



History of Medicine



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History of Medicine



Medicine

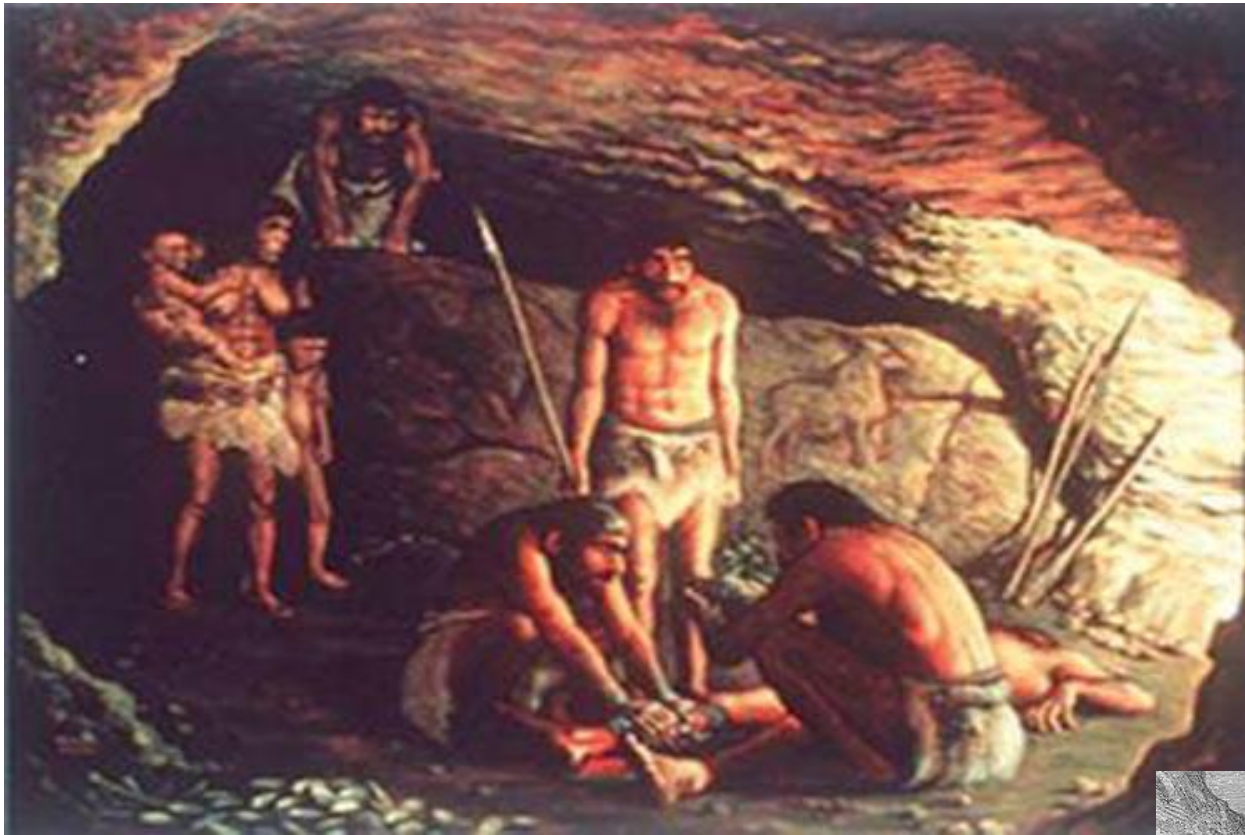
- Medicine is the science and art of healing.
- It includes a variety of health care practices to maintain and restore health by the prevention and treatment of illness.



