"The Seven Ages of Man: The Human Life Cycle Throughout Medical History"

Selected Materials from the Rare Book Room
Taubman Medical Library

The Seven Ages of Man:
The Human Life Cycle Throughout Medical History

SELECTED MATERIALS FROM THE
RARE BOOK ROOM OF THE
TAUBMAN MEDICAL LIBRARY

AUGUST 26-NOVEMBER 2, 2002

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WELCOME

Welcome to the Special Collections Library and the exhibit "The Seven Ages of Man." We are very pleased to host this exhibit of materials from the Taubman Medical Library, curated by Mary Townsend with assistance from a former colleague, Hillary Nunn.

This exhibit is an opportunity to see many famous texts from medical history as people saw them hundreds of years ago. It is also an opportunity to reflect on how important discoveries in medicine have shaped culture and altered human history, and to appreciate the role that many generous donations of book collections have played in making the University of Michigan Library one of the best in the country.

The inspiration for this exhibit comes from the famous lines of Shakespeare in which he describes the "ages of man" in terms of common experiences of humanity. The materials on display here remind us vividly of all the life experiences we have in common with ancient Egyptians and ancient Greeks, as well as with physicians, midwives, and scientists from the Middle Ages to the present.

Peggy Daub, Head
Special Collections Library

As You Like It
Act II, Scene VII

JAQUES:
All the world's a stage,
And all the men and women merely players.
They have their exits and their entrances;
And one man in his time plays many parts,
His acts being seven ages. At first the infant,
Mewling and puking in the nurse's arms.
And then the whining school-boy, with his satchel
And shining morning face, creeping like snail
Unwillingly to school. And then the lover,
Sighing like furnace, with a woful ballad
Made to his mistress' eyebrow. Then a soldier,
Full of strange oaths and bearded like the pard;
Jealous in honour, sudden and quick in quarrel,
Seeking the bubble reputation
Even in the cannon's mouth. And then the justice,
In fair round belly with good capon lined,
With eyes severe and beard of formal cut,
Full of wise saws and modern instances;
And so he plays his part. The sixth age shifts
Into the lean and slipper'd pantaloon,
With spectacles on nose and pouch on side;
His youthful hose, well saved, a world too wide
For his shrunk shank; and his big manly voice,
Turning again toward childish treble, pipes
And whistles in his sound. Last scene of all,
That ends this strange eventful history,
Is second childishness and mere oblivion,
Sans teeth, sans eyes, sans taste, sans everything.

INTRODUCTION

Shakespeare's famous lines delineating seven ages of human life oddly enough can trace their origins to the writings of Ancient Greece. Over a thousand years earlier, Hippocrates had described life as being divisible into seven ages. Of course, Hippocrates' descriptions were not so vivid, but then his motives were different. In the golden age of Socrates, Plato, and Sophocles, the "Father of Medicine," as Hippocrates is known, was transforming medicine, pulling back the shroud of superstition and formulating a scientific approach to healing.

Perhaps Hippocrates was too successful, for medical progress crept along for the next 1500 years after him. First with Galen in Rome and then Arab physicians in later centuries, his legacy was kept at the forefront of medicine. Not until the 16th and 17th centuries with Andreas Vesalius and William Harvey was dramatic progress seen again.

This exhibit is a glimpse of the progress of medicine through the ages, from pre-Hellenic times (with magic amulets) to the 19th century. Each of Shakespeare's seven ages is described through materials from different historical periods, showing a sampling of health issues relevant to that particular time of life. The items displayed are landmarks of medical history or simply interesting examples of what medical thought was in the past. Shakespeare's ages have been liberally interpreted to include birth with "Infant," and to define "Lover" as young adult and "Justice" as mature adult. Each age in the exhibit begins with the relevant verse from Shakespeare, followed by an appropriate aphorism from Hippocrates, and then the sequence of display items beginning with the ancient text and roughly proceeding forward in time.

Mary Townsend
Exhibit Curator

All the world's a stage,
And all the men and women merely players:
They have their exits and their entrances;
And one man in his time plays many parts,
His acts being seven ages...

Aphorisms, V. 1.
Life is short, and Art long; the crisis fleeting; experience perilous, and decision difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and externals cooperate.

Hippocrates of Cos, ca. 460-375 BCE. *Hippocratis Aphorismi, cum Galeni Commetariis.* Paris: C. Chevallonii, 1526.

From ancient biographies we learn that Hippocrates was born on the island of Cos in Asia Minor, the son of a physician. He studied under his father and then, as was the custom of the day, traveled around the islands of the Aegean practicing medicine. His skills were soon recognized and he began lecturing on medicine and surgery.

Hippocrates believed that the physician's primary obligation was to his patient and that diseases had a natural cause, not a divine one. His system was based on a pre-existing theory of the four humors (blood, phlegm, black bile, and yellow bile), with disease resulting from an imbalance in these humors. Nature strove to maintain balance through "innate heat." The physician's job was to ensure that conditions were amenable to nature's inherent healing power. Diseases had a natural cause and the physician used all his senses to determine the progress of the disease and administer treatment. The treatment options available to the physician were purgatives, emetics, baths, bloodletting, surgery, wine, bland drinks, and a calm environment.

From these beginnings grew the Hippocratic system and from that, modern medicine. Although the words of Hippocrates are generally accepted to have come from not just one man, they were all founded in the principles of Hippocrates.

Beginning with the succinct and memorable "life is short," Hippocrates' *Aphorisms* expand into a lengthy and detailed consideration of the human condition from cradle to grave. Compiled

more than two hundred years after the author's death, *Aphorisms* remains the most enduring and influential record of his work, containing the observations he made through thorough physical examinations to learn of each patient's medical history. His contributions to clinical technique, his rational approach to the study of medicine, his willingness to admit error, and his genuine concern for the welfare of his patients remain as valid and viable today as in his time.

This particular edition contains commentary by Galen (see case 11), whose teachings, along with those of Hippocrates, exhibited considerable authority during the period from the collapse of Rome to the flowering of the Renaissance. Throughout the exhibit various aphorisms have been used to suggest the unique character of each of the seven ages. Each reflects the comprehensive Hippocratic approach to medicine.

Infant

... At first the infant,
Mewling and puking in the nurse's arms ...

Aphorisms, V. 59.
If a woman do not conceive, and wish to ascertain whether she can conceive, having wrapped her up in blankets, fumigate below, and if it appear that the scent passes through the body to the nostrils and mouth, know that of herself she is not unfruitful.

Aetius of Amida, 502-575. *Aetii ... Contractae ex Veteribus Medicinae Tetrabiblos, hoc est Quaternion, siv Libri Universales Quatuor.* London: G. et M. Beringorum fratrum, 1549.

Aetius of Amida was physician to the Byzantine Emperor Justinian I. His *Tetrabiblos* (so named because it is divided into four books, each of which is then again divided into four) is primarily a compilation of works of physicians from antiquity, to which Aetius added some of his own writing. Without this compilation many of these works would probably have been lost.

Included in the *Tetrabiblos* are works by Soranus of Ephesus (98-138), a physician whose writing covered a wide range of subjects, and whose gynecology represented the height of gynecological and obstetrical practice in ancient times.

Soranus provides a full guide to the management of infants from prenatal care to teething and walking. He includes sections on who is fit to become a midwife, whether permanent virginity is healthful (he determined that it is, but procreation is necessary), and how to recognize if a newborn is worth rearing. He recommends sprinkling a newborn with salt to make the newborn firm, and washing in lukewarm water. The newborn should not be fed for the first two days and given boiled honey as its first meal. Maternal milk should not be given for the first twenty days, since the mother's milk was unwholesome for that time. Soranus's teachings and practices survived into the 16th century.

Eucharius Roeslin, ca. 1490-1526. *De Partu Hominis, et quae circa Ipsum Addidunt. Libellus d. Eucharii Rhodionis.* Frankfurt: C. Egenolff, 1544.

Walther Hermann Ryff, d. 1548. *Schwangerer Frawen Rosengarten.* Frankfurt: C. Egenolff, 1569.

Thomas Raynalde, fl. 1540-1551. *The Birth of Mankynde, Otherwyse Named the Womans Booke.* London: T. Raynald, 1565.

First published in 1513 by Eucharius Roeslin, town physician and supervisor of midwives at Worms, the *Rosengarten* is considered the first obstetrics textbook and the first book written especially for midwives. Essentially a survey of Greek and Roman texts, it contains excerpts from Soranus, Hippocrates, Galen, Aetius, and Albertus Magnus, among others. Its woodcut illustrations were some of the earliest representations of positions of the fetus in utero, the birthing chair, and the lying-in chamber. Originally published in German to serve German midwives who were unable to read Latin, the *Rosengarten* has appeared in nearly 100 editions and in numerous languages. It was used as a primary text for over 200 years.

Displayed here are Latin, German, and English editions, the latter two modified and expanded by Ryff and Raynalde, respectively.

Felix Wurtz, 1518-1575? *Wundartzney ... Jetzund alles ... auss des Authoris Hand-Geschriebenen.* Basel: E. Konigs und Söhnen, 1670.

Wurtz called this book, often known as *Practica der Wundartzney,* "a little handbook for times of war and peace." In it, the famous surgeon

advocates abandoning "the old paths" in favor of the teachings of his friend and mentor, Paracelsus (1493-1541) (see case 10). Appended to this second edition of the treatise on surgery is a book on children, either edited or written by Wurtz's son Randolph, which rails against the abuses of midwives and children's nurses. Wurtz brought honesty, originality, and observation into his work and advocated knowledge of anatomy for surgeons. He denounced swaddling and the mistreatment of infants, and advocated treatment of orthopedic problems such as clubfoot, admonishing parents that the expense of treatment (by splinting and binding) was necessary. It is considered the first work on infant surgery.

Case 2

Louise Bourgeois Boursier, ca. 1563-1636. *Observations diverses sur la sterilité, perte de fruict, foecondité, accouchements et maladies des femmes et enfants nouveaux naiz.* Paris: I. Dehoury, 1652.

