the opposite be my lot.

—Translated by Ludwig Edelstein

The organization of the Hippocratic Oath is clearly bipartite. The first half specifies the duties of the pupil toward his teacher and his obligations in transmitting medical knowledge; the second half gives a short summary of medical ethics. Because the second half of the Oath is inconsistent with Hippocrates’s own principles and practices, we must assume he was not its sole contributor, if one at all.
One immediate inconsistency is the Oath’s prohibition against abortion. The Hippocratic Corpus contains a number of allusions to the methods of abortion and the use of pessaries. The Oath’s prohibitions did not echo the general feeling of the public either. Abortion was practiced in Greek times no less than in the Roman era, and it was resorted to without scruple. In a world in which it was held justifiable to expose children immediately after birth, it would hardly seem objectionable to destroy the embryo.

A second discrepancy between the Oath and general Hippocratic principles is the ban on suicide. Suicide was not censured in antiquity. Self-murder as a relief from illness was regarded as justifiable, so much so that in some states it was an institution duly legalized by the authorities. Nor did ancient religion proscribe suicide. It did not know of any eternal punishment for those who ended their own lives. Law and religion then left the physician free to do whatever his conscience allowed.

Pythagoreanism is the only dogma that can possibly account for the attitude advocated in the Hippocratic Oath. Among all the Greek philosophical schools, the Pythagoreans alone outlawed suicide and abortion and did so without qualification. The Oath also concurs with Pythagorean prohibitions against surgical procedures of all kinds and against the shedding of blood, in which the soul was thought to reside. Again, this interdiction against the knife is especially out of keeping with the several treatises in the Hippocratic Corpus that deal at length with surgical techniques and operating room procedures.

It is little wonder that this Oath, although incorrectly attributed to Hippocrates, has remained steadfastly the symbol of the physician’s pledge. The prohibition against abortion and suicide were (and remain) in consonance with the principles of the Christian Church. The earliest reference to the Oath is in the first century CE, and it may have been appropriated soon after to fit the religious ideals of the time. The substitution of God, Christ, and the saints for the names
of Asclepius and his family was easy enough. It is ironic that the Hippocratic Oath, in its present form with its religious subtext, is associated with Hippocrates, the man who first separated medicine from religion and disease from supernatural explanation
The ancient doctrine of the Four Humors, as illustrated in this fourteenth century manuscript (MS C. 54, Zentralbibliothek Zurich, The Four Humors), stated that there were four basic human temperaments: melancholic, phlegmatic, sanguine, and choleric.

The elaborate doctrine of the Four Humors endured through many centuries and is one of the central tenets of the Hippocratic Corpus. This theory was grounded on the Empedoclean principle of the four supposed elements: earth, air, fire, and water. Man’s four constituent elements, or humors, were identified analogously as black bile, blood, yellow bile, and phlegm, all of which had to be in correct proportion to one another. This fourfold pattern was infinitely adaptable: to the seasons, the winds, the elements, and even, in due course, to the Evangelists. It offered a kind of universal holdall, in which tastes, temperaments, and a surprising number of diseases could find loose accommodation. Though virtually worthless as a theory, it remained the fundamental prop of European medicine for over two millennia.

There is something subtly seductive about the doctrine of the Four Humors; its widespread and lasting impact on European medical thought has been greatly out of proportion to its medical value. The success of the humoral theory put a heavy brake on physiological research since there were few phenomena for which the humors could not be made to yield some sort of easy explanation.
The Hippocratic Corpus is a library, or rather, the remains of a library. Although the 34 books included in the Collection were originally attributed to Hippocrates himself, scholars now know that they were more likely composed between the sixth and fourth centuries BCE. Between the career of Hippocrates and the pre-Socratic philosophers, a special kind of prose for medical writings developed in Greece. Although Cos, the island home of Hippocrates, is located within what was a Doric-speaking region, the medical writers of Cos (believed to have written the Hippocratic treatises) appropriated the more refined Ionic dialect of philosophy. Later, during the Renaissance, scientists like Andreas Vesalius would similarly shun using the vernacular, instead penning their medical treatises in Latin.