Prehistoric Medicine

- Plants, animals and minerals- major source of drugs during prehistoric times





Early Medical Techniques

Prehistoric Medicine

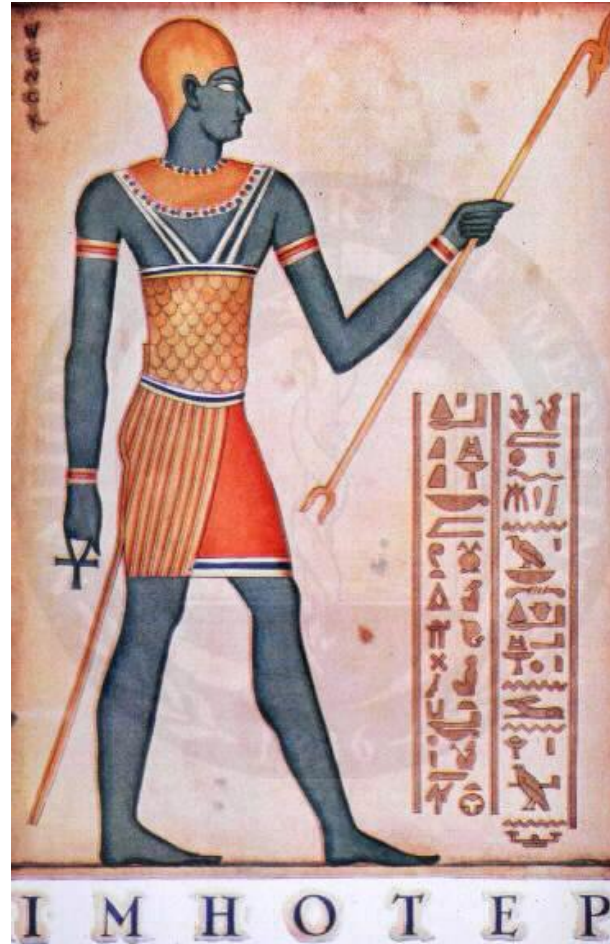


Dentistry in Indus Valley



Trepanning Operation

Ancient Egyptian Medicine



Egyptian Imhotep (2667 - 2648 BC)
first physician in history

Ancient Egyptian Medicine

- Numerous papyruses in archaeological searches provide great knowledge and evidence about the attitude of the Egyptian practitioner towards medicine and the medical knowledge .
- Some examples- Hearst Papyrus, Edwin Smith Papyrus and Ebers Papyrus.



Ancient Medicine

Early records on medicine have been discovered from

- ❖ Egyptian medicine
- ❖ Babylonian medicine
- ❖ Greek medicine
- ❖ Roman medicine
- ❖ Ayurvedic medicine (in the Indian subcontinent)
- ❖ Classical Chinese medicine (predecessor to the modern traditional Chinese Medicine)

Oldest Medical Books



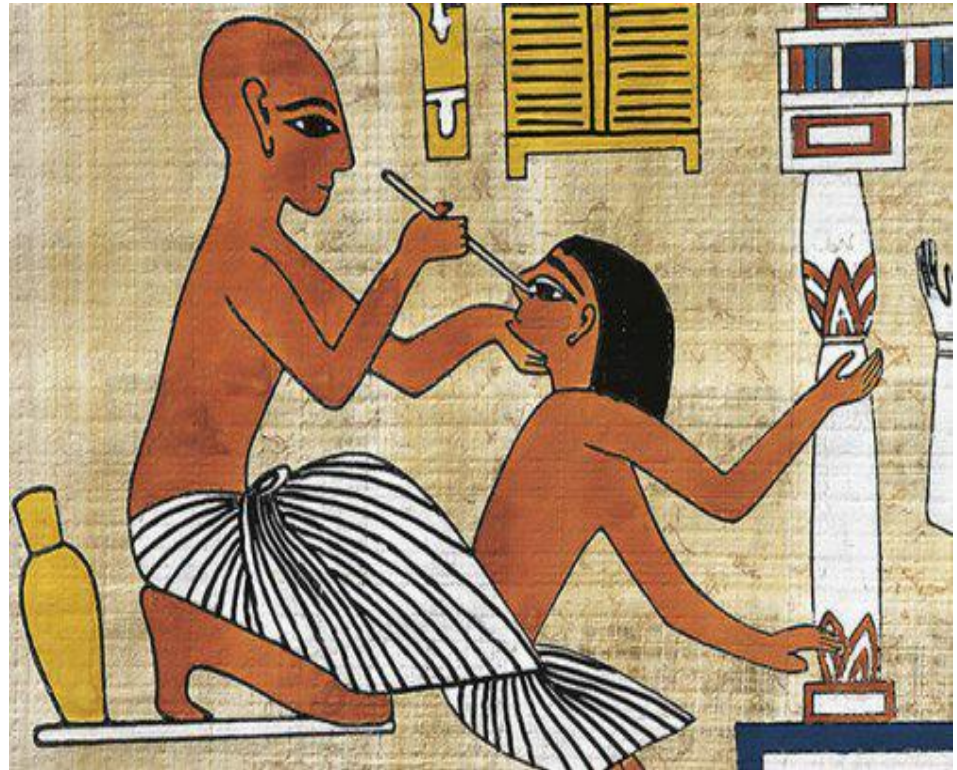
The Ebers Papyrus is the longest of all the known papyri and the most important, considering the physiological and medical knowledge it reveals. It is complete in 108 pages and bears the date of the 9th year of the reign of Amenophis I (1550 B.C.).



The Egyptians did have some knowledge of anatomy from making mummies.

