

SURGERY IN THE MIDDLE AGES: TREPANNING

(work in progress – unpublished)

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Definition

Trepanning is the most ancient form of surgery for which objective evidence exists. Examination of fossil skulls indicates that trepanning was performed as early as the Neolithic Age. In ancient times trepanning was performed on live patients suffering from fractured skulls, convulsions, and insanity. Disks of bone from the skulls of cadavers were often carved and used as religious amulets in ancient Egypt and Sumeria.

History

The first surgical procedures were performed in the Neolithic Age (about 10,000 to 6000 BC). **Trepanning**, a procedure in which a hole is drilled in the skull to relieve pressure on the brain, may have been performed as early as 8000 BC. In surgery, removal of a disk of bone from the skull to provide entrance to the brain or to relieve intracerebral pressure. The procedure is done most often in cases of bleeding between the brain and the skull. Collections of blood of this kind, if not evacuated, may compress the underlying brain and cause damage or even death. The cranial bones are cut with a small cylindrical saw, called a trepan or trephine, equipped with a center pin. The center pin extends a short distance beyond the blade of the saw and is inserted first to prevent slippage. In modern surgery the disk is replaced by a metal plate after the operation is completed.

Following is a small version of a medieval trepanning operation which was actually used to illustrate the wearing of cracows, pointy medieval shoes. (A larger, color version appears at the end of this document.)

Illustration from the *Anathomia* of **Guido da Vigevano** (see Biographies)



“Physician and patient wearing crakows”

“**Cracow**, also spelled *crackowe* long, pointed, spiked shoe worn by both men and women first in the mid-14th century and then condemned by law. Crakows were named after the city of Kraków (Cracow), Pol., and they were also known as poulaines (Polish). Crakows were admired on the feet of the courtiers of Anne of Bohemia, who married Richard II of England. The exaggerated toes were imitated even in armour.”

Biographies of Trepanning Practitioners

Hippocrates (450 BC)

Hippocrates of Cos is often hailed as the father of medicine. He was a Greek physician who lived around the 5th and 4th centuries B.C. Except for a few brief references by Plato, we have very little reliable information on the man himself. However, what are important are his teachings. Although he did believe in "humors" and "foul vapors" which caused disease, many of his teachings are in tune with what we know to be true today. Hippocrates believed that nature healed all wounds and the physician was a modifier of that natural healing. He taught that medications could produce a countereffect to the symptoms of a disease, "opposite through opposite".

He discussed medical subjects freely and without an air of mystery, scorned all pretense and tried to acknowledge his limits and failures. Although public opinion during his time condemned dissections of the human body, Hippocrates did perform them to a limited extent. He also emphasized the observation of external signs and symptoms in establishing diagnoses.

In addition, **Hippocrates** dealt well with fractures and was a master in the use of splints. He even treated fractures of the skull with **trepanning** (removing a circular area of bone) and bade his students to be careful not to mistake suture lines for fractures.

Albucasis (Abul Qasim Al-Zahravi) (936-1013)

Albucasis' work, which featured unique illustrations of surgical instruments, was used extensively in the schools of Salerno and Montpellier and, hence, became an important influence during the medieval period. Many of the instruments featured were designed by **Albucasis** himself and in the *Compendium* he describes them together with the technical aspects of their use. His design of a "nonsinking" **trephine** is classic and provided the basis for the patterns of many later instruments: it involved the addition of a collar surrounding the **trephine** in a circular fashion to prevent plunging. Some of the instruments **Albucasis** described were modeled on those described by **Paul of Aegineta**; the practical reputations of these tools were evidently enhanced by their inclusion in the *Compendium*.

Albucasis' treatise on surgery is an extraordinary work. It is a rational, comprehensive, and well-illustrated text designed to teach the surgeon the details of each treatment, including the types of wound dressings to be used.

Albucasis recognized the diagnosis of spinal injury, particularly dislocation of the vertebrae, and in cases of total subluxation he appreciated that the prognosis was essentially terminal, with the patient showing involuntary activity (passing urine and stool) and flaccid limbs. Regarding

With the demise of the Arabic schools and the transition to medieval scholasticism, a new concept developed in which philosophical and metaphysical explanations and dialectical interpretations became prominent in the medical schools. A leading school at this time was that of Salerno, where despite the barbarian invasions, physicians were trained, libraries maintained, and a medical school was permitted to flourish.