Married to a barber-surgeon, Louise Boursier became interested in midwifery after the birth of her first child. She received instruction from her husband and his master, Ambroise Paré. Barber-surgeons, unlike university-educated physicians, were second-class medical practitioners who were generally self-taught and whose medical role was bloodletting, cupping, leeching, and shaving patients. After years of exemplary work she became *accoucheuse* (midwife) to the royal family. She held that position for twenty-one years until the Princess Marie de Bourbon-Montpénsier died from puerperal sepsis.

Although obstetrics had been practiced exclusively by women, this was the first significant work on the subject by a woman. Boursier is regarded as a pioneer of scientific midwifery. In her work, she advocated inducing premature labor in patients with contracted pelvis and gave original descriptions of prolapsed umbilical cord and face presentations and their management. *Observations* was used as the essential handbook for midwives of the period.

William Cadogan, 1711-1797. *An Essay upon Nursing and the Management of Children, from their Birth to Three Years of Age.* London: J. Roberts, 1753.

During the 18th century, infant mortality in London was at staggering levels. Up to fifty percent of children died before the age of five

years. Cadogan attributed this to ignorance and the mismanagement of children. He decried unhealthy practices of swaddling, overdressing, artificial feeding, and sending children out to nurses in the country rather than keeping them with their mothers. He prepared this pamphlet of guidelines on the nursing, feeding, and clothing of infants, with sensible rules for maintaining their health. He stressed the importance of mothers' breast feeding, dressing infants loosely to permit freedom of movement, and changing their soiled clothing frequently. The pamphlet, which was written for the London Foundling Hospital, went through eight editions in the next eighteen years and resulted in Cadogan's election as physician at the hospital.

The copy shown here is bound with a poem entitled the "Oeconomy of Love" by John Armstrong and two essays on the medieval use of hemlock by Anton Strick.

Cadogan, who suffered from gout, also wrote a treatise on the management of that and other chronic diseases. Like his pamphlet on the care of infants, it contained reasoned and practical advice. Although the treatise ran through eight editions in one year, it was also controversial, since it advocated the unpopular approach of moderation in alcohol consumption and moderate exercise.

Charles Michel Billard, 1800-1832. ***A Treatise on the Diseases of Infants, Founded on Recent Clinical Observations and Investigations in Pathological Anatomy, Made at the Hospice des Enfans-Trouvés: with a Dissertation on the Viability of the Child.*** **New York: G. Adlard, 1839.**

In the preface to the first edition of this work (Paris; 1828), Billard provides a quotation from the famous professor of medicine at Padua, Gianbattista Morgagni (1682-1771) (see case 14), as his motivation for his research: "How vast and new is the space that is still open before us for the study of diseases of young children." This lack of knowledge about childhood diseases Morgagni attributes to the "tenderness of mothers" who oppose autopsy of their children. To remedy this, Billard took advantage of his position at the Hospice des enfans-trouvés, Paris, to perform several hundred autopsies on the infants who died at that institution. His objective was to discover the causes of their diseases by correlating his clinical observations with the findings of his autopsies.

This pioneering book, here seen in its first English translation, was the result. In it, Billard provides an orderly arrangement of diseases of infants by system of the body. He established the first criteria for normal weight, size, and shape of infants, and provided insights on many childhood diseases, including a number that had been recognized only in adults before. The appendix contains statements about the efficacy of vaccination and a debate on bloodletting. This edition also contains his dissertation on the medico-legal viability of infants.

William Hunter, 1718-1783. ***Anatomia Uteri Humani Gravidi Tabulis Illustrata.*** **London: E. Lumley, 1828.**

The Scotsman William Hunter was an eminent obstetrician in London during the 1700s where he attended Queen Charlotte during the births of her sixteen children. He also taught medicine, with principal interests in anatomy, surgery, and obstetrics. His lectures were so popular that he built an anatomical theater and museum where many of the foremost anatomists and surgeons of the day were trained. He was devoted to his science and left little time for private life. He remained a bachelor, living at the school and spending his time on work.

First published in 1774, this obstetric atlas took Hunter, working with his brother John, almost twenty-five years to produce. At great personal expense, he hired the best artists to make the thirty-four life-sized line engravings and had the text printed in both English and Latin by the Baskerville Press. The illustrations present a range of normal and pathological conditions of the womb and fetus. The copper plates, although engraved by several artists, were all from the drawings of 18th-century medical artist Jan van Rymsdyk (fl. 1754). Hunter was the first to describe retroversion of the uterus, and he examined the placenta and described the separate circulatory systems of mother and fetus. This work is considered one of the best anatomical atlases ever produced. Johann Ludwig Choulant, renowned medical historian (1791-1861) described it as "anatomically exact and artistically perfect." During his life he also accumulated a museum of books, manuscripts, paintings, coins, and, most noteworthy, anatomical and pathological specimens. These he bequeathed to the University of Glasgow.

Oliver Wendell Holmes, 1809-1894. *Medical Essays, 1842-1882.* Boston: Houghton, Mifflin and Company, 1887.

Perhaps most widely known for his avocation as a poet, Oliver Wendell Holmes was by profession a physician and professor of medicine at Dartmouth (1838-1847) and Harvard (1847-1882). Because his lectures were so lively and entertaining, he was assigned the last lecture of the day at Harvard, a time slot when no one else could hold the interest of the exhausted students.

His essay "The Contagiousness of Puerperal Fever" first appeared in the short-lived *New England Quarterly Journal of Medicine and Surgery* on April 1, 1843, before the nature of contagion was understood. In it he established that childbed fever was contagious and could be carried from patient to patient by the physician. He outlined rules for eliminating this and stated that an outbreak of puerperal fever among the patients of a physician "should be looked upon not as a misfortune, but a crime."

The paper evoked violent opposition among many of his peers, especially Hugh Hodge and Charles Meigs. Five years later, Ignaz Semmelweis of Vienna published his famous statistical analysis demonstrating the contagious nature of the disease, but not until Joseph Lister were antiseptic techniques routinely adapted in obstetric practice.

Holmes's *Medical Essays* contained nine papers, including a strong refutation of the theories of homeopathy. Medical historian and bibliographer Fielding Garrison (1870-1935) considered this book "the most important American book dealing with the history of medicine up to its day."

Case 3

Leonardo, ca. 1800. "La prospirita dal mondo termina al sepulcro...." Hand-colored engraving. Milan: Barelli Galleria De Cristoforis No. 8, ca. 1800.

The course of life has been a popular theme in folk art for centuries. This vividly hand-colored engraving shows the ages of humanity from birth to the grave in ten-year increments. Probably created in Italy with a Jesuit symbol in the center of the print at the bottom, the text that appears in tiny print at the bottom of the illustration offers hope for the Christian faithful. "La prosperita dal mondo termina al sepulcro e dal sepulcro comincia la perfetta felicia dal vero cristian." Roughly translated it states "Prosperity of the world ends at the grave and at the grave begins the perfect happiness of the true Christian."

Birthing Amulet. Metal, probably gray iron. Upright oval. Taubman Amulet 139.

The amulets displayed in this exhibit are part of the Campbell Bonner amulet collection donated to the Taubman Medical Library by Frederick Coller. They were primarily crafted in Syria or Egypt and date from as long as 3000 years ago. According to Dr. Bonner, an amulet is "any object which by its contact or close proximity to the person who owns it, or to any possession of his, exerts power for his good, either by keeping evil from him and his property or by endowing him with positive advantages."

This birthing amulet shows a goddess (perhaps Isis) holding her right hand toward the head of a comical Bes, protector of children.

Ambroise Bosse, 1602-1676. "L'Accouchement." Etching. Paris, 1633.

In this birthing scene or "Delivery of a woman," Ambroise Bosse provides an intimate view into a French patrician home of the early 17th century. The text below is a quatrain from each of four characters in the scene: the mother bemoaning her pain; the midwife reassuring the mother; the husband trying to encourage; and a devout friend asking God for help for the laboring mother. In addition to this elegant etching, Bosse also produced one depicting bloodletting and another of the Infirmary of the Charity Hospital in Paris, which provide great detail about medical practices of the day.

Johann Remmelin, 1583-1632. Anatomical plate with superimposed flaps, showing anatomy of male and female figures and pregnant female torso. Engraving. Ulm: Stephen Michelspracher, 16—.

Johann Remmelin was born in Ulm, where he became town physician. In addition to his skills as a town doctor, he was also reputedly a talented mathematician and anatomist. These abilities he combined in 1613 to devise what is thought to be the earliest anatomical atlas with superimposed plates. These ingenious "flap anatomies" are made up of a series of pictures cut out and glued upon each other to form layers. By lifting the paper flaps, one can view

deeper levels of the body. This plate is one of a set of three published in Ulm; the Lover section of the exhibition (see case 7) shows the other two. Because of the extreme fragility and rarity of these items, they are displayed with the flaps in place. Case 11 shows Bartisch's flap anatomy of the brain with the flaps opened to reveal the several layers.

Case 4

Schoolboy

> *... And then the whining school-boy, with his satchel*
> *And shining morning face, creeping like snail*
> *Unwillingly to school...*

Aphorisms, II. 45.
Epilepsy in young persons is most frequently removed by changes of air, of country, and of modes of life

Rhazes, 865?-925? ***Liber Rassis ad Almansorem.*** **Venice: Octavian Scoti, Bonetum Locatellum, 1497.**

One of the most famous of the Arab physicians, Abu Bakr Muhammad ibn Zakariya Razi, known in the West as Rhazes, was in fact Persian by birth, but wrote in Arabic. He came to medicine relatively late in life, not starting his study until the age of thirty. His medical education took him to Baghdad, where he later became a teacher, director of the hospital, and court physician to al-Mansur, Prince of Bokhan. Unfortunately, most of his more than 200 writings (covering topics ranging from music to mathematics) have been lost. One of the most important of his medical books to survive is the *Almansor*, so called because it was dedicated to his prince. In it, he covers physiology and dietetics, surgery, poisons, pathology, and fevers. Rhazes was the first to devote an entire treatise to diseases of children, and the first to clearly distinguish between smallpox and measles. Because smallpox was endemic at the time, he considered it a normal childhood illness. He outlined rational management for smallpox (cold fluids, fresh air, fruit juices from acidic or astringent plants, and bloodletting). His treatment was followed until the 15th century and very little was added to the management of the disease until Jenner (1749-1823) (see case 5).