Ancient Egyptian Treatment

- Drugs prepared from herbs and minerals
- Wine or beer mixed with dough to form a 'pill'
- Egyptian doctors also used ointments for wounds and they treated chest complaints by getting the patient to inhale steam.

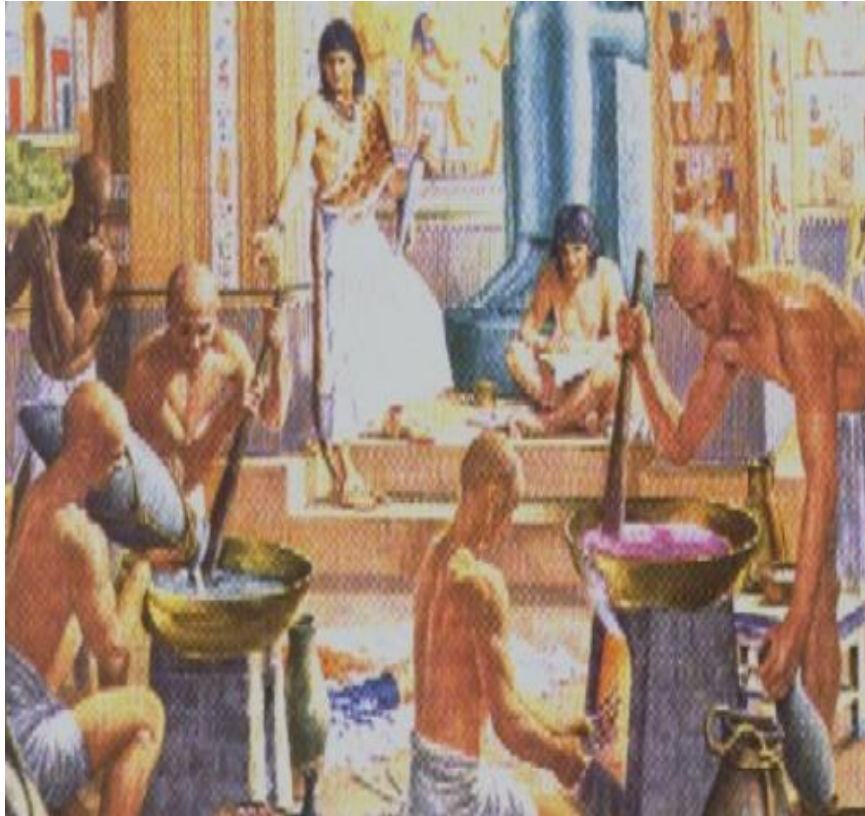


The first surgical performance was estimated to conduct in Egypt in 2750 BC.



An Egyptian physician of the Eighteenth Century (1500-1400 B.C.), clothed in clean white linen, is confronted with a patient having symptoms of lockjaw (described in an ancient scroll now known as the Edwin Smith papyrus).