An important change in the type of wounds managed by surgeons occurred midway through the 13th century with the introduction of gunpowder into Europe by the Franciscan Friar Roger Bacon, and its prompt use in military endeavors. By the second half of the 14th century, cannons were being manufactured in Ghent. Handguns first appeared in the middle of the 15th century, although they were quite massive and clumsy to use. (Many examples can still be seen in European museums.) In 1515 a Nuremberg inventor created a wheellock mechanism, which led to the development of the musket, a weapon that proved to be devastating in battle, thus producing of much material for the surgeon.

In summary this was a period in European history characterized by the devastation of war, famine, pestilence, and general malaise. Medical knowledge was carefully guarded by monastic recluses in inaccessible mountain retreats. Despite this state of affairs some surgeons evidently succeeded in mastering their art in the midst of intellectual darkness.

Constantinus of Africa (1020-1087)

An important leader and educator in this institution, and a product of medical scholasticism, was **Constantinus Africanus**-magister orientis et occidentis-an important figure in the school of Salerno (Magistri Salernitani), who introduced Arabic medicine to that region and hence to all Europe.¹³ **Constantinus** studied at Baghdad, where he came under the influence of the Arabists, and later retired to a monastery at Monte Cassino where he translated Arabic manuscripts into Latin, albeit rather inaccurately. Some historians considered him no more than an unscrupulous plagiarist and unreliable translator, but he did translate texts from Arabic to Latin (his writings mark the earliest transfer of Arabic medical literature to the West). Thus began a new translation of medical texts back again into Latin (continuing the legacy of **Galen**), with the **Hippocratic** writings remaining the inexhaustible source of medical and surgical information. It is notable that **Constantinus** reintroduced anatomical dissection by performing an annual dissection of a pig, but, unfortunately, the anatomical observations that were made as the dissection progressed were compared with those recorded in classical Greek works, and any contemporary finding that did not match that of the ancient texts was simply ignored. **Constantinus** is representative of a period of extensive compilation in which an original thought or advance in knowledge was notable chiefly by its absence. From this period, however, came the *Regimen Sanitatis Salernitum*, the Salernitan directions for health, a work that first appeared in the 12th century and later was reproduced in approximately 140 different editions. Despite a strong educational system and a devotion to health care, this remained a period in which surgical education and practice continued to slumber. A review of the surgical texts produced at this time basically show only a reiteration of the writings of **Hippocrates**, **Galen**, **Paul of Aeginea**, and the other classical figures.

Roger of Salerno (ca. 1170)

Roger of Salerno was a surgical leader in the Salerno tradition, the first writer on surgery in Italy. His work, *Practica chirurgiae*, had a tremendous influence on the medieval period, offering several interesting surgical techniques. **Roger** introduced an unusual technique of checking for a tear in the dura mater or a leakage of cerebrospinal fluid in a patient with a skull fracture: while the patient held his breath (Valsalva maneuver), the surgeon watched for a cerebrospinal fluid leak or air bubbles. A pioneer in the techniques of managing nerve injury, Roger argued for the reanastomosis of severed nerves and paid particular attention to the nerves' alignment. In a 12th century manuscript attributed to **Roger of Salerno** (only recently translated from the original and formerly owned by Harvey Cushing), there is an interesting review of Salernitan surgery, the so-called "Bamberg surgery." There is an early description of the use of a soporific mixture used to induce relief of pain in a patient about to undergo surgery. This medication was composed of the bark of a mandragora, hyoscyamus, and levisticum seed, which were mixed together, ground, and then applied wet to the forehead of the patient.¹⁴ In the field

of anatomy Roger offered little new, contenting himself with recapitulating earlier anatomical treatises, in particular, those of **Albucasis** and **Paul of Aegineta**. In the surgical treatment of spinal disorders and fractures, this author followed the guidelines of the early classicists by favoring stabilization in cases of spinal subluxation. An important early manuscript kept in the British Library (Sloane Manuscript No. 1977) contains illustrated examples of patients with spinal injuries.