One of the earliest specimens of the Corpus is Ancient Medicine, a tract written by an anonymous physician from the fifth century BCE. We can infer this author was both familiar with contemporary theory, and devoted to traditional lore and technique. Ancient Medicine is one of two polemical works in the Hippocratic corpus; the other is On Epilepsy. Both works attack the concept of divine origin of disease and the intrusion of hypothetical philosophers into medicine.
Hippocratic principles were directly opposed to magic and ritual. However, the continuing success of the cult of Asclepius throughout antiquity clearly shows that medicine was never fully divorced from religion. Beginning in the sixth century BCE, health resorts, or sanctuaries, known as Asklepieia (because they were presided over by Asclepius, the god of healing) sprang up all over the Mediterranean. The cult of Asclepius was simultaneously a religion and a system of therapeutics. In the panel to the left, a temple physician massages a patient’s shoulder while a priestess, serving as a nurse, looks on.
Although medical treatment was free at Asklepia, a recovered patient was expected to make a votive offering, which sometimes took the form of a replica of the afflicted organ or limb. A patient is shown dedicating a large votive leg to the god in thanks for curing his varicose veins. In these Asklepieia, special rites were observed. After purification baths, fasting, and sacrifices, the patient would spend the night in the god’s temple, a process called *enkoimesis, incubatio* (“sleeping in”). During the night Asclepius would appear to the sleeping patient in a dream and give him advice. In the morning priests would interpret the dream and explain the god’s precepts. Patients thanked Asclepius by tossing gold into the sacred fountain and by hanging ex-votos on the walls of the temple.

Silver tetradrachm, Epidauros, 350-330 BCE.

This coin was minted at Epidauros, the site of the great healing sanctuary of Asclepius. The god became a symbol of the city. He is shown on the reverse of the coin accompanied by a serpent. The letter E to the right of the figure is short for Epidauros.
In the left foreground, Amphiaraus, like a human doctor, is treating the patient’s right shoulder: this scene represents the supposed content of Archinus’s dream.

But, in the same scene, a sacred snake, a healing animal, is shown licking or biting the same right shoulder of the sleeping patient: this is the cure as it would supposedly have appeared to a waking observer. Behind, on a pillar, a votive stele commemorates the god’s act of healing. The figure on the right might perhaps be yet a third representation of Archinus, in this case, gratefully dedicating his stele.

There are hundreds of extant inscriptions and votive reliefs recounting the individual cures of patients at the Asklepia. The following examples were found at the ruins of the Asklepion in Epidauros:

- Ambrosia, a woman of Athens, was blind in one eye. After laughing at some of the cures by which the lame and the blind were healed, while dreaming, she sees Asclepius standing beside her. He tells her that he will cure her if she promises afterwards to dedicate a silver pig as a memorial of her ignorance. Then he cut the diseased eyeball and poured in a drug. When day came, she walked out sound.
- Agestratus was cured of headaches so severe he was unable to sleep.
- Gorgias, having a suppurating wound made by an arrow that had pierced his chest, slept beside an altar and awakened with a sound skin, holding the arrow point in his hand.
Euhippus had had a spear point fixed in his jaw for six years. As he was sleeping in the temple Asclepius pulled out the spearhead. When day came Euhippus departed cured and holding the spearhead in his hands.

Votive terra cotta offerings from Cerveteri, Etruria, now in Museo Gregoriano Etrusco, 3rd century. Foot.

Votive terra cotta offerings from Cerveteri, Etruria, now in Museo Gregoriano Etrusco, 3rd century. Hand.

Votive terra cotta offerings from Cerveteri, Etruria, now in Museo Gregoriano Etrusco, 3rd century. Digestive organs.