Ancient Egyptian Treatment

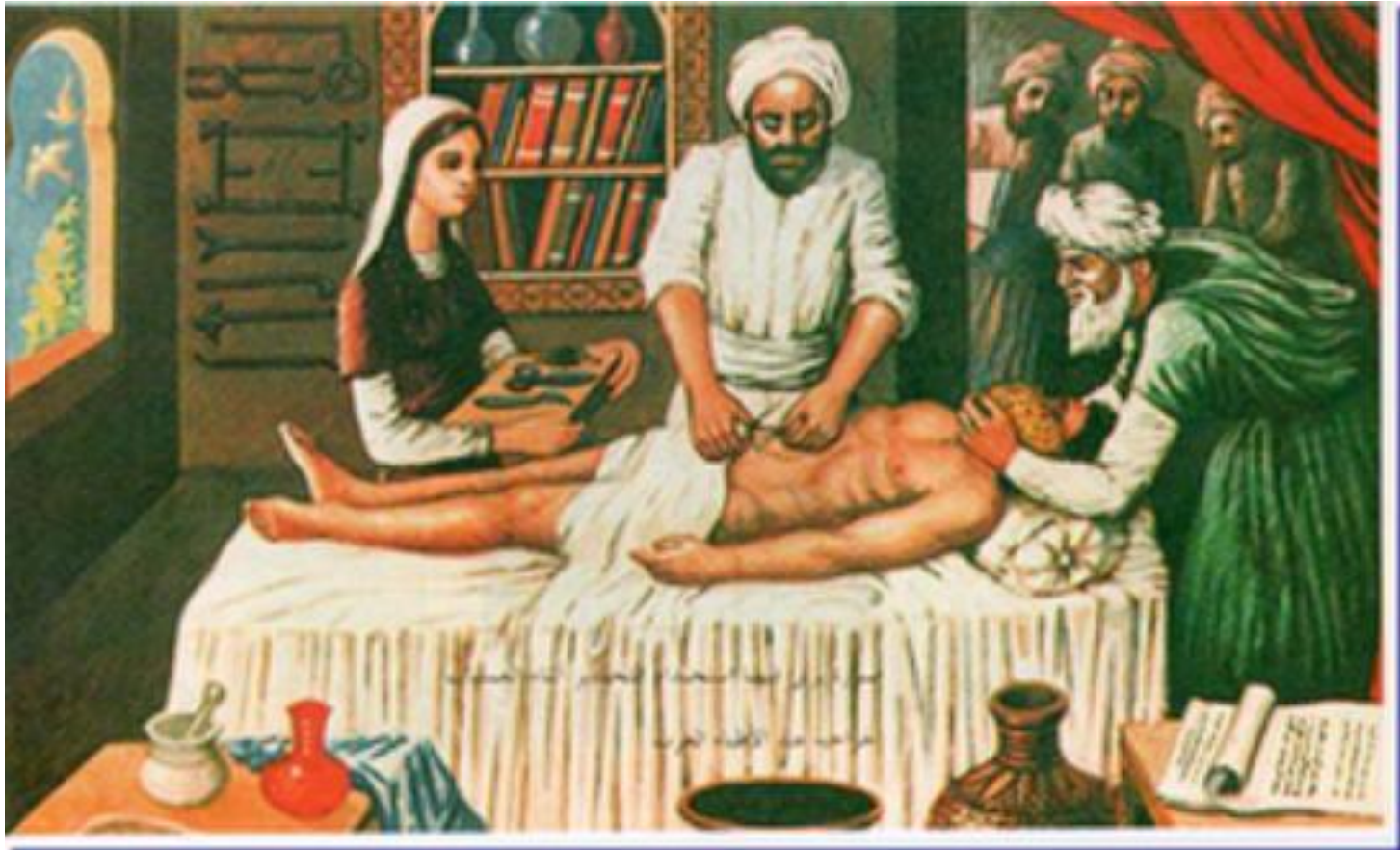


The coughing could be reduced by drinking a mixture of herbs and honey.



The oil and massage will be used to reduce the pain, aches and arthritis.