Theodoric of Cervia (Borgognoni) (1205-1298)

An unusually inventive medieval surgeon, **Theodoric of Cervia** (also known as **Theodoric Borgognoni of Lucca**) is remembered as a pioneer in the use of aseptic technique-not the "clean" aseptic method used today, but rather one based on the avoidance of "laudable pus." **Theodoric** attempted to discover the ideal conditions for good wound healing and concluded that they consisted of control of bleeding, removal of contaminated or necrotic material, avoidance of dead space, and careful application of a wound dressing that had been bathed in wine. **Theodoric's** surgical work, written in 1267, provides one of the best views of contemporary medieval surgery. He argued for meticulous (almost halstedian) surgical techniques. The aspiring surgeon trained under competent masters and seems to have been well read in the field of surgery. To assist the patient in tolerating surgery, he developed his own "soporific sponge," containing opium, mandragora, hemlock, and other less important ingredients, which was applied to the patient's nostrils until the individual fell asleep.

William of Saliceto (1210-1277)

The ablest Italian surgeon of the 13th century and a professor at the University of Bologna, **William of Saliceto** wrote *Chirurgia*, which was highly original and not based on previous writings. Although **William** rarely quoted his sources, the work shows the influence of **Galen** and **Avicenna**. *Book IV of Chirurgia* is particularly important because it contains the first section dealing with regional or surgical anatomy. A major advance promoted at the time by **William** was replacing the Arabic method of burning with cautery with the use of the surgical knife. **William's** other great contribution was devising a series of techniques for nerve suture anastomosis. Unfortunately, his works on fractures and disorders of the spine basically reiterate earlier views that these lesions are rarely treatable and they reflect a very conservative attitude toward surgery of the spine.

Leonard of Bertapalia (1380?-1460)

Leonard of Bertapalia was a prominent figure in 15th century surgery. Originating from a small town near Padua, he established an extensive and lucrative practice in that area and in neighboring Venice. Among the earliest proponents of the study of anatomy, **Leonard** offered a course of surgery in 1429 that included the dissection of

an executed criminal. **Leonard** appears to have had a strong interest in injuries of the head, because he devoted one third of his book to surgery of the nervous system. He considered the brain and spine to be the most precious of organs, regarding them as the source of voluntary and involuntary functions. His insights into fractures were remarkable. He proposed that the physician always avoid materials that might cause pus; never use a compressive dressing that might drive bone into the brain or spine; and if a piece of bone is piercing, remove it. His philosophy closely resembles that of a much earlier surgeon, **Paul of Aegineta**. **Leonard** assembled a set of rules to guide the practice of a 15th century surgeon that still remain applicable five centuries later. To ...

“... be the perfect surgeon, you must always bear in mind these eight notations, and remembering them you will be preferred to others. The first task . . . to become a good surgeon should be to use his eyes. . . . Second, you must accompany and observe the qualified physician, seeing him work before you yourself practice. . . . Third, you must command the most gentle touch in operating and treating lest you cause pain to the patient. . . . Fourth, you must insure that your instruments be sharp and unruined whenever you cut anywhere. . . . Fifth, you must be courageous in operating and cutting but timid to cut in the vicinity of nerves, sinews and arteries, and, so as not to commit error, you should study anatomy, which is the mother of this art . . . perform your surgery cleverly and never operate on human flesh as if you were working on wood or leather. . . . Sixth, you must be kind and sympathetic to the poor, for piety and humility greatly augment your reputation and the sick will more freely commit themselves to your care. Seventh, you must never refuse anything brought you as a fee, for the sick will respect you more. Eighth, you must never argue about fees with the sick, or indeed demand anything unless it be previously agreed upon, for avarice is the most ignoble of vices and should you be so afflicted, you will never achieve the reputation of a good doctor.”