The hand (left) and foot (right) in this collection of votive terra cottas are both painted red. Therefore, they represent the limbs of a male; in ancient Mediterranean art, the flesh of men was painted red and the
flesh of women, white or pink. The sculpture was made in a mold that had been reused a number of times; consequently, sculptured details like the fingernails are only faintly visible.

The esophagus, stomach, intestine, and kidneys are visible in this curious representation of the digestive organs. It was offered as a gift to a divinity either in gratitude or as a plea for healing.

The cult of Asclepius also existed in Rome after 291 BCE. No trace of the sanctuary of Asclepius in Rome exists, but the cult was immensely popular as evidenced by the number of terra cottas. These offerings depicted parts of the human body, often at greater than life size, and were dedicated by the afflicted at healing sanctuaries. More than 100 sanctuaries in Italy are known, the majority in western-central Italy, and it is clear that the inspiration for these temples stemmed ultimately from the temple in Rome itself.

Other cult centers sprang up across Italy. Study of the terra cottas from these precincts reveals the emergence of some specialized centers in healing. At Ponte di Nona, e.g., a rural complex some 15 kilometers to the east of Rome, the collections are dominated by feet and hands—precisely the parts of the body which are likely to suffer damage in the course of agricultural work. In the town of Veii, on the other hand, the terra cottas from the Campetti sanctuary contain a huge proportion of male and female sexual organs. If not associated with some form of fertility cult, these may well hint at a high incidence of sexually transmitted diseases, of a sort that might well be picked up in an urban brothel.
Women in Medicine

This relief of a scene in childbirth portrays a midwife in the midst of a delivery aided by an assistant who stands behind the birthing chair. The assistant grips the mother around the chest to steady her.

Agnodice is a figure often mentioned in the histories of the medical profession, but her story is largely unfamiliar to Classicists. She is credited with achieving the role of physician, although it was forbidden to her by law. It is highly unlikely that she was a veritable historical figure in third century Athens; more likely, she belongs to the realm of myth and folk tale. Her story comes to us through Hyginus, a Latin author of the first century CE:

A certain maiden named Agnodice desired to learn medicine and since she desired to learn she cut her hair, donned the clothes of a man and became a student of Herophilus. After she learned medicine, she heard a woman crying out in the throes of labor so she went to her assistance. The woman, thinking she was a man, refused her help; but Agnodice lifted up her clothes and revealed herself to be a woman and was thus able to treat her patient. When the male doctors found that their service were not wanted by the women, they began to accuse
Agnodice, saying that she had seduced the women and they accused the women of feigning illness [to get visits from Agnodice]. When she was brought before the law court, the men began to condemn Agnodice. Agnodice once again lifted her tunic to show that she was indeed a woman. The male doctors began to accuse her all the more vehemently [for breaking the law forbidding women to study medicine]. At this point the wives of the leading men arrived saying “you men are not spouses but enemies since you are condemning her who discovered health for us.” Then the Athenians emended the law so that freeborn women could study medicine.

Midwives from the seventeenth century to the present day have used this tale to defend themselves against a male-dominated profession seeking to medicalize childbirth. Agnodice has been invoked as fact, and cited as a pioneering midwife, a precedent for women in medicine in general.

However, as much as traditional medical history focuses on pioneering individuals who struggle against the odds and win—and indeed Agnodice fits well into such a tradition—it is highly unlikely that Hyginus’s account is based upon fact. The act of lifting the skirts to reveal one’s sex is a common folk-tale motif found in other stories. Terra cotta figurines of women lifting their garments, which date to the fifth to third centuries BCE, are generally interpreted as apotropaic, driving evil forces away. The story of Agnodice may simply be an explanation for such a figure. Furthermore, the name Agnodice literally means “chaste before justice,” a coincidence which suggests her name stems from this tale—a not uncommon device in Greek literature.
During the 1898 excavations at Priene, German archaeologists unearthed a number of figurines such as the one pictured above. They have subsequently been identified as statuettes of the mythical woman Baubo. According to Greek myth, Baubo amused the goddess Demeter by painting a face on her belly, pulling up her dress over her head and dancing. Figurines of women pulling apart their skirts to expose their genitals have been found elsewhere in the Mediterranean and their existence may be connected in some way to the tale of the Greek physician Agnodice.

