

MEDICINE AND MODERNITY: 17th-20th cc.

HPS 319: Spring 2004
Tuesdays 6-8 PM at GB 119

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This course covers the history of medicine during the “age of modernity,” from the mid-17th century to the present. It will center on the so-called “Western” or “scientific” medicine and explore the interplay of medical ideas, institutions, and practices with contemporary politics, ideology, science, economics, law, technology, and society writ large.

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| January 6. | 1. Introduction. Four centuries of modernity |
| January 13. | 2. New diseases, new ideas, old practices |
| January 20. | 3. The new medical schools: Leiden, Edinburgh, and Vienna |
| January 27. | 4. Medicine institutionalized: the rise of the hospital |
| February 3 | 5. From art to science: the “laboratory” revolution |
| February 10 | 6. Scientific medicine: the “germ” revolution |
| February 16-20 Reading Week | |
| February 24 | 7. The medical profession: historical sociology of medicine. |
| March 2 | 8. Medicine and war: “epidemics of injuries” (and diseases) |
| March 9 | 9. Public health and the state: from city sewers to the WHO |
| March 16 | 10. Medicine and technology: the industrialization of medicine |
| March 23 | 11. Medicine as a business and health as a commodity |
| March 30 | 12. The doctor and the patient: between the “Hippocratic Oath” and the “Patient’s Bill of Rights” |
| April 6 | 13. Health and disease: past, present, and (possible) future(s) |

The final examination will be held during the examination period (TBA)

ORGANIZATION

The course is arranged into 12 two-hour lectures. Each lecture will be in two sections with a 10-15 minute break in between. There will be a tutorial to go with each lecture, and as many individual discussions with the instructor and tutors as students need. The tutorial sessions will discuss the weekly readings linked to the lecture topic, and will include oral presentations from the class. Written assignments will include a review (500-800 words) of a book or an article (subject to approval by the tutor) and a research essay (5-6,000 words) on the topic of student choosing (subject to approval by the tutor and the instructor).

The **grading** for the course will be distributed as follows:

Class participation	20%
Book/article review	20%
Essay	30%
Final exam	30%

The deadlines: the review must be handed in by **February 10**; the essay must be in on (or before) the last day of classes on **April 6**. Late penalty is 5 % of the mark for the assignment a day.

READINGS:

Readings are intended to supplement the lectures and give you material for thought and discussion. They are divided into “required” and “recommended.” The first you must read before each corresponding lecture, the second you can read at your leisure, if you want to know more on the topic. The required readings are available as a packet of photocopied materials, which may be purchased from the Canadian Scholars’ Press at 180 Bloor Street West, Suite 801 (Mon. -Fri. 9 am - 5 pm; tel. 416-929-2774). Be sure to bring the course name and number with you when you go to the press. Supplementary materials may also be handed out in class during the course of the semester.

WEB RESOURCES:

There are many resources for the history of medicine available on the WWW. Below are several useful links for additional reading and research.

US NATIONAL LIBRARY OF MEDICINE

<http://www.nlm.nih.gov>

BIBLIOTHÈQUE INTERUNIVERSITAIRE DE MÉDECINE: HISTOIRE DE LA MÉDECINE ET DE L'ART DENTAIRE

<http://194.254.96.19/histmed/>

HISTORY OF HEALTH SCIENCES

<http://mla-hhss.org/histlink.htm>

THE HISTORICAL MEDICAL DIGITAL LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

http://www.collphyphil.org/HMDLSubweb/indexhmdl.htm_1.htm

WELLCOME TRUST INTERNET RESOURCES FOR THE HISTORY OF MEDICINE

<http://medhist.ac.uk/>

FREE MEDICAL JOURNALS ON LINE

<http://www.freemedicaljournals.com/>

HISTORY OF BIOMEDICINE from the Karolinska Institute
<http://www.mic.ki.se/history>

Several leading journals in the history of medicine are available on-line at the UofT libraries and via Utordial:

Journal of the History of Medicine and the Allied Sciences

Bulletin of the History of Medicine

Social History of Medicine

1. INTRODUCTION: Four centuries of modernity

RECOMMENDED:

Robert E. Herzstein, Western Civilization (Boston: Houghton Mifflin Company, 1975), vol. 2. From the Seventeenth Century to the Present

LECTURE OUTLINE:

The context of time and place. The growth of capitalism, secularism, nation state, imperialism, socialism, industrialization, urbanization, consumer culture, military.

The age of revolutions: England, France, the United States, Mexico, Russia, and China. Scientific, industrial, communication, transportation, and agricultural revolutions.

The age of imperialism: the rise and fall of Spanish, Dutch, British, French, Ottoman, Russian, and Habsburg empires. Colonies and metropolis. Post-colonial world.

The age of wars: religious wars, Napoleonic wars, Crimean war, World War I, World War II, and Cold War.

Medicine in the age of modernity. Old and new diseases. Medical institutions. From art to science. Sociology of medicine. Medicine and war. Medicine, public health, and the state. Medicine and technology. Economics of medicine. The doctor and the patient. Health and disease.