Rhazes' works were among the first printed after the invention of the printing press, first appearing in 1481. The volume on display was printed sixteen years later.

Thomas Phayer, 1510?-1560. ***The Regiment of Life, whereunto is added a Treatise of the Pestilence, with the Booke of Children.*** **London: Edwarde Whitchurche, 1560.**

Phayer's *Booke of Children* was the first work written originally in English on diseases of children. The author, best known as a poet, was also a successful lawyer in addition to his medical work. There is little new work in the *Booke of Children*; for the most part, it restates ideas from the past discoveries of Graeco-Roman writers and Arab physicians. It is perhaps most significant because it heralded the decline of Latin as the official language of medicine. Phayer commented, "Galen a Grecian wrote in the Greke, Kinge Avicena of Arabie in the speche of the Arabians ... what reason is it that we shulde huther-muther here amonge a fewe the thing that was made to be common unto all?" Although the ideas in this book were not original, it is noteworthy because it brought the study of pediatrics to England and updated English medicine.

Girolamo Mercuriale, 1530-1606. ***De Morbis Puerorum Tractatus Locupletissimi, variaq Doctrina Referti non solum Medicis ... Opera Iohannis Chrosczieyoioski.*** **Venice: Paulum Meietum, 1583.**

Girolamo Mercuriale was a highly esteemed physician in Italy in the mid-1500s. After studying medicine in Bologna, he moved to Padua, where in 1562 he was selected to represent the citizenry on a visit to the pope in Rome. Unfortunately for the citizens of Padua, he attracted the attention of a cardinal while in Rome and remained there to practice medicine for the next seven years. In the subsequent years, he was professor of medicine in Padua, Bologna, and Pisa.

Mercuriale's *De Morbis Puerorum* was one of the first books devoted entirely to pediatrics, and was based on the lecture notes of one of his students. The book was divided into three parts: diseases of children, fevers of children, and worms. There are frequent references to Greek, Roman, and Arab physicians, but in contrast to other 15th- and 16th-century writers, Mercuriale relied on his own judgment and observation in interpreting past writing, questioning past observations, and adding his own ideas.

Walter Harris, 1647-1732. ***A Full View of all the Diseases Incident to Children.*** **London: A. Millar, 1742.**

Born in Gloucester in 1647, Harris converted to Catholicism and moved to Bourges, France, to study medicine. He received his degree in 1675 and returned to London, where he enjoyed a prosperous practice. In 1678, when all Roman Catholics were ordered to leave London, Harris instead left the Catholic Church and remained, writing an article to explain his defection.

Not considered a brilliant man or an original thinker, Harris did, however, write a classic text in pediatrics. He is most remembered for his work *De Morbis Acutis Infantum* (*Acute Diseases of Infants*), which served as the standard book on pediatrics for nearly a century. Eighteen editions were published in several languages, including this translation into English. This book did anticipate the modern treatment of tetanus and using calcium salts during infantile convulsions. Harris deduced that acidity was the cause of infantile diseases, and thus that they could be treated by neutralizing the acid with calcium carbonate.

Michael Underwood, 1736-1820. ***A Treatise on the Diseases of Children, and Management of Infants from the Birth.*** **Boston: David West, 1806.**

Because of this book, Underwood, an English midwife and surgeon, has been called the most influential pediatrician of his time. In the first edition, he describes intestinal toxemia, disorders of teething, exanthematous fevers, rickets, and whooping cough. He discovered a nutritional form of cow's milk diluted with barley water. Underwood also defined poliomyelitis as a distinct disease, and recorded the earliest account of congenital heart disease in children. His book was written not only for the medical profession, but also for the "intelligent parent." Seven English editions of his book were published in addition to seven American editions. Displayed here is the second American edition.

William Potts Dewees, 1768-1841. ***A Treatise on the Physical and Medical Treatment of Children.*** **Philadelphia: H. C. Carey & I. Lea, 1825.**

Dewees was an outstanding American obstetrician whose services were in great demand in early 19th-century Philadelphia. After

attending lectures at the University of Pennsylvania, he began practicing at age twenty-one, without a license. He did enter medical school and received his M.D. in 1806, after which he built up a large, prosperous practice. He wrote a famous book on midwifery, and that text combined with his influential practice has earned him the reputation of a genius who had a greater influence on American obstetrics than any other man.

In addition to his famous work on midwifery, Dewees also wrote the title shown here, which holds the distinction of being the first American textbook on pediatrics.

Case 5

William Heberden, 1767-1845. ***An Epitome of the Diseases Incident to Children.*** **London: Printed for T. Payne by R. Taylor and Company, 1807.**

A great clinician in his own right, Englishman William Heberden is overshadowed by his more famous father, William Heberden, Sr. (1710-1801), whom Samuel Johnson described as "the last of the learned physicians." William Junior published his father's final work, which had the distinction of being the last major medical work published in Latin. An indication of the loss of relevance of Latin to the medical profession is the fact that an English translation was published the same year (1802).

William Heberden, Jr., was a respected pediatrician and his *An Epitome of the Diseases Incident to Children* was a concise review of pediatric practice of the day. The table of contents displayed here gives a glimpse of some of the diseases common in an early 19th-century pediatric practice.

Edward Jenner, 1749-1823. ***An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease Discovered in some of the Western Counties of England, Particularly Gloucestershire, and Known by the Name of Cow Pox.*** **London: S. Low, 1798.**

Ranking as one of the most important discoveries in medical history, the smallpox vaccine was developed by English practitioner Edward Jenner and described in his *An Inquiry into the Causes and Effects of the Variolae Vaccinae.* Jenner was the first to devote serious study to the common belief of farmers and dairymaids that a person who had had an attack of cowpox in the past would be more immune to

smallpox. From this study, he developed the three main points of his book:

1. The cowpox virus found in horses became safe only after it was transmitted to cows (Jenner later dropped this theory after more experience with it.).
2. Only the cowpox virus gave protection, and "matter" from other "pustulous sores" was ineffective.
3. Vaccination gave permanent protection (Jenner modified this theory afterward, recommending revaccination in times of smallpox epidemics.).

Jenner supported his theories with twenty-three cases, the first being an eight-year-old boy who was inoculated with lymph extract taken from the hands of a dairymaid. The boy was found to be immune to smallpox when he was infected afterwards. Jenner's book also includes three engravings of arms and a picture of cowpox sores on the hand of a dairymaid. Europe received Jenner's discovery with enthusiasm, and many countries made vaccinations against smallpox compulsory. Jenner's discovery popularized the use of vaccinations and influenced the development of medicine for years to come.

Edward Jenner, 1749-1823. Manuscript notebook, 1828?

This manuscript notebook is in the hand of Edward Jenner's nephew, William Davies, who compiled it from, as he described, his uncle's "fragments, quotations, etc., etc., found in pocket books and on detached scraps of paper belonging to Dr. Jenner. These were chiefly written in pencil by the Doctor when he traveled alone in his carriage."

The notebook records the famous doctor's philosophical thoughts, snippets of poetry, favorite quotes, diary entries, as well as notes about his work. Shown at the bottom of the left-hand page is Jenner's defense of his vaccine. He states that criticism of its inefficacy can be blamed on "prejudice, carelessness, and above all by ignorance. It is expected never to fail. There are some blighted ears in the finest corn field."

Bartholomaeus Metlinger, d. 1491 or 1492. *Der Weyber natürliche Heymlichaiten und zügehör, Alberti Magni, allen Hebammen und kindtbarn Frauwen dienlich.* N.P.: n.n., 1531.

Metlinger first published this work as *Regiment der Jungen*, in 1473. It was the first pediatric book to be written in German, and its 1497

edition was the first pediatric work to be illustrated. The book describes childhood diseases and caring for children from birth to seven years old. Even though the information in the book was derived mainly from the works of Arab physicians, it made pediatric information more accessible to the German people.

Digestive Amulet. Black jasper. Heart-shaped. Taubman Amulet 80.

A vessel resembling a flower pot is usually found on digestive amulets. Although missing from this one, the heart-shape of the stone defines it as a digestive amulet. These were frequently used for digestive disorders and are the most common type of medical amulets. Galen advised that they should be worn over the stomach.

Samsen Rhol. "Bleeding Man." Woodcut. Regensburg, 1508.

This diagrammatic figure was used to educate barber-surgeons in the art of venesection (phlebotomy or bloodletting). It shows locations where incisions were to be made for best results in therapeutic bleeding. This print was produced in the time of the plague and was created to aid the healer dealing with this devastating illness. In addition to illustrations like this, there were also "zodiac men" who showed not only sites from which to draw blood, but also the correspondence between the signs of the zodiac and various parts of the body. They were designed to aid in the timing of treatment as well as the method.

Case 6

Lover

... And then the lover,
Sighing like furnace, with a woeful ballad
Made to his mistress' eyebrow ...

Aphorisms, V. 22.
Heat is suppurative, but not in all kinds of sores, but when it is, it furnishes the greatest test of their being free from danger. It softens the skin, makes it thin, removes pain, soothes rigor, convulsions, and tetanus. It removes affections of the head, and heaviness of it. It is particularly efficacious in fractures of the bones, especially of those which have been exposed, and

most especially in wounds of the head, and in mortifications and ulcers from cold; in herpes exedens, of the anus, the privy parts, the womb, the bladder, in all these cases heat is agreeable, and brings matters to a crisis; but cold is prejudicial, and does mischief.

Avicenna, 980-1037. *al-Kanun fi'l-tibb.* Rome: Medicea, 1593.

Arab physician Abu Ali Al-Hussain Ibn Abdallah Ibn Sina memorized the Koran at the youthful age of ten, began studying medicine at sixteen, and composed his *al-Kanun* or *Canon of Medicine* at twenty-one. He served under various caliphs before becoming the chief practitioner attached to the hospital in Baghdad. In Europe, he was known as "Avicenna," and his *Canon* of collected observations and treatments preserved the teachings of Greece and Rome and served as an influential medical guide until the Renaissance, when texts by the Ancients once again became widely available.