Lanfranchi of Milan (died 1306)

Lanfranchi of Milan, a pupil of **William of Saliceto** and often called the father of French surgery, carried forward his teacher's use of the knife in place of the cautery. Although Italian by birth, **Lanfranchi** was driven from Italy to France early in his career because of political strife. After seeking refuge in France, he produced his *Cyurgia parva*, a work in which he perfected the use of the suture for repairs. An innovative surgeon, **Lanfranchi** developed a method of esophageal intubation for surgery, a technique not commonly practiced until the 20th century. As an educated surgeon he attempted to elevate the art and science of surgery above the mediocre level of the barber-surgeon. In a traditional medieval fashion his treatment of spine lesions and trauma mirrored earlier views of stabilization. A bad prognosis was clearly evident in a patient

who was unable to move his legs, one who was incontinent, or one who could not control his bowels. There is no discussion of actual surgery on the spine and thus it is unclear whether he would have advocated this form of treatment.

Henri de Mondeville (died 1317)

Henri de Mondeville, who taught at Montpellier, was an important figure in the history of French medicine and surgery. He offered some new wound treatments (opting for cleanliness and avoiding "laudable pus") and argued for healing by primary intention an original concept for this period ("modus novus noster"). In the surgical treatment of wounds he argued for removal of foreign bodies and the use of wine dressings in wound care -- the wine acting as an antiseptic and providing better healing. **Henri** began writing his treatise on surgery in 1306, but was unable to finish it because of poor health (tuberculosis). He was also a designer of surgical instruments and, in particular, is remembered for the creation of a special needle holder and also an instrument for extraction of arrowheads. The inclusion of illustrations in his *Chirurgie*, especially anatomical depictions, was of great importance to **Henri**. His work is considered the first to actually make use of illustrations for teaching purposes, a concept unheard of in the 14th century, but widely accepted since the Renaissance.

Guy de Chauliac (1300-1368)

The most influential surgeon of the 14th and 15th centuries and a writer who demonstrated rare learning and a fine historical sense, **Guy de Chauliac** exerted an influence so great that he became physician to three popes at Avignon (Clement VI, Innocent VI, and Urban V) and a leading surgeon at the school of Montpellier. His work was copied and translated well into the 17th century and was considered to be the principal didactic surgical text (*Collectorium cyrurgie*, AD 1363) of this period. **Guy** posited four conditions that must be satisfied for a practitioner to be a good surgeon:

- 1) the surgeon should be learned;
- 2) he should be expert;
- 3) he must be ingenious; and
- 4) he should be able to adapt himself

(from the introduction of *Ars Chirurgica*).

Guy advocated repair by primary suture and claimed good results. He used egg albumin to stop bleeding and provide adequate hemostasis, which always posed a difficult problem for surgeons. A major error on his part was to reintroduce the concept of laudable pus to the healing of wounds, which set back surgery approximately 600 years, until the time of Lord Lister in the latter half of the 19th century. **Guy's** chief work on surgery was divided into three parts, the second of which deals with a number of subjects, most particularly with wounds, fractures, and dislocations. A combination of accurate anatomical explanations, careful surgical diagnoses, and superb medical ethics pushed this surgeon to the forefront. In addition to his surgical skills **Guy**

advocated patient comfort and for this he used a narcotic sponge for anesthesia. He was not fearful about cutting out superficial tumors, yet was cautious in cutting for the stone. He treated fractures and dislocations with splinting and suspension, often using a weight-and-pulley system similar to that advocated by **Avicenna**. The writings of **Guy de Chauliac** remained influential in Europe until the publications of Ambrose Pare in the 16th century. The first printed edition of **Guy's** work appeared in 1478; it was followed by approximately 70 editions over the next several centuries, proving to be a most influential work. **Guy de Chauliac** had this to say about the treatment of wounds:

- (1) To remove foreign bodies, if there be any between the divided parts.
- (2) To bring together the divided parts.
- (3) To unite the parts drawn together.
- (4) To conserve and preserve the tissues.
- (5) To correct accidents.