Medical history versus history of medicine. Major genres of history:

- a) *biographies*: of people, ideas, diseases, treatments, technologies, institutions, professions, specialties, etc.
- b) *social histories*: place of medicine in science, technology, society, culture writ large (literature, arts, cinema, professional and popular attitudes), politics, economics, the state, the military, religion, etc.
- c) “local” and “universal” histories

2. NEW DISEASES, NEW IDEAS, OLD PRACTICES (XVII c.)

Andrew Cunningham, “Thomas Sydenham: Epidemics, experiment, and the ‘Good Old Cause’,” in Roger French and Andrew Wear, eds., The Medical Revolution of the Seventeenth Century (Cambridge University Press, 1989), pp. 164-190

Alen G. Debus, “Chemists, Physicians, and the Changing Perspective on the Scientific Revolution,” Isis, 1998, vol. 89, pp. 66-81

Norman Gevitz, “ ‘The Devil Hath Laughed at the Physicians’: Witchcraft and Medical Practice in Seventeenth-Century New England,” Journal of the History of Medicine and Allied Sciences (hereafter—JHM), 2000, vol. 55, pp. 5-36

RECOMMENDED:

R. Boyle, Memoirs for the Natural History of Humane Blood (1684). Preface
<http://www.collphyphil.org/HMDLSubweb/Pages/B/BoyleR/memhumb1PrefA8r.htm>

Nicholas Culpeper (1616-1654). The English physitian: or an astrologo-physical discourse of the vulgar herbs of this nation (London: Peter Cole, 1652).
<http://www.med.yale.edu/library/historical/culpeper/culpeper.htm>

John Westover, 1643-1706. The journal of John Westover, surgeon, 1686-1703 / edited by William G. Hall. 1992.

Andrew Wear, “Medicine in Early Modern Europe, 1500-1700,” in Lawrence I. Conrad et al., The Western Medical Tradition (Cambridge: Cambridge Univ. Press, 1995), pp. 215-362

Edward A. Eckert, “The Retreat of Plague from Central Europe, 1640–1720: A Geomedical Approach.” Bulletin for the History of Medicine (hereafter—BHM), 2000, vol. 74, pp. 1–28

2. LECTURE OUTLINE:

TIMES AND PLACES: England, France, Holland, Italy, German lands, Spain, colonies of the “New World.” The century of religious sects and religious wars. Death as a religious, not medical act.

NEW DISEASES: syphilis (great pox), smallpox, “fevers,” St. Vitus Dance, scurvy, rickets; the retreat of the plague.

NEW IDEAS: Scientific revolution: the century of scientific geniuses and institutions. A new worldview: experimental natural philosophy; search for “natural laws” and “natural systems” (classification of plants, minerals, and diseases)

Chemical Universe: Paracelsianism—chemical principles, iatrochemistry

Mechanical Universe: Galileo: “The Book of Nature is written in the language of geometry.” Body as a machine. Iatromechanics.

Microscope: microanatomy, preformism, spontaneous generation.

Of Air And Blood. Animal and human experiments. Measurement and quantification.

OLD PRACTICES: Licensed healers: physician, surgeons, apothecaries. Religious healers: priests, icons, relics, shrines. Unlicensed healers: wise-women, astrologers, herbalists, uroscopists, empirics, lithotomists, tooth-drawers, traveling salesmen of panaceas. Women healers: Midwives, nurses, and witches. Physicians’ attacks on women healers.

Therapeutic armamentarium: prayer, exorcism, magical words and objects, religious relics, bloodletting, diet, emetics, cathartics, stimulants (alcohol, opium). Herbs, minerals, metals (mercury, antimony), animal products. New remedies: “Jesuit’s bark” (Peruvian bark), citrus fruits.

Encyclopedias of medicinal plants. Books of remedies. Self-Help Manuals.

The State and Medicine: Court physicians and city physicians. Bills of Death: statistics, “demography,” and “Searchers of the dead.” Forensic medicine. Military medicine.

3. THE NEW MEDICAL SCHOOLS IN XVII AND XVIII cc.: LEYDEN, EDINBURGH, AND VIENNA

Andrew Cunningham, “Medicine to calm the mind: Boerhaave’s medical system and why it was adopted in Edinburgh,” in Andrew Cunningham and Roger French, eds., The medical enlightenment of the eighteenth century (Cambridge: Cambridge University Press, 1990), pp. 67-87

Harold J. Cook, “Boerhaave and the Flight from Reason in Medicine,” BHM, 2000, vol. 74, pp. 221–240

RECOMMENDED:

Lady Mary Wrotley Montagu (1716-1718), “Inoculation Against Smallpox,” from S. Rappoport and H. Wright, eds., Great Adventures in Medicine (New York: The Dial Press, 1952), pp. 165-166

Modern History Sourcebook:

Edward Jenner (1749-1823): Three Original Publications On Vaccination Against Smallpox, 1798

<http://www.fordham.edu/cgi-bin/getdoc.cgi?236052,11863>

R. G. Anderson and A. D. C. Simpson, eds., The Early Years of the Edinburgh Medical School (Edinburgh: Royal Scottish Museum, 1976)

Lisa M. Rosner, Medical Education in the Age of Improvement: Edinburgh Students and Apprentices, 1760-1826 (Edinburgh: Edinburgh University Press, 1991)

Andrew Cunningham and Roger French, eds., The Medical Enlightenment of the Eighteenth Century (Cambridge: Cambridge University Press, 1990)

3. LECTURE OUTLINE:

Times and Places: Holland, the United Kingdom of England and Scotland, German lands (Prussia, Austria), France, the Americas, Russia. The growth of trade capitalism.

The Enlightenment: “The world was created by God in number, weight, and measure and built in order, structure, and relation.”

TEACHING MEDICINE: Leiden—Herman Boerhaave and his pupils.