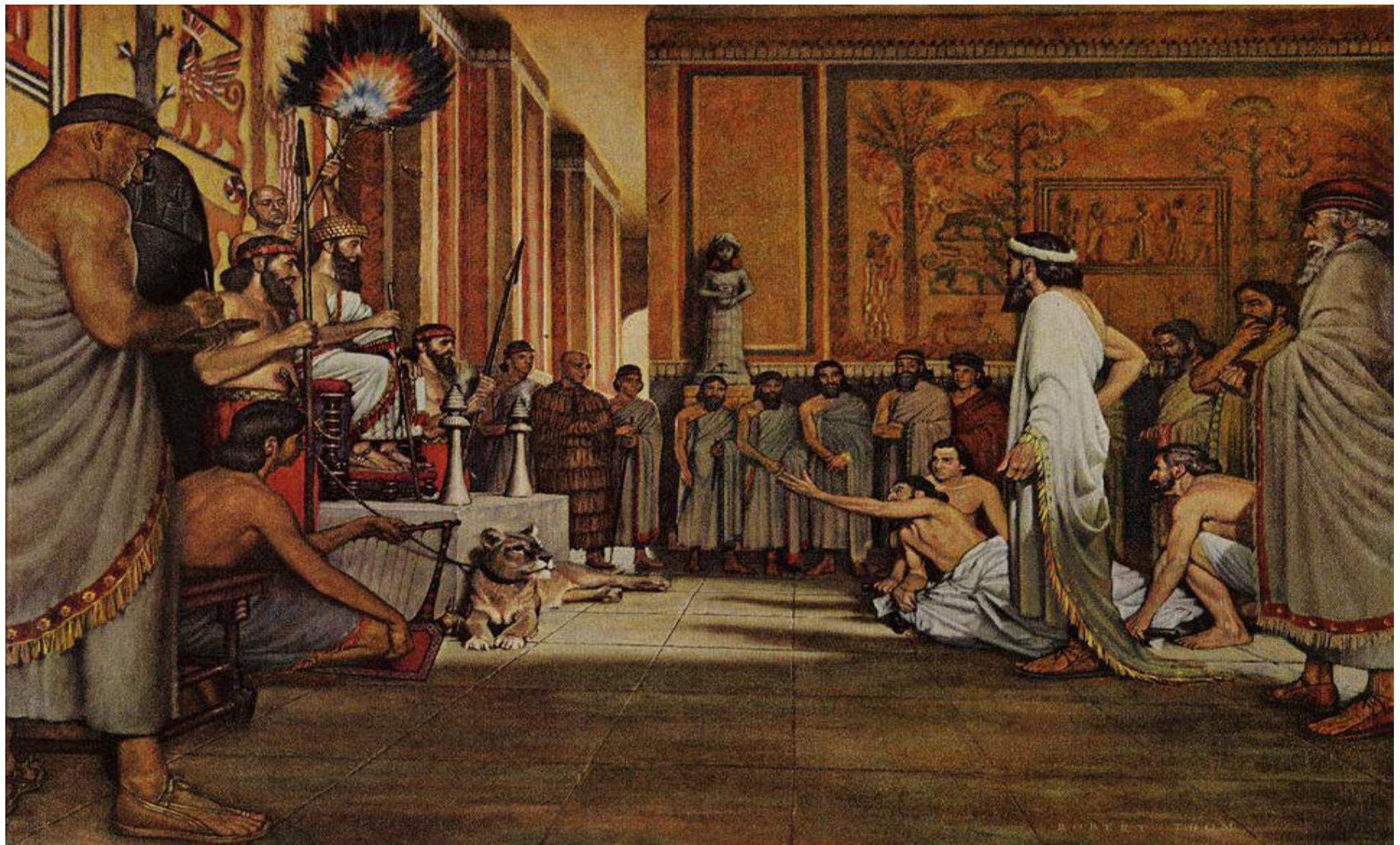
Mesopotamian / Babylonian Medicine



Ashipu- first type of practitioner

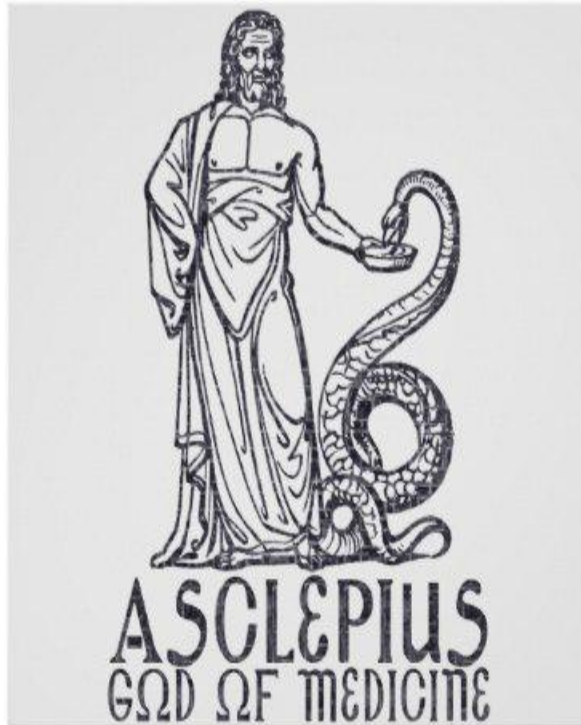
Mesopotamian / Babylonian Medicine

- The most extensive Babylonian medical text is the **Diagnostic Handbook** written by the ummânū, or chief scholar, Esagilkinapli of Borsippa, during the reign of the Babylonian king Adadaplaiddina (1069–1046 BCE).
- Based on a logical set of axioms and assumptions, including the modern view that through the examination and inspection of the symptoms of a patient.
- The symptoms and diseases of a patient were treated through therapeutic means such as bandages, herbs and creams.
- Another textual source of evidence concerning the skills of Mesopotamian physicians comes from the **Law Code of Hammurabi** (1700 BCE).
- This collection was not found written on a tablet, but was discovered on a large block of polished diorite.