Like Pliny, Avicenna often recorded folk and magical remedies as medical fact. Unlike Pliny, he recognized that some diseases were communicable, that others were hereditary, and that the boiling of water made for a good sanitary practice. His contraceptive prescriptions include pessaries made from the "pulp of pomegranate [mixed with the astringent] alum" and the "leaves of the weeping willow [dipped in] the juices of the weeping willow." Methods such as these, trusted throughout the Middle Ages, did little to prevent conception. So revered and attached to tradition was the work of Avicenna that the rebellious Swiss chemist and physician Paracelsus (1493-1541) (see case 10) publicly burned a copy of the *Canon* before embarking upon his medical reforms in the West.

The *Canon* was first translated into Latin in the late 15th century. Displayed is the first Arabic edition printed in Europe in 1593.

Stephen Hales, 1677-1761. *Statical Essays.* London: W. Innys, et al., 1738-1740. Volume 1 of 2.

Ostensibly concerned with matters of the soul, the Reverend Dr. Stephen Hales achieved lasting fame through his study of the heart and, more specifically, blood pressure. At his small parish in Middlesex, Hales experimented upon a number of dogs, horses, and sheep with the intention of developing a precise system with which to measure the rate and force of the blood as it circulates through the body. This he achieved through the invention of the sphygmomanometer, an early version of which consisted of a glass tube with brass fittings that could be inserted into the carotid artery. Hales also devoted a considerable amount of his private time to the study of plants — where he was concerned with tracing the flow of sap — and to hygienic reform, having developed the first artificial ventilator for use in the holds of ships and in prisons and hospitals.

The volume on display contains Hales's work on both plants and animals. It was published with the approval of the Royal Society.

Pliny, the Elder, 23-79. *Naturalis Historie.* Venice: Filippodi Pietro, 1481.

Veteran of the Roman-German wars, consul in Spain, and victim of the eruption of Vesuvius, Pliny the Elder drew upon a rich and varied life to create a rich and varied text, the expansive, encyclopedic *Naturalis Historie.* Attempting to encompass the whole of human knowledge of the natural world, the *Historie* addresses a multitude of subjects ranging from geology and mineralogy to anthropology and botany.

Books 20-32 concern medicine; they include some of the earliest methods of birth control. Drawing upon folk beliefs as much as upon scientific study, Pliny recommends pessaries made of "ox gall incorporated in the fat of serpents," wool tampons dipped in "pitch — the very odor or perfume thereof helpeth the hardness of the uterus and settleth against mishap" — and douches administered with an "ibis bill to pour the fluid." To curb sexual desire entirely, he suggests anointment with "mouse dung" or "ashes of dill"; to promote sterility, apply "hemlock to the testes at puberty." Contraceptive methods suggested by Pliny held sway for centuries, as *Naturalis Historie* remained an authoritative text throughout the Middle Ages. Filled with as much magic as practical knowledge, Pliny's work and other books by the Ancients slowed the serious study of reproductive health.

Gaspare Tagliacozzi, 1545-1599. *De Curtorum Chirurgia per Insitionem.* Venice: R. Meiettum, 1597.

Gaspare Tagliacozzi of Bologna was treated as something of a sinner during his life and especially after his death. Criticized and mocked by his peers, Paré and Fallopius among them, Tagliacozzi failed to find peace in death, for the Church disinterred his remains and reburied them in unhallowed ground. The Church's reasoning for this: Tagliacozzi promoted vanity and adoration of the human form. In truth, he popularized skin grafting and rhinoplasty.

Before Tagliacozzi, skin grafting existed as a specialty procedure performed by a peripatetic family of Sicilian surgeons. This family had preserved for generations techniques first employed by surgeons of India and the Byzantine Empire. Tagliacozzi standardized the process of grafting, growing new tissue by attaching the arm to the nose. He also developed similar procedures for use on the lips and ears and prescribed treatment for complications commonly associated with grafting, such as hemorrhage and gangrene. His work fulfilled a genuine need in an age rife with war, violent crime, disease, and even gentlemanly duels. When modern plastic surgery began to develop in 19th-century Germany, a Berlin printer rediscovered and reprinted Tagliacozzi's work, restoring his reputation as an innovative and important surgeon.

Tagliacozzi's *Concerning the Surgery of the Mutilated by Grafting* contains detailed descriptions of a variety of surgical procedures, but is most admired for a series of woodcut engravings depicting early forms of grafting and rhinoplasty. The illustration shown here gives an idea of how cumbersome early skin grafting was.

John Hunter, 1728-1793. *A Treatise on the Venereal Disease.* London, 1788.

A mistake on the part of John Hunter prevented an accurate understanding of the connection between gonorrhea and syphilis for more than fifty years. The mistake was accidental, made in the course of an experiment, and the conclusion Hunter drew was widely accepted because of his authority as a surgeon, anatomist, and pathologist.

Scottish by birth but practicing in London, Hunter first gained renown through his brother William (1718-1783), founder of a

respected school of anatomy (see case 2), and later through his own varied work on everything from the human teeth (he devised the modern system of dental classification) to venereal disease. Both Hunters amassed a multitude of anatomical specimens for their respective museums; William bequeathed his collection to the University of Glasgow, and John's became the Hunterian Collection of the Royal College of Surgeons.

To determine whether or not gonorrhea and syphilis were caused by the same "poison," as popular medical opinion of the day maintained, John Hunter inoculated himself (in some accounts, his nephew) with pus taken from the gonorrheal sore of a patient he was treating. When Hunter (or his nephew) later developed a syphilitic chancre, he concluded both conditions were caused by the same "poison" and were, in a sense, the same disease. Not until the mid-19th century when French physician Philippe Ricord repeated Hunter's experiment with different findings was the unique character of each disease determined and described. Modern medical historians believe the patient from whom Hunter extracted the pus must have suffered from both diseases, resulting in the surgeon's confusion and inaccurate conclusion.

Case 7

Johann Remmelin, 1583-1632. Anatomical plate with superimposed flaps, showing anatomy of male figure. Engraving. Ulm: Stephen Michelspracher, 16—.

The two flap anatomies in this case were designed by Johann Remmelin along with the one in case 1 to serve as a complete human anatomy. In addition to the main figures on each of these plates, there are illustrations of separate internal organs, some of which also are covered with flaps. It has been estimated that five copper plates were used to make-up these three plates with the paper flaps cut out and pasted onto the larger images. The engraving was done by Lucas Kilian (1579-1637).

Girolamo Fracastoro, 1478-1553. *Syphilis, sive Morbus Gallieus.* Paris: Ludovicum Cyaneum, 1531.

Today remembered for epidemiological work that laid the foundation for contemporary germ theory, Italian physician Girolamo Fracastoro also has the dubious distinction of coining

the term "syphilis," a condition known in his day as the "great pox" or the "French Disease." In a lengthy narrative poem, Fracastoro — as much a poet as a physician, a true Renaissance man — tells the story of the shepherd Syphilus, who develops the dreaded disease as the result of having insulted Apollo. In recounting the course of the shepherd's suffering, Fracastoro discusses the nature and history of the disease as it was then understood and recognizes the condition as having a venereal cause. He dismisses the New World as its source and recommends mercury and the guaiacum wood, the "sacred" wood of the Native Americans, as possible treatments.

The first edition was published in Latin in 1530 in Verona. Because of the book's popularity the second edition (seen here) came out the following year. Since then Fracastoro's work has been reprinted countless times and translated into several languages. In 1686, Nahum Tate, later Poet Laureate, translated it into English. Although the story of the unfortunate shepherd may be forgotten, the character endures as the common name for the disease called syphilis.

William Harvey, 1578-1657. *Exercitatio Anatomica de Motu Cordis.* Frankfurt: Guilielmi Fitzeri, 1628.

Slender at a mere seventy-two pages, poorly printed, and cheaply bound, William Harvey's *De Motu Cordis* transcends its humble appearance by being what many regard as the greatest medical text ever published, a work to which all succeeding medical innovations are indebted. Often erroneously dubbed the "discoverer of the circulation"— a misnomer, since movement of the blood through the body had been suspected since ancient times — English physician William Harvey is perhaps better described as the first to articulate the precise process by which the blood travels. His work, coupled with that of the Brussels anatomist Vesalius, did much to promote renewed experimentation and empirical observation over strict adherence to the teachings of Hippocrates and Galen. Experimenting upon a variety of mollusks, insects, and cold-blooded animals, Harvey was able to observe how the "blood in the animal body moves around in a circle continuously, and that the action or function of the heart is to accomplish this by pumping." Building on the work of Fabricius, his teacher at the medical school of Padua, Harvey also determined the function of the valves in the veins. Despite meeting with

opposition from medical rivals and disciples of Galen, Harvey achieved renown for his discoveries within his lifetime and served as a physician to the Stuart royal family starting in 1623, and lasting through the civil wars.

Although Harvey conducted his experiments in 1616, he feared the public response to his work and did not publish his findings until 1628; his selection of an obscure Frankfurt printer accounts, in part, for the low quality and subsequent rarity of this most significant of medical texts.

Johann Remmelin. Anatomical plate with superimposed flaps, showing anatomy of female figure. Engraving. Ulm: Stephen Michelspracher, 16—.

The female flap anatomy completes the remarkable trio of Remmelin's anatomy. Often these early anatomical "fugitive sheets" (loose illustrations or print pages) were designed to remain separate rather than incorporated into a book. In the case of Remmelin's work, his three flap anatomies were also combined into an anatomical atlas *Catoptrum Microcosmium,* first published in 1613 and subsequently reprinted several times.

Uterine Amulet. Red carnelian clouded with white. Upright oval. Taubman Amulet 141.

The Young Sun (Harpocrates) is seated on the uterine symbol with his hand resting on a key. He is surrounded by an *ouroboros* (snake catching its own tail in its mouth). This amulet is thought to have been used either to promote or prevent conception.

Case 8

Soldier

... Then a soldier,
Full of strange oaths and bearded like the pard,
Jealous in honour, sudden and quick in quarrel,
Seeking the bubble reputation
Even in the cannon's mouth ...

Aphorisms, V. 65.
When swellings appear on wounds, such cases are not likely to be attacked either with convulsions, or delirium, but when these disappear suddenly, if situated behind, spasms and tetanus supervene, and if before, mania, acute pains of the sides, or suppurations, or dysentery, if the swellings be rather red.