Five institutes: 1) the elements of nature and the natural functions of the body; 2) pathology; 3) signs (symptoms); 4) hygiene; 5) therapeutics. **Three pedagogical principles**: 1) physicians should learn at the bed-side (clinical education); 2) combine therapy and surgery; 3) theory of medicine should be based on science

(chemistry and physics). The most important questions are WHAT and HOW, not WHY. Disease, not the patient, is the subject of medical intervention.
St. Petersburg (1714), **Edinburgh** (1726), **Göttingen** (1737), **Vienna** (1753), **Philadelphia** (1765). Old universities: Oxbridge, Paris, Padua, Montpellier.
VITALISM: there is more to life than mechanism! **ORGANISM!** Georg Stahl (1660-1734), Albrecht von Haller (1708-77), Francois Boissier de Sauvages (1706-67)
SCIENCE: The century of chemistry and electricity. Quantifications. Classification (*Nosologia*). Physiology/animal oeconomy: digestion and respiration, “animal electricity.” **Pathological or morbid anatomy.**
MEDICINE AND THE STATE: Vital and medical statistics. Medical police in German lands and Russia, British poor laws. Military medicine.
SMALL-POX: “in-grafting,” inoculations, variolations.
POPULAR MEDICINE: William Buchan *Domestic Medicine* (1769)

4. MEDICINE INSTITUTIONALIZED: THE RISE OF THE HOSPITAL

Ivan Waddington, “The Role of the Hospital in the Development of Modern Medicine: A Sociological Analysis,” *Sociology*, 1973, vol. 7, pp. 211-224

I. S. L. Loudon, “The Origins and Growth of the Dispensary Movement in England,” *BHM*, 1981, vol. 55, pp. 322-342

Charles Rosenberg, “Introduction,” in idem, *The Care of Strangers: The Rise of America’s Hospital System* (New York: Basic Books, 1987), pp. 3-11

RECOMMENDED:

Owsei Temkin, “The Role of Surgery in the Rise of Modern Medical Thought,” idem, *The Double Face of Janus* (Baltimore: John Hopkins University Press, 1977), pp. 487-496

John Frangos, *From Housing the Poor to Healing the Sick: The Changing Institution of Paris Hospitals under the Old Regime and Revolution* (Madison: Fairleigh Dickinson University Press; London: Associated University Presses, 1997)

Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception* (New York: Pantheon, 1973)

Steven Cherry, *Medical Services and the Hospitals in Britain, 1860-1939* (Cambridge: Cambridge University Press, 1996)

Charles Rosenberg, *The Care of Strangers: The Rise of America’s Hospital System* (New York: Basic Books, 1987)

4. LECTURE OUTLINE:

Times and Places: The French revolution (1789-1815). “Declaration of the Rights of man and the Citizen.” “The Civil Constitution of the Clergy” (1791). Napoleonic

reforms and wars. The secular state. Hospitals as state institutions; doctors as state employees and members of state bureaucracies.

The New Hospital (French) Medicine: 1. Development of diagnostic techniques; 2. Localism of pathological anatomy; 3. Numerical approach to disease and therapeutics; 4. Therapeutic nihilism; 5. Patient-doctor relations; 6. Medical education.

Diagnostics: instead of listening to patients complaints, doctors *examined* them, finding for themselves what was wrong with their charges. Leopold Auenbrugger—percussion; Rene-Theophile-Hyacinthe Laennec—stethoscope. The legacy of the new diagnostic techniques: 1. made “visible” hidden anatomical “causes” of disease and pathological changes in internal organs in the living (as opposed to postmortem); 2. linked symptoms with organs and their changes; 3. linked clinic and anatomy.

The anatomy of disease: from organs to tissues—Marie Francois Xavier Bichat

Numerical medicine: Pierre Charles Alexandre Louis—medical statistics and “epidemiology.” Therapeutic nihilism: “statistically, nothing works.”

Patient-doctor relations: the power of doctors and the power of the state.

Medical training: 1. unification of medicine and surgery; 2. practical teaching in the hospitals; 3. scientific education, including natural history, chemistry, physics, mathematics, pharmacy; 4. recruitment of deserving students; 5. internships and externships in the hospital.

5. FROM ART TO SCIENCE: THE “LABORATORY” REVOLUTION

L. S. Jacyna, “ ‘A Host of Experienced Microscopists’: The Establishment of Histology in Nineteenth-Century Edinburgh,” BHM, 2001, vol. 75, pp. 225 –253

Charles R. R. Hayter, “The Clinic as Laboratory: The Case of Radiation Therapy, 1896-1920,” BHM, 1998, vol. 72, pp. 663-688

RECOMMENDED:

Claude Bernard, An Introduction to the Study of Experimental Medicine (New York: Dover Publications, 1957)

Andrew Cunningham and Perry Williams, eds., The Laboratory Revolution in Medicine (Cambridge: Cambridge Univ. Press, 1992)

W. F. Bynum, Science and the practice of medicine in the nineteenth century (Cambridge: Cambridge University Press, 1994)

5. LECTURE OUTLINE:

Times and Places: German states as the center of science in the mid-19th c.

Wissenschaft—systematic study of everything.

Differentiation of medical “spaces”: patient’s home, doctor’s office, university, hospital, morgue, laboratory!

“Medical” sciences: pharmacology/“animal” chemistry/physiological chemistry; physiology; histology; embryology; cytology; pathology.

“Animal” chemistry—Justus von Liebig (1803-1873)

Physiology—Johannes Muller (1800-1858) and Karl Ludwig (1816-1895)

Histology—Rudolf von Kolliker (1817-1905)

Embryology—Carl von Baer (1792-1876)

Cytology—Matthias Schleiden (1804-81) and Theodor Schwann (1810-1882)

Pathology—Carl Rokitansky (1804-1878) and Rudolf Virchow (1821–1902)

Cellular Pathology—*Omnis cellula a cellula*—each cell [originates] from a cell.

Principles of cellular pathology: 1. All diseases are the result of either active or passive disturbances of living cells. 2. Cells carry out their functions as a result of physical and chemical processes occurring within them and the microscope can reveal some of these processes. 3. Abnormalities of structure are degenerations, transformations, or repetitions of normal structures

2. France: clinical versus experimental medicine

Francois Magendie (1783-1855)—pharmacology and physiology

Claude Bernard (1813-78)—*An Introduction to the Study of Experimental medicine* (1865)

Hospital or clinical medicine is limited by: 1) passive observations of lesions which had nothing to say about causality of these lesions (disease); 2) too many variables to permit rigorous understanding (to say nothing of therapy); 3) observable lesions are the end stage of a disease, and it is necessary to understand its dynamics—its pathophysiology—to uncover rational therapeutics.