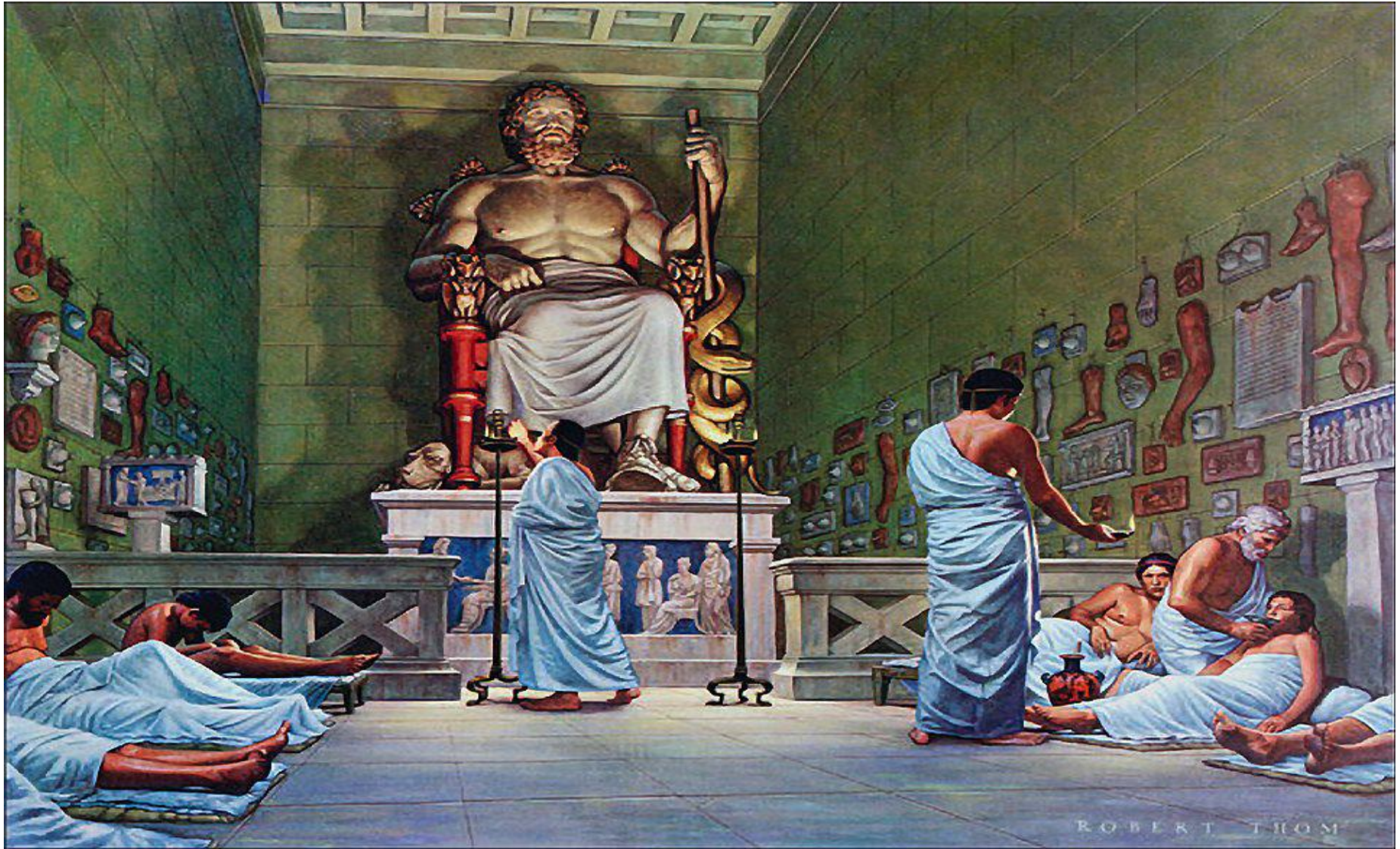


The ancient Mesopotamia document the practice and significance to medicine too, is one of the oldest regulatory laws, the Code of Hammurabi, circulated by that Babylonian ruler about 2000 B.C. 17

Ancient Greek Medicine



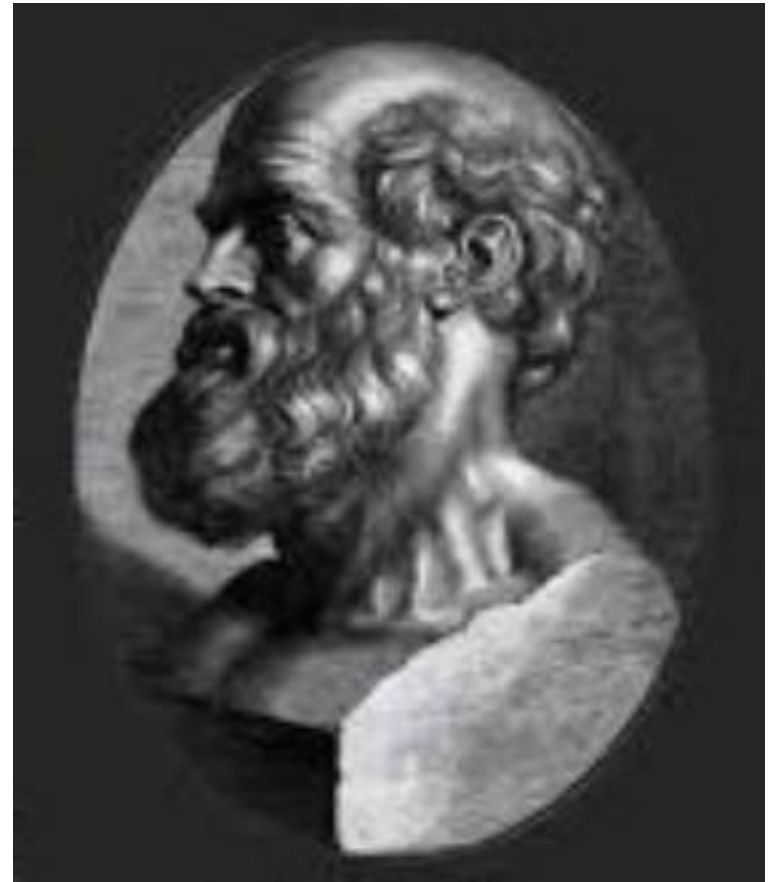
Physicians: Podaleirius and Machaon
Doctor: Patroclus.