Aphorisms, V. 66.
When no swelling appears on severe and bad wounds, it is a great evil.

Aphorisms, VI. 18.
A severe wound of the bladder, of the brain, of the heart, of the diaphragm, of the small intestines, of the stomach, and of the liver, is deadly.

Pedanius Dioscorides of Anazzarbos, ca. 40-90. *Pedanii Dioscoridis Anazarbei de Medicinali Material Libri Sex, Ioanne Ruellio.* Frankfurt: Chr. Egenolphum, 1543.

While traveling through most of the Mediterranean and Asia Minor as a surgeon attached to the armies of the Roman Emperor Nero, the Greek naturalist Dioscorides compiled one of the first *materia medicas*, recording the botanical features and perceived medicinal applications of over 600 different species of plants. More cataloguer than innovator, Dioscorides prescribed treatments derived from pre-existing texts and folk remedies he gleaned from conversations with the inhabitants of the places where he collected his specimens. Treatments range from the application of lettuce as a sedative to mint as an aphrodisiac to aloe as a cure for hemorrhoids. Approximately 100 of the plants described retain a medicinal use, and Dioscorides is surprisingly modern in his concern over pharmaceutical adulteration and his observation of specific plant families, predating Linneaus by more than a millennium.

Originally composed in Greek, the first printed version appeared in 1478; a Latin translation followed in 1499. The Latin translation on display dates from the middle of the 16th century and contains hand-painted illustrations, an addition first observed in a copy commissioned for Anicia Juliana, a 6th-century matriarch of the imperial family in Constantinople. Penciled in beside the illustrations are the 19th-century English names of the plants, a suggestion of Dioscorides' enduring influence.

Thomas Gale, 1507-1587. *Excellent Treatise of Wounds Made with Gonneshot,* volume 3 in *Certaine Workes of Chirurgerie.* London: Rouland Hall, 1563.

As a military surgeon serving under Henry VIII of England and later Phillip II of Spain, Thomas Gale was often called upon to treat wounds caused by "gonneshot," the powder of which was believed to be venomous. In his *Excellent Treatise of Wounds Made with Gonneshot*, Gale sets about disproving this belief, putting him in the company of his contemporary, the renowned French surgeon Ambroise Paré. Unlike Paré, Gale suggested using a variety of salves and ointments to treat the wounds, often producing the same effect as if the powder had indeed been poisonous.

The *Excellent Treatise...* is the third of four volumes in *Certain Workes of Chirurgerie*, which is further distinguished by containing the first reference to syphilis in an English medical text.

Ambroise Paré, 1510?-1590. *Les Oeuvres.* Paris: G. Buon, 1575.

Protocol and professional envy nearly led to the suppression of the collected works of Ambroise Paré. Written in French by a former barber-surgeon of humble origins, *Les Oeuvres* aroused the indignation of physicians attached to the University of Paris, who insisted it be transcribed into Latin, standard practice for scientific and medical texts of the period, and submitted to Parliament for approval before publication. Royal favor intervened and assured the prompt appearance of *Les Oeuvres*, which Paré continued to amend and expand until his death some fifteen years later. By then, he had served as surgeon to four successive rulers of France and achieved a worldwide prominence.

What Paré lacked in classical learning, he compensated for with careful observation and common sense. After one of the many battles he witnessed as an army surgeon, a chance lack of supplies inspired him to forgo the accepted treatment of gunshot wounds — cauterization by boiling oil — and to apply a poultice of "yolks of eggs, oil of roses, and turpentine." The next morning, much to the surgeon's surprise,

the soldiers treated with the poultice appeared to be healing while those "to whom I had applied the boiling oil were feverish, with much pain, and swelling about the wounds." Paré refused to resume the use of boiling oil and also began to favor ligature over cauterization in cases of amputation. A pioneer in prosthetics, he devised numerous mechanical replacements for lost appendages and even dabbled in dentistry, developing a method to implant teeth. Due to his many accomplishments and a bit of self-promotion, Paré is regarded as the most significant military surgeon until Dominique Jean Larrey (1766-1842).

James Lind, 1716-1794. *A Treatise on the Scurvy ... Containing an Inquiry into the Nature, Causes and Cure of that Disease.* London: A. Millar, 1757.

Lind, trained in Edinburgh and stationed at the Haslar Naval Hospital near Portsmouth, was the first surgeon to carry out a series of clinical trials while at sea that proved what most sailors long suspected: a sustained diet of citrus fruits could prevent or treat outbreaks of scurvy. Captain James Cook would put Lind's findings to use over the course of his South Sea voyages, but his enthusiastic endorsement was not enough to make the procurement of citrus fruit standard policy for the Royal Navy. Lind died without the merit of his work fully recognized.

A Treatise on the Scurvy contains a lengthy account of the experiment, which consisted of feeding three pairs of sailors a dietary supplement of either seawater, cider, vinegar, "elixir vitriol," garlic water, or lemons and oranges, as well as a brief description of everything written on the disease up to that time. Lind was also one of the first surgeons to study diseases particular to the tropics.

Sir John Pringle 1707-1782. *Observations on the Diseases of the Army.* London: A. Millar and T. Cadel [etc.], 1768.

As president of the Royal Society, Sir John Pringle was criticized by one contemporary for his audacity in occupying "Newton's chair," but as an army surgeon, Pringle's accomplishments equal those of the famed mathematician and philosopher. While serving as Physician-General of the British Army from 1744 to 1752, Pringle advocated improved sanitation and ventilation in barracks, ships, hospitals, and jails. As he writes in the preface to his *Observations*, "Among the chief causes of sickness and mortality in an army, the reader will little expect that I should rank (what are intended for its

health and preservation) the hospitals themselves, and that on account of the bad air." The preface goes on to describe the importance of neutrality for military hospitals on the field of battle, an idea that would later inspire the formation of the Red Cross.

The appendix of *Observations* contains his "Experiments upon Septic and Antiseptic Substances." Predating Lister by almost a century, Pringle concerned himself with determining "septic" and "antiseptic" substances, in the process coining the very term *antiseptics*. The 1810 American edition contains a preface by Benjamin Rush, the noted physician and signer of the Declaration of Independence.

Baron Dominique Jean Larrey, 1766-1842. *Memoirs of Military Surgery.* Baltimore: Joseph Cushing, 1814.

Called by Napoleon Bonaparte "the most virtuous man I have ever known" because of a habit of assisting the wounded on both sides, D. J. Larrey lessened the horrors of war through a combination of compassion and speed and is today regarded as the father of modern military medicine. Before Larrey, ambulances had "never arrived in less than twenty-four or thirty-six hours [after a battle], so that most of the wounded died for want of assistance." Larrey's response was to develop the *ambulance volante*, or "flying ambulance," a streamlined, one-horse carriage capable of being deployed in the midst of combat. The efficient removal of the wounded from the field of battle as well as Larrey's skill in amputation and mitigating infection greatly reduced the number of losses and earned the surgeon the everlasting love of soldiers and officers alike.

In his *Memoirs of Military Surgery*, Larrey writes of his first encounter with the young Corsican artillery officer destined to become Emperor of France and the subsequent campaigns throughout Europe and even into Egypt. Of medical interest are the surgeon's descriptions of a successful amputation at the hip joint, rarely attempted in the early 19th century, and the use of maggots to suppress infection.

Case 9

Baron Joseph Lister, 1827-1912. *Contributions to Physiology & Pathology.* London: Taylor & Francis, 1859. Offprint from *Philosophical Transactions* of the Royal Society, 1858.

Today Baron Lister is perhaps best known for having let his name to a popular disinfectant mouthwash, a strange testament to his

championing of hygienic conditions in the operating room. As a professor of surgery at the Universities of London, Glasgow, and Edinburgh, Lister, responding to the work of Pasteur, popularized the use of carbolic acid to control bacterial infections. In 1870 he wrote about antiseptic procedures on the battlefield during the Franco-Prussian War and suggested an improved method of using carbolic acid in the treatment of the wounded. He was raised to the peerage in 1897, the first English surgeon to receive this honor.

In *Contributions to Physiology and Pathology* Lister details some of his earliest observations on the nature of bacterial infection and possible methods to contain its spread.

[V. L.]. "Système de Broussais." Color lithograph. France, Early 19th century?

François Joseph Victor Broussais (1772-1838) was one of the most influential French physicians of his time. He served as surgeon to the French army and taught pathology at Paris. He developed the "Système de Broussais," which espoused creative theories on the causes of disease. He believed most illnesses were the result of inflammation of the digestive tract, and appropriate treatment was generally drastic, involving the application of leeches to the stomach and head. After being discredited by his peers, he eventually turned his efforts to mental illness. This cartoon is an indication of the shift away from Broussais's influence.

Soldier's amulet. Brownish yellow jasper. Upright oval with gold mounting. Taubman Amulet 36.

Depicted here is Anubis as a Roman soldier holding a tall scepter resembling a Roman military standard. It symbolizes virility and the martial spirit.

Johannes de Ketham, fl. 1460. "Wound Man" from *Fasiculus Medicinae*. Venice: Johannen & Gregorius fraters de Forlivio, 1491.

Ketham's "little gathering" of medical treatises, first printed in 1491, was the first medical text to contain realistic illustrations, and those illustrations are the highlight of the book. The book itself is merely a compilation of medical texts in use at the time. Among the illustrations are this Wound Man, a Zodiac Man, a Bloodletting Man, the Planet Man, a dissection scene, a Female Figure with Uterus, and a woodcut of Petrus de Montagna lecturing. The second edition also included Mondino's *Anathomia* (see case 14). The woodcut of this "Wound Man" is probably the work of the painter Andrea Mantegna (1431-1506). It shows a veritable catalogue of possible wounds by a variety of weapons. Illustrations of "wound men" can be found throughout later medical literature.

Robert Koch, 1843-1910. *Untersuchungen über die Aetiologie der Wundinfectionskrankheiten.* Leipzig: F. C. W. Vogel, 1878.