Experimental medicine overcomes the shortcomings of clinical medicine: 1) by producing experimentally the diseases under study; 2) by minimizing the variability and controlling all possible conditions; 3) by examination of the normal and then altered functions that produced the disease.

Principles of experimental medicine: 1) no pathology without physiology; 2) no pharmacology [rational (scientific) therapeutic] without physiology and pathology; 3) physiology, pathology, and pharmacology are the pillars of medicine (and each of them is a **laboratory science!**).

Laboratory as a collective enterprise of producing knowledge: students/assistants, subjects, instruments, methods, results, journals, societies, professional meetings.

6. SCIENTIFIC MEDICINE: THE “GERM” REVOLUTION

Owsei Temkin, “An Historical Analysis of the Concept of Infection” in idem, Double Face of Janus, pp. 465-471

Mariko Ogawa, “Uneasy Bedfellows: Science and Politics in the Refutation of Koch’s Bacterial Theory of Cholera,” BHM, 2000, vol. 74, pp. 671–707

John Parascondola, “The Introduction of Antibiotics into Therapeutics,” in J. W. Levitt and R. L. Numbers, eds., Sickness and health in America (The University of Wisconsin Press, 1997), pp.102-112

RECOMMENDED:

Paul de Kruif, Microbe Hunters (any edition)

Louis Pasteur (1822-1895): *Germ Theory and Its Applications to Medicine and Surgery*, 1878

<http://www.fordham.edu/cgi-bin/getdoc.cgi?236052,11989>

Louis Pasteur (1822-1894): *Extension Of The Germ Theory*, 1880

<http://www.fordham.edu/halsall/mod/1880pasteur-germ.html>

Joseph Lister (1827-1912): *Antiseptic Principle Of The Practice Of Surgery*, 1867

<http://www.fordham.edu/halsall/mod/1867lister.html>

Erwin Ackerknecht, "Anti-Contagionism between 1821 and 1867," *BHM*, 1948, vol. 22, pp. 562-593

Jerry L. Gaw, "A time to heal": the diffusion of Listerism in Victorian Britain (Philadelphia: American Philosophical Society, 1999) (Transactions of the American Philosophical Society, v. 89)

6. LECTURE OUTLINE:

Times and Places: France and Germany: Franco-Prussian war, 1870-71. The cholera epidemics of the 19th century. TB, dysentery, diphtheria, syphilis. The laboratory settings.

Louis Pasteur (1822-95): from crystallography to putrefaction and fermentation. Debates on the "self-generation" of life.

The "germ theory": 1. The world (air, soil, etc.) is full of "germs"; 2. "Germs" are responsible for apparent "self-generation," fermentation, and putrefaction; 3. "Germs" are the cause of disease! "Diseases" of wine (1863) and beer (1876); diseases of silk-worms (1870); "Germ Theory and Its Applications to Medicine and Surgery" (1878); experiments with chicken cholera (1879); "On Extension of The Germ Theory to the Etiology of Certain Common Diseases" (1880); the first artificial vaccine against anthrax (1881); rabies vaccine (1885); the Pasteur Institute (1888)

Robert Koch (1843-1910): from military doctor to laboratory researcher. Anthrax bacillus (1877); TB bacillus (1882); cholera bacillus (1883-84); Institute for Infectious Diseases (1890). Technical innovations: solid media for bacterial cultures (potato-slices, gelatin, agar-agar); Petri dish; staining techniques; photo-microscopy.

Koch's postulates: 1. The microorganism must be shown to be constantly present in characteristic form and arrangement in the diseased tissue; 2. The organism must be isolated and grown in pure culture; 3. The pure culture must be shown to induce disease experimentally; 4. The organism must be retrieved from experimentally infected animal and cultivated anew.

Troubles with the postulates: 1. not the microorganism, but its toxins may be responsible for the disease, hence you can't find the microorganism constantly present in the diseased tissue (auto-intoxication, focal infections); 2. microorganism cannot be cultivated in the lab (leprosy); 3. pure culture could not

induce disease in experimental animals (cholera); 4. microorganism could be present, but disease is not manifested (healthy carriers); 5. viruses

Consequences of the “germ theory”: Germ theory enthusiasm: all diseases are caused by “germs” Antiseptic (and aseptic) surgery: **Joseph Lister** (1827-1912)
Vaccination against all diseases: the case of tuberculin

Immunity: “non-specific”—**I’ia Mechnikov** (1845-1916) and “specific”—**Paul Ehrlich** (1854-1915). Serum-therapy (anti-toxins): **Emil von Behring** (1854-1917); **Émile Roux** (1853-1933)

Chemotherapy: salvarsan, sulfa-drugs, and antibiotics

7. THE MEDICAL PROFESSION: HISTORICAL SOCIOLOGY OF MEDICINE.

Bernice Hamilton, “The Medical Profession in the Eighteenth Century,” The Economic History Review, 1951, vol. 4, pp. 141-169

George Weisz, “The Emergence of Medical Specialization in the Nineteenth Century,” BHM, 2003, vol. 77, pp. 536–575

Nancy Frieden, “Physicians in Pre-Revolutionary Russia: Professionals or Servants of the State,” BHM, 1975, vol. 49, pp. 200-229

RECOMMENDED:

Thomas Broman, “Rethinking Professionalization: Theory, Practice, and Professional Ideology in Eighteenth Century German Medicine,” Journal of Modern History, 1995, vol. 67, pp. 835-872

Paul Starr, The Social Transformation of American Medicine (Basic Books, 1982), Ch. 1, “Medicine in a Democratic Culture, 1760-1850,” pp. 30-60

George Weisz, “Medical Directories and Medical Specialization in France, Britain, and the United States,” BHM, 1997, vol. 71, pp. 23-68

Matthew Ramsey, Professional and Popular Medicine in France: The Social World of Medical Practice (Cambridge: Cambridge Univ. Press, 1987)

7. LECTURE OUTLINE:

Sociology: the science of society. Social structures (groups) and relations among them. Sociological trends of modernity: quantitative (numbers) and qualitative (relations). Medicine as a part of society: “medical” groups (providers and users) and relations of authority.