The story of Agnodice underlines one of the major problems in treating female patients. As the author of the Hippocratic treatise De morbis mulierum (1.62) explains, women were loathe to confide in doctors, and this often interfered with successful treatment. However, it is not surprising that women were less than cooperative when one considers they were brought up in seclusion and taught to be ashamed of their bodies.

Gynecology was not always the province of male physicians. Before the fifth century BCE and the advent of Hippocratic medicine, childbirth had been entrusted to the informal care of female kin and neighbors who had themselves given birth. Some of these women became known for their skills and were accorded
the informal title of *maia* or “midwife.” As they worked, they accumulated lore about other aspects of women’s reproductive lives, such as fertility, abortion, contraception, and even (in imagination, if not in reality) sex determination.

But, by the time the Hippocratic treatises were composed in the late fifth century BCE, this traditional female monopoly in childbirth was breaking down; male doctors were increasingly involved in gynecological cases, as evidenced by the creation of treatises dealing with such problems.

The shift from female control to male involvement came about largely because men were suspicious of women’s reproductive autonomy.

Female patients described in the Hippocratic treatises, and for that matter, in Greek literature in general, were often suspect by men. A wife’s potential to sabotage her husband’s lineage was a great source of anxiety for men. Thus, women’s struggle to control their own bodies was a volatile issue in antiquity, even as it is today.
The Doctor in Roman Society

The Medical Profession

As a profession, medicine was more highly regarded in Greece than in Rome. Physicians were basically craftsmen, probably enjoying some esteem among their customers, but not being part of the socio-political elite.

Roman doctors did not fare so well. Many doctors were freed Greek slaves, hence the social standing of doctors was quite low. Because recovery rates were so low, many people were skeptical or even scornful of doctors. Their skepticism is easily understood. Roman literature tells us much about the reactions of individuals to medicine and doctors.

Listening to the Roman authors, we hear tales of quackery and chicanery at all levels of society:

*Some doctors charge the most excessive prices for the mostworthless medicines and drugs, and others in the craft attempt to deal with and treat diseases they obviously do not understand.* ~Gargilius Martialis, Preface, 7

There were no licensing boards and no formal requirements for entrance to the profession. Anyone could call himself a doctor. If his methods were successful, he attracted more patients; if not, he found himself another profession.

*Until recently, Diaulus was a doctor; now he is an undertaker. He is still doing as an undertaker, what he used to do as a doctor.* ~Martial, Epigrams 1.47
You are now a gladiator, although until recently you were an ophthalmologist. You did the same thing as a doctor that you do now as a gladiator. ~Martial, Epigrams 8.74

Medical training consisted mostly of apprentice work. Men trained as doctors by following around another doctor.

I felt a little ill and called Dr. Symmachus. Well, you came, Symmachus, but you brought 100 medical students with you. One hundred ice cold hands poked and jabbed me. I didn’t have a fever, Symmachus, when I called you, but now I do. ~Martial, Epigrams 5.9

Plutarch grumbles that practitioners used all sorts of questionable methods to gain patients, ranging from escorting the prospective patient home from bars to sharing dirty jokes with him.