After serving as an army surgeon throughout the Franco-Prussian War, Robert Koch retired to the obscurity of a private practice in Wollstein, Germany, where he conducted the series of experiments that would secure his reputation as the greatest of the pioneer microbiologists. Koch was the first to prove a specific microorganism could induce a specific disease. For his work in identifying the tubercle bacillus and refuting nutritional deficiency as the cause of tuberculosis, he was awarded the Nobel Prize in 1905.

In *Untersuchungen über die Aetiologie der Wundinfectionskrankheiten*, Koch describes an experiment in which he produced six types of infection in various lab animals through exposure to certain microorganisms, leading to his conclusion that specific diseases were linked to specific bacteria.

Case 10

Justice

... And then the justice,
In fair round belly with good capon lined,
With eyes severe and beard of formal cut,
Full of wise saws and modern instances;
And so he plays his part ...

Aphorisms, VI. 28.
Eunuchs do not take the gout, nor become bald.

Aphorisms, VI. 29.
A woman does not take the gout, unless her menses be stopped.

Aphorisms, VI. 30.
A young man does not take the gout until he indulges in coition.

Aphorisms, VI. 57.
Persons are most subject to apoplexy between the ages of forty and sixty.

Celsus, 25 BCE - 50 CE. *De Medicis.* Milan: Pachel and Scinzenzeler, 1481.

As the oldest extant medical document after Hippocrates and the first general medical text printed after the invention of the printing press, *De Medicina*, as this text is generally known, gives a comprehensive account of medicine during the Roman era. It was written about 30 CE by the famous encyclopedist Celsus and originally was part of a major work that included agriculture, military art, rhetoric, philosophy, and jurisprudence. Unfortunately, only the medical section has survived.

Drawing greatly on the ancient Greeks, the 300-year gap between Hippocrates and Celsus produced definite progress in medicine, which is documented here. The work is divided into three parts, with diseases categorized by type of treatment recommended (dietetic, pharmaceutical, or surgical). The work is especially valuable because of the clear descriptions of diseases and the translation of the Greek medical nomenclature into Latin, the same nomenclature used today.

Celsus encouraged everyone to learn the relationship of disease to stages of life. He wrote that acute illness was the greatest threat to the young, the middle years were the safest, and chronic diseases threatened the old, but warned that disease could strike at any time. He discusses gout in some detail, prescribing bleeding in the springtime as a possible cure, warm or cold applications to the afflicted area, a regulated manner of living including exercise and avoiding obesity.

Although Taubman Medical Library owns a first printed edition (1478), the title page from this 1481 second edition printed in Milan has a lovely illustration worthy of display.

Magnus Hundt, 1493-1519. *Ein nützliches Regiment, sampt dem Bericht der Ertzney, wider etliche Kranckheit der Brust, und besonderlich wider den Husten, Brust Seuche, und Bachwerung des Athems... Auch ein ... Regimentlin, wider die... Kranckheit des Podegrams.* Frankfurt am Main: Herman Gülfferichen, 1529.

This 1529 work by Magnus Hundt includes his treatise on gout, largely a reiteration of the Ancients, as well as material on "the French disease" of syphilis. Hundt also wrote on the English sweating sickness. He was often confused with his kinsman of the same name, the theologian and professor of medicine at Leipzig, whose "antropologium" (1500) contains a brief summary of contemporary anatomy.

Paracelsus, 1493-1541. *Opera Omnia Medico-Chemico-Chirurgiea, tribus Voluminibus Comprehensa.* Geneva: I. Antonij, & Samuelis De Tournes, 1658.

One of the most colorful figures in medical history was Aureolus Philippus Theophrastus Bombastus von Hohenheim, dubbed Paracelsus ("greater than Celsus") by his many followers who considered him a genius greater than Celsus. Sir William Osler, the brilliant 19th-century medical educator, called him "the Luther of medicine, for when authority was paramount he stood out for independent study." Growing up the son of a physician in Tyrol, he observed the diseases of the miners his father treated. These early observations laid the foundation for his book on miners and metallurgical workers' occupational diseases, the first monograph published on the topic. In it, he concluded that symptoms were caused by "dangerous airs and clouds of poisonous dust" which were absorbed by the miners' lungs and skin. As can be seen by the size of his complete works displayed here, the book on miners was merely a small part of his extensive writings.

Paracelsus was one of the most original and prolific minds of the 16th century. He believed Hippocrates was the only true authority in ancient medicine and publicly burned the works of Galen and Avicenna. He taught that medicine should return to "the book of nature" where observation and experience were the teachers. He discarded the four humors doctrine and developed his own system

based on years of travel and gathering information. Unfortunately, his sources of knowledge during those years were academicians, midwives, barbers, alchemists, gypsies, astrologers, and executioners. As a result, his many sound medical observations and theories were bound up with a labyrinthine system of mysticism, astrology, and alchemy.

He also produced works on arthritis, gout, venereal diseases, a complete treatment of wounds, surgery, endocrine diseases, and pharmacy. Consistent with his contentious nature, he died at the age of forty-eight in a tavern brawl.

Thomas Sydenham, 1624-1689. *Opera Medica.* Geneva: G. de Tournes & Filios, 1723.

Under the influence of Thomas Sydenham, 17th-century internal medicine took a dramatic turn back to Hippocrates with an emphasis on observation and experience. As a result, the former captain in Cromwell's army, who did not obtain his medical license until the age of thirty-nine, became known as the "English Hippocrates" and influenced the leading English figures in medicine for the next 100 years.

A Puritan with a distrust of scientific innovation, Sydenham thought the best medical education took place bedside rather than in the anatomy theater, classroom, or library. He recommended moderation in all things, advocating appropriate diet, exercise, drugs, and for pain, opium (the "drug God had created to relieve pain"). He wanted to complement the strict classification of disease with a strict "methodus medendi" or method of treatment so that specific drugs or regimens were used for each disease. He introduced the use of quinine for malaria into England. He wrote on a wide range of diseases, including smallpox, which like Rhazes (see case 4) he regarded as part of normal maturation. Also like Rhazes, Sydenham advocated a "cooling regimen" for treatment rather than the "heating regimen" that had once again gained popularity. His treatise on hysteria has been called the most important 17th-century work on psychological disorders.

His treatise on gout, however, is perhaps his most famous. In it, he described the symptoms and progress of the disease in great detail, having suffered with it himself for thirty-four years. He ascribed to

the belief that it was the result of rich wines and foods and an "unhappy" hereditary tendency. He confessed that he had discovered no new treatment and opium was the only assistance. He was quoted as saying, "If you drink wine you get gout -- if you do not gout gets you."

Bernardino Ramazzini, 1633-1714. *De Morbis Artificum Diatriba.* Modena: A. Capponi, 1700.

This classic on occupational diseases was the first text since Paracelsus to draw attention to diseases of workers. In it, Ramazzini, an Italian physician, epidemiologist, poet, philosopher, and scholar, classified the health hazards of over fifty occupations. These include "phthisis" of stonemasons and miners (silicosis and pneumoconiosis), "lethargy" of potters (lead poisoning), sciatica of tailors, and disorders inherent in general categories such as sedentary, standing, and even literary occupations. Ramazzini cites Hippocrates, Celsus, and Galen, and then proceeds to augment their ideas with his own experiences. He noted that disorders can result from unusual postures or physical demands on the body or exposure to dangerous substances.

Edward J. Tilt, 1815-1893. *The Change of Life, in Health and Disease: a Clinical Treatise on the Diseases of the Ganglionic Nervous System Incidental to Women at the Decline of Life.* New York: Bermingham & Co., 1882.

References to menopause can be found in the Bible and in the writings of Aristotle, but until recent times, many women did not live long enough to experience menopause. The median age of death for wives in Rome was thirty-four (for husbands it was forty-six and a half). In the 17th century, only twenty-eight percent of women lived long enough to reach menopause. Galen advised bloodletting as a treatment for menopausal symptoms to release any "retained poisons" and common 16th-century treatments included purgatives and application of leeches. During the 18th century, menopausal symptoms were attributed to anemia and general debility, and accordingly, light exercise and a good diet were prescribed.

By the time of Edward Tilt, a prominent London gynecologist, complaints of climacteric women had become common, but still not well understood. Tilt wrote this book to help educate his fellow

practitioners on a period of life that he regarded "critical and dangerous." He admonished physicians not to dismiss women's complaints without investigation, despite stating that some symptoms were aggravated by life events such as the "empty nest syndrome." His recommendations for symptom relief include sedatives, bleeding or applying leeches, diuretics, purgatives, tonics, warm baths, and mineral waters.

Case 11

Aged

...The sixth age shifts
Into the lean and slipper'd pantaloon,
With spectacles on nose and pouch on side,
His youthful hose, well saved, a world too wide
For his shrunk shank; and his big manly voice,
Turning again toward childish treble, pipes
And whistles in his sound...

Aphorisms, III. 31.
To old people dyspnoea, catarrhs accompanied with coughs, dysuria, pains of the joints, nephritis, vertigo, apoplexy, cachexia, pruritus of the whole body, insomnolency, defluxions of the bowels, of the eyes, and of the nose, dimness of sight, cataract (glaucoma), and dullness of hearing [become chronic].

Galen, 129-210? *Opera Graccia.* Venice: Aldus, 1525.

Considered the greatest classical physician after Hippocrates, today Galen is often regarded with prejudice because strict adherence to his teachings stymied medical progress throughout the Middle Ages and into the Renaissance. Although Galen's style was self-laudatory, aggressive, and wordy (he wrote over 100 works), this paralysis of medicine cannot be blamed on him, but rather was the result of conservatism and authoritarianism during the succeeding generations.

Born in Pergamum, in Asia Minor, Galen's medical education was steeped in the teachings of Hippocrates. After a series of teachers in Smyrna, Corinth, and Alexandria, he returned to Pergamum where

he was appointed physician to the gladiators, worked at the temple of Asclepius (Greek god of medicine), and developed a thriving private practice. In 161, he moved to Rome where his reputation grew until he became the pre-eminent healer of his day. He developed his own system of physiology based on balance of the four humors (blood, phlegm, yellow bile, black bile), the four qualities (hot, cold, moist, dry), and the concept that nature is purposeful in the design and function of the body. He stated that physicians should practice for the love of mankind rather than for money. Even though Roman law forbade human dissection, Galen's anatomy (derived from dissecting pigs, monkeys, and other animals) moved scientific knowledge forward. Included among his many accomplishments were disproving the beliefs that the nerves originate in the heart and the blood vessels originate in the brain. Although his theories contained many errors, his stress on experimentation leads scholars to conclude that Hippocrates left medicine as an art and Galen transformed it into a science.