I. **PROFESSIONALIZATION** (as a historical process): profession as an occupation; profession as a social group.

Origins of the medical profession in *Antiquity*. The “learned profession” of the *Middle Ages*. The *early modern period*: royal patronage. The hierarchy of licensed practitioners: physician, surgeon, apothecary (division of labor). Professional organizations: guilds, faculties, colleges, companies. The “irregular” (unlicensed) healers: midwives, nurses, herbalists, bone-setters, religious healers, etc. The

Enlightenment: market and the state began to challenge the existing professional structures.

National trajectories in professionalization: France, Britain, and the United States.

International trends in professionalization: struggle for autonomy and authority; expanding the boundaries of professional authority (medicalization of birth, life, and death).

Professional authority=control=power: 1. cultural authority: through claim to special knowledge; 2. social authority: through institutions (e.g. mental asylum), existing hierarchies (e.g. nurses, soldiers), gate-keeping (e.g. access to profession's knowledge and its derivatives such as drugs, prosthetics, technologies), alliances with other power-houses (e.g. church, state, science, business, media, etc.). "Translation" of authority into social privilege, economic power, and political influence.

Challenges to professional authority: domestic medicine, popular medicine, and "alternative" medicines: *homeopathy* (Samuel Hahnemann, 1755-1843); *osteopathy* (Andrew Taylor Still, 1828-1917)

II. SPECIALIZATION (aka differentiation): 1) by the "nature" of disease: infectious, mental, chronic, acute, hereditary, dietary, etc. 2) by the localization of disease: a) internal and external; b) organs: ophthalmology, urology, cardiology, etc.; 3) by patients' groups: men, women, children, elderly, professional groups (athletes, pilots, etc.); 4) by associated behavioral patterns: venerology, narcology; 5) by associated technology: anesthesiology, radiology, etc.

Specialization is affected by: 1. Market forces: supply and demand, competition and cooperation; 2. State regulations: economic and political interests (military, colonial/tropical, forensic, occupational medicine, and public health); 3. Technological innovations: available technology and associated skills; 4. Institutional differentiations: specialized hospitals and clinics (mental, oculist, venereal, birth, etc.); 5. Professional interests: unification versus specialization.

8. MEDICINE AND WAR: 'EPIDEMICS OF INJURIES' (AND DISEASES)

Martin R Howard, "Walcheren 1809: A medical catastrophe," British Medical Journal, Dec 18-Dec 25, 1999, vol. 319, pp. 1642-45

Vincent J. Cirillo, "Fever and Reform: The Typhoid Epidemic in the Spanish-American War," JHM, 2000, vol. 55, pp. 363-397

Anne Hardy, "'Straight Back to Barbarism': Antityphoid Inoculation and the Great War, 1914," BHM, 2000, vol. 74, pp. 265-290

RECOMMENDED:

Derek S. Linton, "Was Typhoid Inoculation Safe and Effective during World War I? Debates within German Military Medicine," JHM, 2000, vol. 55, pp. 101-133

Kim Pelis, "Taking Credit: The Canadian Army Medical Corps and the British Conversion to Blood Transfusion in WWI," JHM, 2001, vol. 56, p. 238-277

Martin R. Howard, Wellington's doctors: the British Army Medical Services in the Napoleonic wars (Staplehurst: Spellmount, 2002)

John Shepherd, The Crimean Doctors (Liverpool Univ. Press, 1991), vol. 1-2

George Worthington Adams, Doctors in blue: the medical history of the Union Army in the Civil War (Baton Rouge; London: Louisiana State University Press, 1996)

8. LECTURE OUTLINE:

The “father” of military medicine/surgery: Ambroise Pare (1510-1590)

Militarization in the age of modernity: standing army and navy (Cromwell, 1645); organization of medical services in the military: the Commission for the Sick and Wounded; regimental surgeons and military hospitals.

Revolutionary/Napoleonic wars (1789-1814) and army medical schools: “Val de Grâce”—French military-medical school—Paris, 1789; “Josephinum”—Austrian Military Medical Academy—Vienna, 1789; “La Pépinière”—Prussian military medical school—Berlin, 1795; Russian Military-Medical Academy—St. Petersburg, 1798.

Crimean war (1854-1856): British, French, Sardinian, Turkish, and Russian armies. Anesthesia, triage, nurses. Nikolai Pirogov (1810-1881) and Florence Nightingale (1820-1910). Losses from wounds versus losses from diseases. Lessons of the war: the Royal Army Medical School—Fort Pitt, England, 1860. “Principles of military medicine” (1864).

Red Cross: Jean-Henry Dunant (1828-1911); “A memory of Solferino” (1862); diplomatic representatives from 17 nations agreed on the first Geneva convention (August 1864), which 12 of the nations signed outright.

World War I (1914-1918): antiseptic and aseptic surgery, vaccinations, blood transfusions, X-ray diagnostics. Influenza pandemic, 1918.

World War II (1939-1945): blood transfusion services; antibiotics—Alexander Fleming (1929), Howard Florey (1939-40), inter-Allied cooperation in the production of antibiotics (1941-44).

Cold War (1946-1991): weapons of mass destruction (atomic, chemical, and biological). **Particularities of military medicine:** injuries/trauma, shock, infectious diseases, soldiers as patients.