Doctors and Patients

Evidence for the public mistrust of physicians is plentiful, including these epigrams from the Greek Anthology:

Socles, promising to set Diodorus's crooked back straight, piled three solid stones, each four feet square, on the hunchback's spine. He was crushed and died, but he became straighter than a ruler. ~Greek Anthology XI, 120

Alexis the physician purged by a clyster five patients at one time, and five other by drugs; he visited five, and again he rubbed five with ointment. And for all there was one night, one medicine, one coffin-maker, one tomb, one Hades, one lamentation. ~Greek Anthology XI, 122

Phidon did not purge me with a clyster or even feel me, but feeling feverish I remembered his name and died. ~Greek Anthology XI, 118
Ancient Gynecology

Women’s Bodies in Antiquity

In ancient Greek society, male dominance extended even to childbirth. Greek medicine cast man as the bringer of sanity and health to the biologically defective, subservient woman through intercourse, which was believed to relieve the buildup of menstrual blood around the heart. Men also received full credit for conception, since the womb was seen mainly as a receptacle for sperm. Abortion, if not condoned in the Hippocratic Oath, was permitted under Greek law, and infanticide, particularly of female newborns, was widely practiced.

Birth Control

Women in the ancient world practiced birth control with little interference from religious or political authorities. A precise knowledge of plants which could either block conception or cause abortion was resident in the oral female culture of herbalists and midwives.

One of the most common contraceptive agents used in the ancient Mediterranean world was silphium, which grew exclusively in the country of Cyrene in North Africa. Since Cyrene was the sole exporter of the plant, it became the city’s official symbol on its coinage and it remained the city’s primary source of income until the first century BCE.

Other plants used in classical times as contraceptives or abortafacients included pennyroyal, artemisia, myrrh, and rue. In Aristophanes’s comedy Peace, first performed in 421 BCE,
Hermes provides Trigaius with a female companion. Trigaius wonders if the woman might become pregnant. “Not if you add a dose of pennyroyal,” advises Hermes.

Pennyroyal grows in the wild and would have been readily available to ancient women. Recent studies show that pennyroyal contains a substance called pulegone that terminates pregnancy in humans and animals.

**Caesarean Section**

The Caesarean section operation did not derive its name from the fact that Julius Caesar was supposedly born in this manner. It was called Caesarean because the Roman, or Caesarean, law demanded that when a pregnant woman died, her body could not be buried until the child had been removed. The law also stipulated that a Caesarean section could not be performed on a living pregnant woman until the tenth month of gestation. Ancient physicians were unable to save the life of the mother in such cases, thus the procedure was rarely performed. We know from ancient sources that Julius Caesar could not have been born by Caesarean section, because his mother, Aurelia, lived to be an adviser to her grown son.

**Hysteria and the Wandering Womb**

The word “hysteria” is derived from the Greek word *hystera*, “womb.” Greco-Roman medical writers believed that hysteria was caused by violent movements of the womb and that it was, therefore, peculiar to women. As early as the sixth century BCE, medical writers believed that the womb was not a stationary object, but one that traveled throughout the body, often to the detriment of the woman’s health. Aretaeus of Cappodocia, a contemporary of Galen, included in his medical treatises a section describing the wandering womb.

*In women, in the hollow of the body below the ribcage, lies the womb. It is very much like an independent animal within the body for it moves around of its own accord and is quite erratic. Furthermore, it likes*
fragrant smells and moves toward them, but it dislikes foul odors and moves away from them... When it suddenly moves upward [i.e., toward a fragrant smell] and remains there for a long time and presses on the intestines, the woman chokes, in the manner of an epileptic, but without any spasms. For the liver, the diaphragm, lungs and heart are suddenly confined in a narrow space. And therefore the woman seems unable to speak or to breathe. In addition, the carotid arteries, acting in sympathy with the heart, compress, and therefore heaviness of the head, loss of sense perception, and deep sleep occur... Disorders caused by the uterus are remedied by foul smells, and also by pleasant fragrances applied to the vagina...
Giant bath houses, characteristic of Imperial Rome, could house not only bathing facilities but lecture halls, gymnasiums, libraries and gardens. Hot, tepid and cold baths were provided usually. The room pictured to the left was kept warm by hot air circulating through pipes in the walls and floor.