The Arabic and medieval era were periods of great intellectual activity, but also of somnolence as far as originality of thought is concerned. Faith in the teachings of antiquity was excessive. From the fall of the Roman Empire until the beginning of the 16th century, anatomy and the practice of surgery, with only rare exceptions, lay dormant, chained to a staunch galenic orthodoxy. The translation of writings from Latin, Greek, and Hebrew into Arabic and back into Latin resulted in many errors of interpretation. Lack of true anatomical knowledge and poor surgical outcomes naturally led physicians to recommend against operating on spine and the spinal cord. A review of early treatises shows that, despite intellectual paralysis, there still existed a number of prominent personalities who did make some advances. It was not until the 19th century, however, with the introduction of cerebral localization, antisepsis, and anesthesia, that the "modern" development of neurosurgery flourished.

Mondino de' Liucci (1270- 1326)

Guido da Vigevano (c 1280-1349)

Mondino dei Luzzi and **Guido da Vigevano** * are two great names in the history of medieval anatomy, the former by his *Anothomia Mundini* that was probably the first book of anatomy based on the dissection of human bodies, and the latter by the plates of his *Anothomia designata per figuras*.

Mondino dei Luzzi was born in the last third of the thirteenth century (1275?) in Bologna where he practiced from 1290 until his death in 1326. **Guido da Vigevano** was born in Lombardy towards 1300 and was the physician to Emperor Henri VII and Jeanne de Bourgogne, Queen of France.

The first edition of *Anothomi Mundini* was published in Pavia on 19 December 1478 (over a century after the death of the author) by the Italian printer Antonio de Carcano. It is a folio-leaf book of twenty-two pages in Gothic print without plates. Four pages are devoted to skull, meninges, and the central nervous system, but the interpretation of the

text remains difficult as **Mondino dei Luzzi** indiscriminately utilizes Latin and Arabic terminologies.

The *Anothomia designata per figuras*, written in 1345, is the tenth and last part of a book dedicated to Philippe de Valois; it included twenty-four plates, eighteen of which have never been found. Plate XI shows a **trepanning**, plates XII to XV the cranial vault, meninges and brain, and plate XVI the spinal cord and the origin of spinal nerves that are only eighteen in number.

In spite of their vagueness, the treatise of **Mondino dei Luzzi** and the plates of **Guido da Vigevano** have to be regarded as important steps in the history of medieval anatomy.

Guido was Italian and technically well versed. He was court-physician of the French king



Mondino de' Luzzi during an anatomical demonstration

Philipp VI. The surgeons of his time did not have access to anatomical knowledge because they did not know Latin, and could not read the textbooks; this was the reason why anatomy became a type of philosophical exercise. The first official dissection was performed at the University of Bologna by **Mondino**, a pupil of Taddeo. Although dissection was indirect, being a sort of comment on Galen's texts, Mondino was the most important precursor of modern human anatomy. There were other human anatomists, such as **Guido da Vigevano** who suspended the corpses so as to be able to dissect them

In order to understand how long the practice of dissecting animals continued, the title page of one of the few books on anatomy in Italian (dated 1632 and translated from the textbook written in Spanish by

Juan de Valverde, and which can be found at Central Biomedical Library of Cagliari University) shows a cranium flanked by a pig and a short-tailed monkey: the animals on which Galen's anatomy was mainly based.



Title-page of the Italian edition of the Anatomia by Juan de Valverde

Leonardo da Vinci (1452-1519)

In fact, those who truly practised human anatomy were the artists. Some of the artists gave up their salaries in order to avail themselves of corpses from the bishops (Leonardo, Michelangelo, and many others). Above all, **Leonardo** was the finest of anatomists. He made numerous discoveries that were faithfully reproduced in the manuscripts which remained more or less secret until one of Leonardo's students sold them to the English

Royal family, and so today are referred to as the Windsor manuscripts. However, this did not influence anatomy at all. In truth, Leonardo wanted to make an atlas by working together with the anatomist Marco Antonio della Torre, but the latter died very young. Furthermore, he wanted to make an atlas of anatomy together with Realdo Colombo, but this also came to nothing.

The “Windwagen” by **Guido von Vigevano**.