Galen's teachings show sound judgment emanating from his theory that there are four ages: youth (characterized by hot and moist), manhood (characterized by hot and dry), aged (characterized by cold and dry), and senility (characterized by cold and moist). He concluded that the best management of the elderly consisted of good hygiene emphasizing diet, exercise, care of the bowels, sleep, and the use of wine. An interesting note opposite the title page states that the copy on display was used in an exhibit at the World's Columbian Exposition in 1893.

Roger Bacon, 1214-1294. *The Cure of Old Age and Preservation of Youth.* London: Tho. Flesher and Edward Evets, 1683.

Legend and lore surrounding Roger Bacon abound. Credited with having invented gunpowder, the magnetic compass, lenses for reading, flying machines, and predicting the discovery of America, the reality of the Franciscan friar's life may seem ordinary. He was born near Ilchester, educated at Oxford and Paris, and spent the years 1277 to 1292 in prison for expressing theories which the Church considered dangerous. His medical education was based on the teachings of Galen, Aristotle, Pliny, and the Arab physicians. Educated also in the art of alchemy, Bacon believed in the "philosopher's stone," that elusive element which when combined with other metals would turn

them into gold. He was convinced that not only gold, but also an elixir of life could be produced from the "philosopher's stone"—an elixir that could enable humans to live for several hundred years.

Among Bacon's works is the book shown in which, since the elixir of life had not been discovered, he offered the lay reader a regimen of health for extending life. He viewed aging as pathological, the result of the loss of heat, and suggested means of allaying the aging process, including proper diet and exercise.

In addition to this work, Bacon also wrote *Opus Maius*, which is regarded as one of the most remarkable books of the 13th century. In it he expounds upon his view of natural philosophy, including the importance of independent thought, observation, precision, and experimentation.

George Bartisch, 1535-ca. 1607. *Ophthalmodoulei; das ist, Augendienst.* Dresden: Matthes Stöckel, 1583.

Through study of the Bible, Bartisch, a 16th-century oculist from Königsbrück, determined that eye diseases, especially blindness, were God's punishment for sin, but also could and should be cured. A man of his times, he employed knowledge of anatomy, surgical skills, astrology, incantations, and magical amulets to ward off evil in the treatment of eye diseases. Despite his superstitions, he produced in this work great advances in diagnosis and treatment. He classified cataracts by color (white, gray, blue, green, and yellow) and stressed the importance of surgical aftercare, an unusual attitude for the time.

The book is illustrated with remarkable woodcuts of pathological conditions, ophthalmologic surgical instruments, flap anatomies of the eye, operations performed, and amulets. The woodcuts were designed by the author.

Giovanni Maria Lancisi, 1654-1720. *De Motu Cordis et Aneurysmatibus.* Rome: J.M. Salvioni, 1728.

Physician to three popes, Lancisi was an outstanding clinician, botanist, and epidemiologist with particular skills in cardiology. From 1705 to 1706, a rash of unexplained deaths in Rome prompted the pope to enlist Lancisi to investigate. The findings from subsequent autopsies resulted in *De Subitaneis Mortibus* (*On Sudden Death*) and

along with the title displayed here, secured Lancisi's place in the history of cardiology. He showed that cardiac hypertrophy and dilatation were fatal, and he produced a complete classification of cardiac diseases recognized at the time. He was also one of the first physicians to employ percussion to diagnose thoracic disease, with aneurysm being his special focus.

Lancisi's interest in public health resulted in his theory that malaria was caused by poison emanating from marshes and swamps, and he suggested that it might be transmitted to humans by mosquitoes.

René Théophile Hyacinthe Laënnec, 1781-1826. *De l'auscultation médiate, ou Traité du diagnostic des maladies des poumons et du coeur, fondé principalement sur ce nouveau moyen d'exploration.* Paris : J.-A. Brosson, et J.-S. Chaudé, 1819.

The English physician and translator of Laënnec's work, Dr. John Forbes, predicted that the stethoscope would never be adopted by dignified English physicians because they would feel absurd using the instrument, use of instruments being reserved for surgeons and manual laborers.

Not only did the stethoscope gain rapid popularity, but its inventor became renowned as one of the greatest French clinicians of all time and this book one of the outstanding medical books in history. *De l'auscultation Médiate* consists of four parts dealing with both pulmonary and cardiac function and pathology. The product of Laënnec's eighteen years of medical practice and three years of intensive research using the stethoscope, the work contains the author's unsurpassed descriptions of pulmonary tuberculosis. The section on the heart, however, is flawed as a result of the misunderstanding of the physiology of the heart prevalent at the time.

The first stethoscope, a roll of paper Laënnec fashioned to discreetly examine a young patient suspected of having heart disease, led the way to the primitive wooden instrument seen in the illustration. It opened the door to an entirely new method of physical diagnosis. Ironically, Laënnec suffered from tuberculosis and as a result of the strain of revising the text to produce a greatly improved second edition of this classic, died the year it was finished. Recognizing his sacrifice, he stated, "I know that I risked my life, but the book that I am going

to publish will be, I hope, of more value than the life of a man, and in consequence my duty was to finish it, whatever might happen to me."

Case 12

Nicholas de Larmessin, 1640-1684. "Le Chirurgien Herniaire." Paris: 1695.

This caricature of a hernia surgeon illustrates the surgical instruments of the trade during the late 17th century.

Nicholas de Larmessin, 1640-1684. "Habit de Médicin." Paris, ca. 1680.

Cleverly packing the medical literature and teaching of the physician into his costume, in this caricature, de Larmessin gives us a review of medicinal roots for the 17th-century physician.

Jan van der Straet, 1523-1665. "Conspicilla [Spectacles maker]" Engraving, ca. 1580.

This engraving of an early spectacles maker shows a market scene where at a surprisingly early period glasses are common. Although the true origin of corrective lenses is not clear, as early as the 10th century, the Arabs noted refraction and magnification through a glass sphere. In Europe Venetian glassmakers introduced spectacles into use as early as 1270.

Reaper Amulet. Hematite. Transverse oval. Taubman Amulet 115.

This amulet was used to cure sciatica and is typical of an amulet used to help back problems. It shows a reaper at work, thought to be indicative of a healthy, well-functioning back.

Artist Unknown. "Notions of the Agreeable No. 68." London: A. Spooner and Printed by W. Kohler, ca. 1850.

Quackery and charlatanism were perennial elements of medical practice, in part because many illnesses were beyond the help of

legitimate physicians. Gout was one of these. Because of the widespread practice of unscrupulous "medical men," a thriving business of medical cartoons developed.

Case 13

Second Childhood and Oblivion

... Last scene of all,
That ends this strange eventful history,
Is second childishness and mere oblivion,
Sans teeth, sans eyes, sans taste, sans everything.

Aphorisms, VIII. 18.
But the period of death has arrived, when the vital warmth ascends above the navel to the superior part of the diaphragm, and all the moisture is consumed. After the lungs and the heart have lost their moisture, the heat being accumulated in the mortal places, the spirit of the heat by which the whole became combined, hastily exhales. Then the soul leaving the tabernacle of the body, partly through the flesh, and partly through the spiracles by which we are said to breathe, surrenders it a cold and mortal image, together the with the bile, pituita, and flesh.

Crispijn de Passe, ca. 1565-1637. Death Bed Scene with Doctor Inspecting Urine. Engraving, ca. 1600.

Uroscopy, or examination of the urine, was one of the first diagnostic tools available to physicians for many hundreds of years. In much of artwork, when physicians were pictured, they were examining a vessel of urine. A poem written by Gilles de Corbeil (fl. 1180) entitled *Carmina de Urinarum* was used as a guide for uroscopy. In it, Gilles described over twenty different colors of urine, indicating what malady produced each color. He also described how to examine the "content" of the urine, which consisted of looking for bubbles, grains, clouds, foam, blood, etc. and what each meant. Obviously, in the *Death Bed Scene* the analysis of the urine is futile.

Medusa Amulet. Red jasper. Upright oval. Taubman Amulet 64.

Greek influence can be seen in this amulet as it depicts Medusa with two snakes rising from her head. The opposite side shows Hecate, the goddess associated with decay and death.

Artist Unknown. Autopsy report. Engraving, 1787.

This early autopsy report describes the brutal murder of the man pictured and his various wounds. In addition to the wounds described, it also states that C. G. Langfried, the local gravedigger, discovered the body hidden in the cemetery. Because of the nature of his death, local authorities permitted physicians to examine the corpse. The image shows only the wounds visible from the front of the body, although others are listed. Seeming primitive by today's standards, this autopsy does represent progress in the use of observation and evidence in the evolution of medicine from superstition to science.

Bartolomeo Pinelli, 1781-1835. " ... co' parvoli innocenti, dai dente morsi della morte ...." Engraving. Rome, 1825.

Roman artist and engraver Bartolomeo Pinelli produced numerous series of engravings ranging from his 1809 *Fifty Picturesque Costumes* to a series on Dante's *Divine Comedy*, to which this engraving probably belongs. The startling drama of the image evokes the fear and respect that death inspires. This print is part of the Dance of Death Collection, donated to the library in the late 1920s by Dr. Aldred Warthin (1866-1931), former member of the Department of Pathology at the Medical School.

Jacob de Gheyn, 1565-1629. Anatomy Lesson of Pieter de Paaw. Engraving from *Succenturiatus Anatomicus*. Leiden, 1616.

Flemish artist Jacob de Gheyn's depiction of an anatomy lesson shows an anatomical theater similar to the one Andreas Vesalius (see case 14) used for his early human dissections in Italy in the early 1500s. This illustration produced in Leiden in the early 1600s shows how completely Vesalian methods and influence spread throughout Europe. The professor dissecting the body was surrounded by a gallery of students as well as interested members of the public as he revealed the secrets of human anatomy.