9. PUBLIC HEALTH AND THE STATE: FROM CITY SEWERS TO THE WHO

John Eyler, “Mortality Statistics and Victorian Health Policy: Program and Criticism,” BHM, 1976, vol. 50, pp. 335-355

Ann F. La Berge, “The Early 19th century French Public Health Movement: The Disciplinary Development and Institutionalization of Hygiene Publique,” BHM, 1984, vol. 58, pp. 363-379

Nancy Tomes, “The Private Side of Public Health: Sanitary Science, Domestic Hygiene, and the Germ Theory, 1870-1900,” in J. W. Leavitt and R. L. Numbers, eds., Sickness

and Health in America (Madison: University of Wisconsin Press, 1987), 3d ed., pp. 506-528

Judith W. Leavitt, “ ‘Typhoid Mary’ Strikes Back: Bacteriological Theory and Practice in Early 20th Century Public Health,” in J. W. Leavitt and R. L. Numbers, eds., Sickness and Health in America (Madison: University of Wisconsin Press, 1987), 3d ed., pp. 555-572

RECOMMENDED:

Johan Peter Frank, “The civil administrator, most successful physician,” (1784), translated by Jean Captain Sabine, BHM, 1944, vol. 16, pp. 289-318

Max von Pettenkofer, The Value of Health to A City: Two Popular Lectures. Translated with an introduction by Henry E. Sigerist (Baltimore: Johns Hopkins University Press, 1941), pp 15-52

George Rosen, From Medical Police to Social Medicine (New York: Science History Publications, 1974)

Richard J. Evans, Death in Hamburg: Society and Politics in the Cholera Years, 1830-1910 (Oxford: Oxford Univ. Press, 1987)

WHO HISTORIES:

<http://www.who.int/library/historical/access/international/index.en.shtml>

9. LECTURE OUTLINE:

Pre-history: Disease and prevention; Hygeia, the Black Death, and Quarantine.

“Leviathan-State”: Bills of mortality and “political arithmetic”—Tomas Hobbes’s *Leviathan* (1651), John Graunt (1620-1674), and William Petty (1623-1687).

Occupational diseases: Bernardino Ramazzini (1633-1714), *De Morbis Artificum Diatriba* (1700)

Medical police: Johan Peter Frank (1745-1821), *The complete system of medical police*. 10 vols. (1779-1817). “Poverty is a mother of all diseases”

Health councils and Public Hygiene (*Revolutionary France*): “Conseil de Salubrité” and “d’hygiène publique”; Louis-Rene Villermé (1782-1863) and Alexandre Parent-Duchatelet (1790-1836)

Industrial Revolution: Industrialization, Urbanization, and Proletariat in Britain. The sanitary (reform) movement vs. radical social movements; Edwin Chadwick’s “Report on the Sanitary Condition of the Labouring Poor” vs. Frederick Engels’s “The Condition of the Working Class in England”

Spirit of 1848: Cholera pandemic; uprisings (revolutions) in Berlin, Paris, Vienna, Palermo, Milan, Naples, Parma, Rome, Warsaw, Prague, and Budapest

Britain: John Simon (1816-1904)—the first Medical Officer of Health for the City of London; John Snow (1813-1858) and the cholera epidemics of 1854 (“The Broad Street Pump”); William Farr (1807-1883) and the General Register Office.
Epidemiology

Germany: Rudolf Virchow (1821-1902)—politics of public health, “*Medicinishe Reform*.” “Public Health is a Social Science and Politics is Public Health in its most Profound Sense”; Max von Pettenkofer (1818-1901)—hygiene as a laboratory science, economics of public health, “*The value of health to the city*” (1873)

State powers vs. individual liberties: Vaccination acts and anti-vaccination movements, Britain, 1840-98); laws—political acts extending government powers onto traditional civil liberties in the name of public health

The “Germ Theory” and Public Health: specific “germs” not “miasmas”; airborne and waterborne diseases; disease vectors—insects, domestic and wild animals, humans (the secret of malaria: Ronald Ross (1857-1932); “Healthy carriers” (“Typhoid Mary”); public health (disease) campaigns—prevention through education, screening, and eradication; legitimization of state’s intervention in public health

Public Health on International Scene: Imperialism and “Public” health (colonies, armies, international trade); International sanitary treaties (shipping, mail, etc.), International sanitary congresses (1851-1907), International public health organizations: *Pan American Sanitary Bureau* (PASB) (Washington DC, 1903); *Office International D’hygiène Publique* (OIHP) (Paris, 1907); *International Health Board* (IHB) of the Rockefeller Foundation (New York, 1913); *League of Nations Health Organization* (LNHO) (Geneva, 1921); *World Health Organization* (WHO) (Geneva, 1948)

Public Health, Medicine, and the State: Public health as an instrument of social control and power (domestically and internationally); Public health as a professional niche; Public health as a field of *alliance* between medical profession and the state (shared power and mutual legitimization)

10. MEDICINE AND TECHNOLOGY: THE INDUSTRIALIZATION OF MEDICINE

Stanley J. Reiser, Medicine and the reign of technology (Cambridge University Press, 1978), ch. 4, “The Microscope and the revelation of a cellular universe,” pp. 69-90

Christopher Lawrence, “Incommunicable Knowledge: Science, Technology and the Clinical Art in Britain, 1850-1914,” Journal of Contemporary History, 1985, vol. 20, pp. 503-520

“Introduction” in Kirk Jeffrey, Machines in Our Hearts: The Cardiac Pacemaker, the Implantable Defibrillator, and American Health Care (Baltimore: John Hopkins University Press, 2001)

RECOMMENDED:

Stanley J. Reiser, Medicine and the reign of technology (Cambridge University Press, 1978)

Hamilton Cravens, Alan I. Marcus, and David M. Katzman, eds., Technical Knowledge in American Culture: Science, Technology, and Medicine Since the Early 1800s (Tuscaloosa; London: University of Alabama Press, 1996)

Christiane Sinding, “Making the Unit of Insulin: Standards, Clinical Work, and Industry, 1920–1925,” BHM, 2002, vol. 76, pp. 231 –270

Joseph Bronzino, Vincent Smith, and Maurice Wade, Medical Technology and Society: An Interdisciplinary Perspective (Cambridge, MA: MIT Press, 1990)

Kirk Jeffrey, Machines in Our Hearts: The Cardiac Pacemaker, the Implantable Defibrillator, and American Health Care (Baltimore: John Hopkins University Press, 2001)

“Artificial Heart”

www.asme.org/eyewitness/heart

This site offers a fascinating history of the development of “artificial heart” technology

“A Brief History of Electrocardiography”

www.ecglibrary.com/ecghistory

10. LECTURE OUTLINE:

Medical technologies: “*diagnostics*,” “*treatment*,” “*prevention*,” and “*health maintenance*” technologies.