Every night for nearly a thousand years (500 B.C. - 500 A.D.), sick and afflicted pilgrims flocked to the Grecian Temples of Asclepius to take part of a ritual called incubation.

Ancient Greek Medicine

- The Greeks practiced medicine 1000 years before the birth of Christ.
- The Greek physician **Hippocrates** of Cos (c. 460 - c. 370 BCE), the "**Father of Medicine**", laid the foundation for a rational approach to medicine.
- The Hippocratic Oath, still taken by doctors up to today, was written in Greece in the 5th century BCE.





Hippocrates was perhaps the first to categorize illnesses as acute, chronic, endemic and epidemic, and use terms such as, "exacerbation, relapse, resolution, crisis, paroxysm, peak, and convalescence"

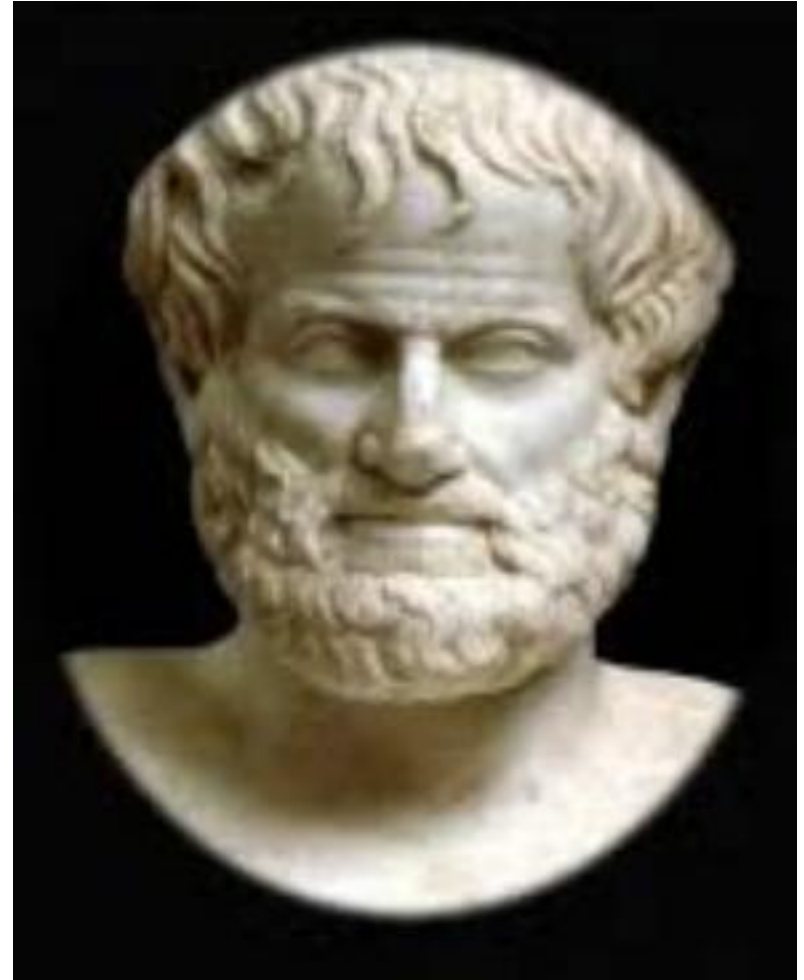
Greek Physician- Hippocrates

- The Hippocratic Corpus is a collection of around sixty early medical works from ancient Greece strongly associated with Hippocrates and his students.
- The most famous works in the Corpus is the Hippocratic Oath.
- He is given credit for the first description of clubbing of the fingers, an important diagnostic sign in chronic suppurative lung disease, lung cancer and cyanotic heart disease.