Case 14

Hippocrates of Cos, ca. 460-375 BCE. *Hippocratis Coi Medicorum Omnium Longe Principis, Octoginta Volumina.* Rome: Francisci Minitii Calvi novocomensis, 1525.

This 1525 edition represents the first time the "complete works" of Hippocrates were published. Fragments had appeared prior to this in Greek and Arabic languages, but not until Marco Fabio Calvo (d. 1527) translated into Latin the eighty treatises contained in this text had the entire "Hippocrates Corpus" been gathered together in one publication. The first edition to appear in Greek was published the following year.

Although doubtless composed by multiple hands, the Hippocratic Corpus is consistent in its adherence to the importance of the empirical method and the high ethical standards espoused by the "Father of Medicine."

Mondino dei Luzzi, 1270-1326. *Anothomia Mondini nuper Optime Emedata.* Venice: 1507.

Graduating from Bologna medical school in 1290, Mondino dei Luzzi, son of a pharmacist, became public lecturer of anatomy at his alma mater in 1306. He earned an international reputation as an anatomist and attracted students from all over Europe to his famous anatomy demonstrations. These were greatly enhanced by the aid of Alessandra Giliani dal Persicato, a young woman who prepared the bodies masterfully. The skill and finesse of her work were well known. For example, she cleansed the veins and arteries, filled them with a fluid that hardened, and then painted them to look natural without piercing the side of the vein.

Mondino reintroduced human dissection into the study of anatomy after nearly 1500 years of neglect. This book, written in 1316 and first published in 1478, was his concise, practical description of his findings. It is considered the first modern anatomy text, not because

of its accuracy (Mondino believed there were three ventricles in the heart and that one was filled with air and that the uterus had multiple cavities), but because Mondino augmented the teachings of Galen and the Arab physicians with his own observations. The text enjoyed widespread popularity for over 200 years and was one of the most influential works on anatomy until Vesalius.

John of Gaddesden, 1280?-1361. *Rosa Anglien Practica Medicine a Capita ad Pedes.* Venice: 1502.

The possible model for Chaucer's "Doctor of Phisik" in the *Canterbury Tales*, John of Gaddesden studied medicine at Oxford, distinguished himself through private practice in London, and became the first physician appointed to attend upon a king, Edward II. His text, usually referred to as *Rosa Anglica*, was composed in the early 14th century. It contains what one critic calls "Arabist quackeries and countryside superstitions," treatments popular throughout the Middle Ages. John's work assured itself of a place in history when it became the first medical text written by an English physician to be printed, which occurred when it was set to type in 1492. This edition, dating from 1502 and printed in Venice, suggests the type of medicine practiced by John remained relevant well into the Renaissance. Although there is a modicum of truth in the treatments, most seem to be superstitious nonsense. For example, for loss of memory John prescribed the heart of a nightingale.

Andreas Vesalius, 1514-1564. *De Humani Corporis Fabrica Libri Septem.* Basel: Ioannis Oporini, 1543.

Often described as the most beautiful anatomical work ever produced, Vesalius's *Fabrica* is also perhaps the most groundbreaking. In it, this twenty-eight-year-old Flemish anatomist consciously abandoned the traditions of Galen and thus usurped his place as final authority on human anatomy for generations to come.

Born in Brussels into a family of physicians, Vesalius began his education in Louvain. From there he moved to Paris and studied under Sylvius only to return to Louvain and then finally to Padua where he received his medical degree in 1537. A few days after graduating, he was offered and accepted a professorship there in anatomy and surgery. Normal anatomy lectures of the era consisted of the professor reading passages from Galen as the relevant parts of

the body were pointed out to the students. The objective was not discovery, but confirmation. Vesalius's first several lectures were standard, but he soon realized the degree to which Galen's premises were mistaken, and he set about to correct them.

Although Vesalius was able to rectify many of Galen's errors (such as the view that the liver has five lobes or the uterus has horns), the *Fabrica* itself contains its own mistakes, perhaps due to the relatively few samples Vesalius was able to procure. It nevertheless represents a giant leap forward. The exquisite attention to every detail results in a book remarkable in several ways: in its anatomical descriptions; in the 171 beautiful woodcuts produced by Jan von Calcar; in the quality of paper and print used by Oporinus in its production; in the humorous commentary found in the subjects depicted in the block initial letters; and in the radical organization of the text by systems of the body.

It was not without cost, however, as Vesalius was publicly disputed and ridiculed. Even his former teacher Sylvius published a pamphlet refuting his findings and stating that he "poisoned the air of Europe" and should be called "Vesanus" (madman) rather than Vesalius. Sylvius even went so far as to posit that any differences Vesalius observed from Galen's anatomy were caused by changes in the human body in the intervening years. After fighting to convince the contemporary medical establishment of the validity of his claims, Vesalius retired from anatomy to serve for twenty years as royal physician first to Charles V and then to Philip II in Madrid. Upon finally returning to the anatomy theater, Vesalius performed a public autopsy on a nobleman. When he opened the man's chest, the heart was still beating, but only briefly. Vesalius fled the scandal and went on pilgrimage. Before returning home, he died from a fever after being shipwrecked.

Hans Holbein, 1497-1543. *Todtentanz. Das menschlichs Leben anders nicht dann nur ain Kauff zum Tod.* Augspurg: Formschneyder, 1544.

The *Todtentanz* (*Dance of Death*) originated in medieval Europe as an allegory of death's all-conquering power. From passion plays it evolved into visual depictions on wall murals and later in books. The Dance of Death shows people representing the hierarchy of medieval life, both clerical and secular. They are arranged starting

with the highest ranks and ending with the lowest. These figures alternate with a corpse-like figure, often playing an instrument, which leads the living by the hand to the grave. The entire procession takes the form of a chain dance. Verse appears with each living/Death pair, which gives Death's invitation to follow and the person's excuses for not doing so.

Dance of Death books reached a high point with Hans Holbein the Younger in the early 1500s. Holbein combined his artistic genius with satire to make these images both works of art and political statements.

Sir Thomas Browne, 1605-1682. *Religio Medici.* London: Andrew Crooke, 1642.

Although an eminent physician in his local Norwich community, Sir Thomas Browne attained fame not through his medical practice but through his literary efforts. *Religio Medici* was a treatise on his private struggle to reconcile faith and science, which he shared with a friend. It subsequently slipped into the hands of a printer. Browne, outraged at this "corrupted" version, felt compelled to publish it himself, and thus his reflections on nature and mortality were made public. Elegant in style, the work received high praise from such writers as Ben Jonson, but also severe criticism because in it Browne questioned Biblical authority. Through its popularity, *Religio Medici* came to the attention of the Catholic Church and was placed on the *Index Expurgatorius.* Browne represented a paradoxical mixture of medieval and modern. Although he criticized belief in magic and sorcery, his testimony at a trial helped convict two women accused of witchcraft.

The volume shown is the first published edition, the "corrupted" unauthorized version.

Gianbattista Morgagni, 1682-1771. *De Sedibus, et Causis Morborum per Anatomen Indagatis Libri Quinque.* Venice: Remondiniana, 1761.

Morgagni, who at age thirty-three became the successor to Vesalius, Fallopius, Fabricius, and Spigelius as Professor of Anatomy at Padua, laid the groundwork for pathogenesis of disease and modern clinical medicine. Prior to this work, physicians concerned themselves with imbalances of the humors and theories of mysterious forces and

mystical essences. After *De Sedibus* was published, physicians saw diseases as emanating from definite changes in some organ of the body, changes that were consistent and identifiable for a particular disease.

By correlating the symptoms and signs of disease with postmortem evidence, Morgagni turned dissections from merely the study of anatomy into the discovery of causes of disease and death.

Xavier Bichat, 1771-1802. *Investigaciones Fisiológicas sobre la Vida y la Muerte.* Madrid: Administractón del Real Arbitrio, 1806-1807.

This French anatomist and physiologist, hailed as a genius and the founder of histology, worked tirelessly during his short life. He produced nine books based on research from countless autopsies (he is reputed to have performed over 600 during one winter). He claimed that a few autopsies were more instructive than twenty years of clinical observation. Whereas Morgagni looked at organs as the ultimate unit of physiology, Bichat considered tissues to be the base unit. Without the aid of a microscope, he identified twenty-one tissues, and although he died at thirty, his work greatly increased understanding of the nature of diseases.

Among the theories in vogue during the late 1700s was the theory of "vitalism." It stated that all life is dependent on a vital force, a special energy separate from physics or chemistry that prevents decay of the body. On display is the Spanish translation of Bichat's *Recherches Physiologiques sur la Vie et la Mort.* In his *Recherches*, although based on the erroneous concept of "vitalism," Bichat discusses the role of the brain, heart, and lungs in death among the elderly.

***Regimen Sanitatis Salernitanum cum Expositione Magistri Arnodli de Villa Nova Cathellano Noviter Impressus.* Venice: Berrnadinu Veneti de Vitalibus, 1480.**

Before Gutenberg and the printing press, physicians in the West preserved the wisdom of their field much the way a bard or wandering minstrel would: they committed it to memory. *Regimen Sanitatis Salernitanum* collected the health and healing practices of the Middle Ages into a poem that could be passed from physician to physician. Believed to have originated at the medical school in Salerno around 1100 and written for an unnamed English king, the poem spread

across Europe throughout the1300s and remained relevant even after the advent of printing in the 15th century, being published more than three hundred times in Latin and various vernacular languages.

Regimen Sanitatis concerns itself primarily with the domestic, with sections devoted to sanitation, diet, and the treatment of minor conditions or injuries, increasing its value for ordinary households. The poem ends with the kind wishes:

> But here the Salerne Schoole doth make an end:
> And here I cease to write, but will not cease
> To wish you live in health and die in peace:
> And ye our Physicke rules that friendly read,
> God grant that Physicke you neue need.

The edition on display represents one of the earliest printed copies of the *Regimen*.

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I also thank you for coming to see this exhibit and allowing us the opportunity to share some of the treaures that make up the collections of the University of Michigan Libraries.

Mary Townsend
Exhibit Curator

Upcoming Exhibit:
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