“**Diagnostics**” (detection) technologies:

- a) *extension of senses*: **vision**—microscope, ophthalmoscope, x-ray machine, CAT-scan, ultra-sound-scan, etc.; **hearing**—stethoscope; **touch**—thermometer;
- b) *supplement to senses*: chemical analysis (of bodily fluids and tissues); physical analysis (sphygmomanometer, electrocardiography, electroencephalography); serological and bacteriological analysis; cytological analysis; genetic screening, etc.

“**Treatment**” technologies:

- 1) *surgical*: instruments (scalpels, scissors, needles, catgut, syringe, etc.); anesthesia (ether, chloroform, nitrous dioxide, barbiturates, Novocain, etc.); heart-and-lung machine; angioplasty; blood transfusions; heart, kidney, and liver transplantation; monitors of vital functions (blood pressure, pulse, breathing, temperature), etc;
- 2) *therapeutical*: arresting therapies: x-rays, radium, UHF; corrective therapies: dialysis (“artificial kidney”), oxygen, vitamins, hormones and their suppressants (antihistamine); curative therapies: sera, sulfa-drugs, anti-malarial, antibiotics, etc.; symptomatic therapies: painkillers, sleeping pills, blood pressure drugs, etc.

The story of syringe: Charles Gabriel Pravaz (1791-1853) and Alexander Wood (1817-1884). The scalpel.

“**Health maintenance**” technologies:

- 1) *Corrective*: eyeglasses, contact lenses, laser vision correction, hearing aids, prosthetics (artificial organs—cyborgs), orthopedics, plastic surgery (liposuction, breast implants, etc.), diets (food supplements--vitamins, fiber, and minerals);

2) *Reproductive*: sterilization, birth-control (condoms, the pill), in-vitro fertilization, sperm and egg donors (banks), host-mothers, cloning, genetics screening, ultrasound scan, incubator.

“Components” of Technology: R&D (research and/or development), STANDARDIZATION, MANUFACTURING, DISTRIBUTION, and USE.

Diagnostics of TB: from microscope to the Pirquet test

Vaccine production: **I.** Cultivation of the microorganism; **II.** Killing (or attenuating) the microorganism; **III.** Standardization of the vaccine; **IV.** Administration of the vaccine; **V.** Large-scale (industrial) production. Sera production.

“Heart Electricity”: from galvanometer to electrocardiograph and from inductor to defibrillator and pacemaker. Willem Einthoven (1860–1927).

Dissemination and use of technologies: 1) personnel (teaching); 2) uniformity of use (local and international standards): a) uniformity of instruments; b) uniformity of data (conventions); c) uniformity of procedures

Cycles of standardization: thermometer.

Technology’s pro and contra: resistance and demands by doctors and patients.

11. MEDICINE AS A BUSINESS AND HEALTH AS A COMMODITY

Samuel H. Adams (1905), “Peruna and the Bracers,” from S. Rappoport and H. Wright, eds., Great Adventures in Medicine (New York: The Dial Press, 1952), pp. 480-489

Roy Porter and Dorothy Porter, “The Rise of the English Drug Industry: The Role of Thomas Corbyn,” in J. Liebenau et. al., eds., Pill Peddlers (Madison: American Institute of the History of Pharmacy, 1990), pp. 2-27

Timothy Alborn, “Insurance against Germ Theory: Commerce and Conservatism in Late-Victorian Medicine,” BHM, 2001, vol. 75, pp. 406–445

Charles C. Mann and Mark L. Plummer, The Aspirin Wars: Money, Medicine and 100 Years of Rampant Competition (New York: Knopf, 1991), pp. 3-11

RECOMMENDED:

Paul Starr, The Social Transformation of American Medicine (Basic Books, 1982), Book II, Ch. 5, “The Coming of the Corporation,” pp. 420-449

Charles C. Mann and Mark L. Plummer, The Aspirin Wars: Money, Medicine and 100 Years of Rampant Competition (New York: Knopf, 1991)

J. Liebenau, G. J. Higby, and E. C. Stroud, eds., Pill Peddlers (Madison: American Institute of the History of Pharmacy, 1990)

“MEDICINE AND MADISON AVENUE”

<http://SCRIPTORIUM.LIB.DUKE.EDU/MMA/>

This site provides a wealth of information on the relation between advertising industry and medicine

11. LECTURE OUTLINE:

Economic categories: supply and demand, cost (direct and indirect) and price, investment and profit, goods and services, markets (advertising) and management, competition and monopoly, cost-effectiveness and cost-benefit analysis, providers and consumers—individuals and corporations.

17th and 18th cc. Doctor—patient contractual relations: “fee for service,” price of doctor’s visit, treatments, and medicines. Three groups of “regular” medical practitioners (physician, surgeon, apothecary): their numbers and their fees. “Irregular practitioners”: their numbers and their fees.

First half of 19th c. Rise of the hospital: serving the poor (funding—church, charity, state, self-funding). Growth of the state, colonialism, industrialization, and capitalism—new economic niches for medical profession: military, plantation, and “company” doctor (rail-roads, mines, factories); “salaries” and “fees.” Rise of the (urban) middle class as a major consumer of private medical services.