Authors as disparate as Celsus, Vitruvius, Pliny, Frontinus, Columella, Varro, and Vegetius, demonstrate the Roman concept of health interwoven with the normal life and ordinary process of government in the Roman Empire. Vitruvius, a practicing architect in the milieu of the Roman Empire, shows through his writing how important sanitary planning was for public buildings. His chapter on city planning begins with a discussion of the salubrity of sites. The influence of the Hippocratic tract *Airs, Waters, Places* is apparent:

> *In the case of the walls these will be the main points: First, the choice of the most healthy site. Now this will be high and free from clouds and frost, with an aspect neither hot nor cold but temperate. In this way a marshy neighborhood will be avoided. For when the morning breezes blow towards the town at sunrise, as they bring with them mists from the marshes and, mingled with the mist, the poisonous breath of the creatures of the marshes [i.e.,*}


microorganisms], to be wafted into the bodies of the inhabitants, they will make the site unhealthy. -De Architectura I.2-5

Pont du Gard, Nimes, France, 14 CE

The aqueducts were the true triumph of Roman sanitary engineering. Frontinus, the author of a treatise on Rome’s aqueducts, became water commissioner (curator aquarum) in 97 CE. He recognized the sanitary aspects of his position stating, “my office...concerns not only the usefulness of such a system, but also the very health and safety of Rome...”

Public Latrines, Ostia, first century BCE

Well-drained latrines became commonplace both in the houses of the wealthy and in bath complexes. In lieu of toilet paper, Romans used a sponge tied to the end of a stick.
Terra Cotta Statuette, Taranto, Museo Nazionale, 350-300 BCE Woman bathing.  
A woman, having removed her shoes, prepares to wash herself in a luterion.

Mosaic, Pompeii, 1st century CE

The skull symbolizes man’s fate and reminds us of the frailty of human existence. This particular mosaic was used as a tabletop. There are many extant examples of cups and dining areas adorned with skeletal motifs.

Rather than shrink from signs of death, the Romans seem to have employed them as reminders to “seize the day.”

In Petronius’s Satyricon, in the middle of a great banquet, a slave brings in a silver skeleton put together with flexible joints, and after it was flung on the table several times, the host Trimalchio recited:

    Man’s life, alas, is but a span,
    So let us live it while we can,
    We’ll be like this when dead.

Despite the advanced state of sanitation engineering in the Roman world, the average life span was only 30-40 years.
Byzantine Medicine

Vienna Dioscurides

Vienna Dioscurides, 512 CE. An edition of *De Materia Medica* by Dioscurides, prepared for Julia Anicia, daughter of Emperor Anicius Olybrius.

Dioscurides was a physician who resided in Rome during the first century. He composed a compendium of all the *materia medica* then known from Greek medicine and other sources. He may have learned his medicine by practical experience while in the legions, and he most certainly relied on an earlier work by the physician Crateuas. His work describes some 600 plants and their possible medical use. The manuscript also has Arabic annotations because it came into the hands of an Arabic owner. In the picture to the left, wild blackberry is described and illustrated.
This frontispiece of the Vienna Dioscurides shows a set of seven famous pharmacologists. The most prominent man in the picture is Galen, who sits on a folding chair. Byzantine science was essentially Classical science. The value of a book like the Vienna Dioscurides was determined by the veracity of its illustrations. Eventually, copies became so bad that a movement was initiated to “clean up” the texts. Periodically, there were “renaissances.” In the sixth century CE, when the copy was made, there was such a renaissance. Scientific illustration could only progress as fast as accurate illustrations could be made. Consequently, science progressed pari passu, i.e., in equal parts, with scientific illustration. It was only with mechanized type that this problem of lag-time could be overcome.