In addition to being a surgeon, **Guido** designed tools and machines:

Several Italians recorded designs for wind driven vehicles. The first was **Guido da Vigevano** in 1335. It was a windmill type drive to gears and thus to wheels. Vaturio designed a similar vehicle which was also never built. Later **Leonardo da Vinci** designed a clockwork driven tricycle with tiller steering and a differential mechanism between the rear wheels.

The first inventor was probably **Guido da Vigevano**, who drew up amazing plans for a wind powered vehicle as far back as 1335. Motivated by the idea of building military vehicles to help in the crusades in the holy land which were going increasingly badly for the Knights of Europe, **Vigevano’s** ‘wind wagon’ held a windmill on the back of a strong wooden carriage. Using information from his original plans, modern engineers have estimated that this could have raced along at speeds of up to 30mph into the wind.

The most famous inventor of all, **Leonardo da Vinci**, would also later consider automobiles. He designed a tricycle which was clockwork driven, and even boasted differential gearing to aid the rear wheels.

That people can drive directly into the wind, this was proved already in the middle ages. There exists a copy from an old manuscript of **Guido von Vigevano** from the year 1335, the "*Texaurus (treasure) regis francie*" which shows the construction of a windcart used for military purposes probably.

Related Book References

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Anatomies de Mondino dei Luzzi et de Guido de Vigevano.

by Wickersheimer, Ernest, Paris, Editions du E. Droz , 1926

Description: Boards, 4to, 91pp + 30pp illustrations in leaves, wallet editor. - reproduction in facsimile, tirée à 340 eg num ., of l " Anothomia Mundini d " after l " edition of Pvie of 1478 kept in British Museum, it is accompanied with 16 boards among which coloured 5 extracting of l " Anatomy of Guido de Vigevano. - scientific Documents of the XVth century, III.

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Medieval neuroanatomy: the text of Mondino dei Luzzi and the plates of Guido da Vigevano.

by R.Olry, J Hist Neurosci, 1997

Description: The Italian anatomists Mondino dei Luzzi (c. 1275-1326) and Guido da Vigevano (c. 1280-1349) must be regarded as pivotal figures in the history of medieval anatomy. Mondino's book (written in 1316 and published in 1478) was the first treatise of anatomy based on the dissection of human cadavers, whereas the plates of Vigevano's manuscript (1345) marked the beginning of a new trend which became increasingly widespread during the following centuries: the use of anatomical illustration in textbooks. Though their neuroanatomical descriptions are rather simple and somewhat difficult to correlate with current descriptions, analysis of these works sheds new light on the knowledge of brain and spinal cord anatomy in the Middle Ages (Olry, 1996). Vigevano's contribution to neuroanatomy, however, appears more important than that of Mondino dei Luzzi, probably because his anatomical illustrations often compelled the draftsman to break free from Galen's dominating influence.

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Medieval Science, Technology, and Medicine An Encyclopedia

by Glick, Thomas F (Editor), and Livesey, Steven (Editor), and Wallis, Faith (Editor) , Taylor & Francis Ltd, UK 2005

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1. The Chirurgia of **Roger Frugard**, Xlibris Corporation, 2002, 192 pp
2. The Surgery of **Roland of Parma**, Xlibris Corporation, 2002, 208 pp
3. The Surgery of **Jehan Yperman**, Xlibris Corporation, 2003, 316 pp
4. The Surgery of **William of Saliceto**, Xlibris Corporation, 2003, 275 pp
5. The Surgery of **Lanfranchi of Milan**, Xlibris Corporation, 2003, 292 pp
6. The Surgery of **Henri De Mondeville**, Xlibris Corporation, 2003, 1094 pp; 2004, 564 pp (vol 1)

by Leonard D. Rosenman, MD

Description: Contain Illustrations 5. **Lanfranchi** learned his Art well from the great **William of Saliceto**, and became the premier surgeon in his own city, Milan. He suffered the same sort of political disfavor as did Dante Alighieri in Florence a few years later, backing the wrong side in the conflicts between the Popes and the Emperors. He escaped into France with his life and carried the lore of Italian Surgery into Lyon and Paris. With his book and his demonstrated skills and his French pupils, especially **Henri de Mondeville**, surgery was reborn north of the Alps.