Second half of 19th-beginning of 20th cc. Hospitals serving everybody and charging fees for services, accommodations, technologies, and medicines. Rise of the nursing profession and specialization. Growth of medical technologies: costs of diagnosis, treatment, prevention, “health maintenance,” and medicines.

Medicines: Rise of patent (or proprietary) medicines; supply and demand; marketing and advertising—targeting specific groups (age, sex, occupational and behavioral). State regulation: US Food and Drug Administration (FDA, 1906). Rise of pharmaceutical industry and pharmaceutical business: prescription vs. generic drugs; vitamins and food supplements industries.

Patient costs and options: self-medication, direct payment vs. “third party” payments; friendly societies, union/employer coverage, health insurance (private, state-national, a combo) and health benefits. Medical insurance in Canada.

12. THE DOCTOR AND THE PATIENT: FROM THE “HIPPOCRATIC OATH” TO THE “BILL OF PATIENT’S RIGHTS”

“THE OATH” in Hippocrates, Works (translated by Francis Adams)
<http://etext.library.adelaide.edu.au/h/h7w/oath.html>

G. Annas, “A National Bill of Patient’s Rights,” New England Journal of Medicine, 1998, vol. 338 (10), pp. 695-699

Paul Starr, “Health and the right to privacy,” American Journal of Law and Medicine; 1999; vol. 25, pp. 193-201

RECOMMENDED:

Thomas Percival, Medical Jurisprudence; or, A Code of Ethics and Institutes Adapted to the Professions of Physic and Surgery (1794).
<http://www.collphyphil.org/HMDLSubweb/Pages/P/PercivalT/medjurPgAccess.htm>

History of US Patients' Bill of Rights passage through Congress and Senate
<http://democrats.senate.gov/pbr/history.html>

Edward Shorter, Bedside Manners: The Troubled History of Doctors and Patients (New York: Simon and Schuster, 1985)

Gary S. Belkin, "Brain Death and the Historical Understanding of Bioethics," JHM, 2003, vol. 58, pp. 325-361

12. LECTURE OUTLINE:

Human relations. Laws of god(s) and laws of the land. Contracts. Ethics and etiquette.
Codes of ethics: prayers, oaths, creeds, directives, rules, and statements. Ten commandments. Virtue and vice. Ethics and law. Secularization and modernity.

I. The Doctor (Medical codes):

Traditional societies: Charaka Samhita. The Hippocratic Oath. The Oath of Asaf. The Daily Prayer of a Physician. God's authority and personal honor.

18-19th cc.: The Oath of the Medical Society of the State of New York (1807). Thomas Percival (1740-1804): *Medical Jurisprudence; or, A Code of Ethics and Institutes Adapted to the Professions of Physic and Surgery* (1794). *Medical Ethics* (1803); "Code of Ethics of the American Medical Association" (1847). Corporate rules and professional ethics.

20th c.: "Nuremberg Code" (1947); "Declaration of Geneva" (1948); "World Medical Association International Code of Medical Ethics" (1949); "Declaration of Helsinki" (1964); "Religious Directives for Catholic Church Health Facilities" (4th ed. 2001); "(Vatican) Instruction on Respect for Human Life" (1987). Research on human subjects.

II. The Patient: Patients rights and duties. Consumer movements. Breach of contract versus breach of trust. "Patient's Bill of Rights" (1973, rev. 1992). "A National Bill of Patient's Rights" (2001).

III. The doctor and the patient: Inequality of status and knowledge. Mediators of the relationship: institutions, the state, technology, society writ large (politics, ideology, economics, culture, media, religion), and disease.

13. HEALTH AND DISEASE: PAST, PRESENT, AND (POSSIBLE) FUTURE(S)

Owsei Temkin, "Health and Disease," in idem, The Double Face of Janus and Other Essays in the History of Medicine (Baltimore: Johns Hopkins University Press, 1977), pp. 419-40

Owsei Temkin, "The Scientific Approach to Disease: Specific Entity and Individual Sickness," in ibid, pp. 441-55

Charles E. Rosenberg, "Framing Disease: Illness, Society, and History," in idem, Explaining Epidemics and Other Studies in the History of Medicine (Cambridge: Cambridge University Press, 1992), pp. 305-318

John C. Waller, 'The Illusion of an Explanation': The Concept of Hereditary Disease, 1770–1870," JHM, 2003, vol. 57, pp. 410-448

RECOMMENDED:

Susan Sontag, "Illness as a Metaphor" and "AIDS and Its Metaphors" (New York: Anchor Books, 1989)

Andrew Cunningham, "Transforming Plague: The Laboratory and the Identity of Infectious Disease," in Andrew Cunningham and Perry Williams, eds., The Laboratory Revolution in Medicine (Cambridge: Cambridge Univ. Press, 1992), pp. 209-244.

Charles E. Rosenberg, Explaining Epidemics and Other Studies in the History of Medicine (Cambridge University Press, 1992)

Terence Ranger and Paul Slack, eds., Epidemics and Ideas. Essays on the Historical Perception of Pestilence (Cambridge University Press, 1992)

13. LECTURE OUTLINE:

What's in a name? Construction of health and disease: disease as personal affliction and specific (ontological) entity; symptoms and lesions; causality, localization, classification. Diagnosis, prognosis, and treatment.

"Causes" of disease: 1) "Biological": *Internal*—"misbalance of humors" (metabolism), "heredity" (race, constitution, genes); *External*—"miasma" (environment), macrocosm (stars, magnetic storms, etc.), contagion (parasites, "germs"), diet. 2) "Social": gods, occupation, "crowds," "lack of civilization" (housing, sanitation, water supply), "deviant" behavior, malnutrition, income.

Localization of disease: body, spirit, organs, tissues, cells, chromosomes, molecules. Reductionism.

Classification of disease by: cause, locale, sex, age, longevity, symptoms, social "norm."

The story of Dawn syndrome and sickle-cell anemia.

Diseases old and new: TB, AIDS, SARS, Chicken flu.