![Image of Galen and Theophilus]

Manuscript from Byzantium, 15th century, in Greek Bologna, University, MS 3632, folio 51 Theophilus Protospatharius, *On Urines*

This Byzantine manuscript is illustrated with techniques and divisions of uroscopy. Seated at the left is Theophilus, a famous seventh century Greek whose treatise *On Urines* was much used throughout the Greek East and the Latin West (in translation). Handing Theophilus a urine flask is his assistant, Posos, according to the Greek caption above him.
The camel in this detail enjoins that the bodies of saints Cosmas and Damian should be buried side by side; initially they were to be separated on account of a supposed disagreement. Saints Cosmas and Damian are the patron saints of doctors.

The Introduction of Hospitals

Late antiquity witnessed a revolution in the medical scene: the birth of the hospital. Literary sources occasionally mention hospitals, but only documents from Egypt reveal how widespread they were at this time. These Egyptian testimonials record a multitude of hospitals founded by private individuals and independent of ecclesiastical institutions. The origin of the hospital as an independent institution for the care and treatment of the sick can be dated to the third quarter of the fourth century CE. The hospital resolved major tensions in the medical, ecclesiastical, and religious scenes of late antiquity.

Religion Interpolated

There have always been people who seek healing, even bodily healing, from the priest, as well as the physician. People often look
to religion for a cure. In the early centuries of our own era, the old
gods paled and new ones replaced them. Was Asclepius the true
healer, the saviour, or was Jesus Christ? The Christian world
decided in favor of Jesus. The old gods died.
Surgery and Surgical Instruments

Recovered surgical instruments used during the Roman Empire indicate that the art of surgery progressed and proliferated greatly during this time. Both Galen and Celsus emphasized the importance of surgery in the training of the conscientious physician, although they came from divergent medical traditions (Celsus, prooemium VII; Galen, II, 272).

Technical competence in surgery became better as new medical tools were devised. New metals and alloys were found to provide sharper edges and cheaper equipment. Most instruments were made of bronze, or occasionally of silver. Iron was rarely used because, as in most ancient cultures, it was considered a religious taboo by both the Greeks and Romans. The full repertoire of Roman surgical equipment is still far from completely known.

Bas Relief Fragment, 4th Century CE, Athens, National Museum. This shows a doctor performing an operation on a patient’s head while Asclepius (identifiable by his superhuman size and the caduceus in his right hand) looks on.

Occasionally instruments not originally manufactured for surgical purposes were implemented. Galen and Celsus both mention that the *strigil*, a curved piece of metal with a handle used for scraping oil and sweat off the body after exercise, was often used to get
into small openings. Galen instructs, “after having heated the fat of a squirrel in a strigil, insert it into the auditory canal” (Galen, XII, 623).

While a cursory reading of Celsus’s summaries on surgery indicate a sure knowledge of human anatomy, doctors still needed good tools and experience (and patients, courage) for surgery to go smoothly. The patient’s chances of recovery increased if the head and abdomen were not involved.

Archaeological remains of what appear to be surgeons’ “shops” are common enough to indicate that some physicians specialized in surgery. Particularly famous is the so-called House of the Surgeon at Pompeii, where most of the surgical tools now housed in Naples were found. Philological evidence seems to support the idea that there was at least some distinction, even if not a rigid one, between general practitioner and surgeon. Medieval texts distinguish the two positions with different terms: medicus for a doctor, and magister for a surgeon.

Stele from Herculaneum, 1st Century BCE. Here, a surgeon excises an arrow from a wounded soldier. Both men are depicted nude, suggesting that the episode stems from a mythic tale.

Galen wrote detailed instructions on the use of surgical instruments, the variety of which proliferated under the Romans. Yet, the makers of these medical instruments are at best shadowy
figures. It seems improbable that there would have been sufficient demand for craftsmen dealing exclusively in medical instruments, and there is no known inscription naming such a specialist. The well-known relief pictured to the left suggests that some medical instruments may have been manufactured by specialist blade makers rather than by craftsmen specializing in medical instruments.