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In primis patiens collocatur in tunc: cap & pumeros suis cepit ut toti intestina descendit ad pectus. coras aut tenet elevatas. restantibus aut ipsi patientis ducit supinus adrupturi. in q̄tum carne clauit. & in circulo ut carone signet i d̄ntu



nus uicca brachio & in sup̄ fronte manoi digitis determinauerit signa pul. & in capite r̄d̄. et in r̄d̄. unius ad manu patientis sup̄ auricula. i. i. d̄ntu. sequi. i. d̄ntu.

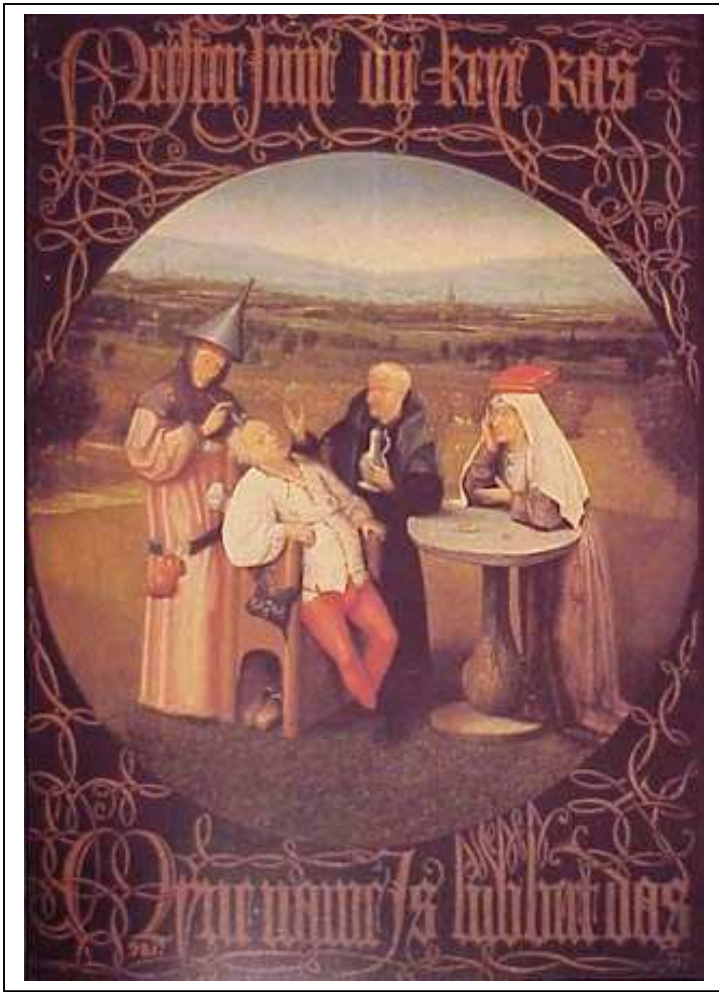
intra est. ad ipsi natura totus ibi. accipiens nutritum. ut f̄s̄t̄m ipsi natura penulas. alio occidit. q̄ in ibi molli facit fit & p̄m̄quitate estens. ad̄nt̄ cu necdum erit. in̄nt̄. De uuln̄t̄. i. d̄nt̄. q̄ si foras erit. q̄ uul̄t̄ ad p̄a locu reduc̄t̄.



passione grauat̄ d̄nt̄. h̄s̄t̄ uul̄t̄. De lapid̄ extrahendo. auest̄. carosa



VI Miniature showing various operations including one for rupture, an operation on the head, an abdominal operation and cutting for stone. From Roland's Surgery. Bibl. Casanatense Codex 1382





Michael Foster is a member of both the Western History Association and the Association for Living History, Farming and Agricultural Museums and has 20 years experience as a teacher, living historian and historical re-enactor. He spent 12 years as the Director (“GuildMaster”) of St. Michael’s Guild in Southern California, in charge of all military re-enactment groups for the Renaissance Faires. He has portrayed “The Barber-Surgeon” since 1990 and since then has expanded his historical knowledge to Russian History after he and his wife adopted two young sisters from St. Petersburg.