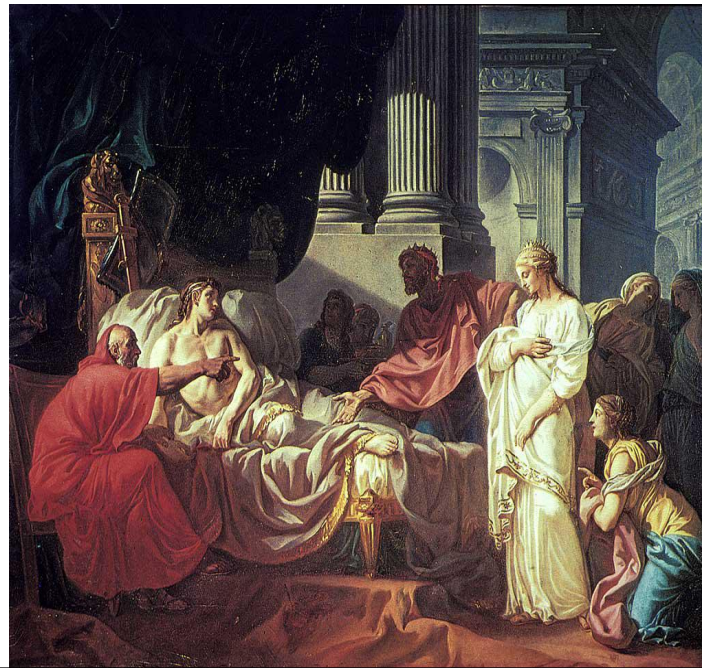
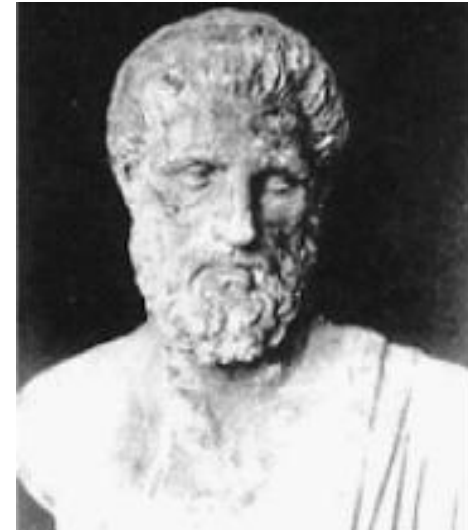
Greek Physician- Aristotle

- Another popular Greek physician was **Aristotle** (384-322 BC).
- He thought the body was made up of four humors or liquids- phlegm, blood, yellow bile and black bile.
- If a person had too much of one humor they fell ill.



Greek Physicians

Herophilus & Erasistratus



Physician Galen



- The Romans conquered Greece and afterwards doctors in the Roman Empire were often Greeks.
- Later in Roman times, the Greek physician Galenus Clavdius, popularly known as **Galen** (130-200 AD) became a famous doctor.
- He was also one of the greatest surgeons of the ancient world and performed many audacious operations, including brain and eye surgeries.

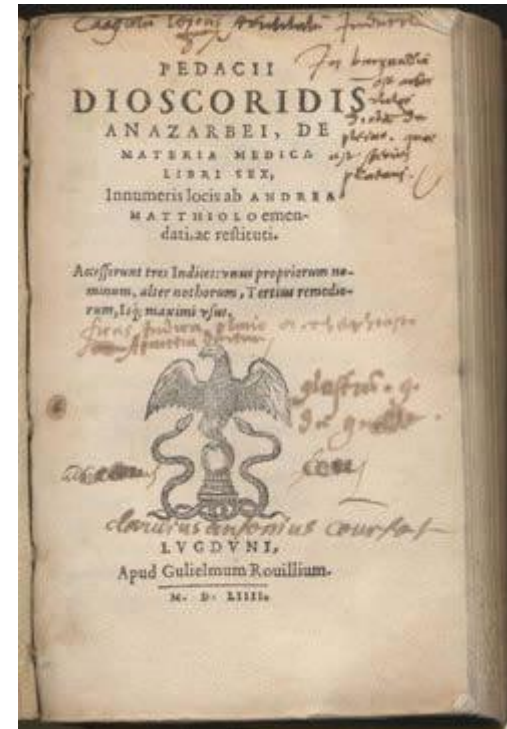


Galen was a pillar of medicine; his teachings were accepted as dogma by both teachers and practitioners of medicine for fifteen hundred years

Ancient Roman Medicine



Roman army physician Dioscorides
(c.40–90 AD)-
Greek botanist and pharmacologist

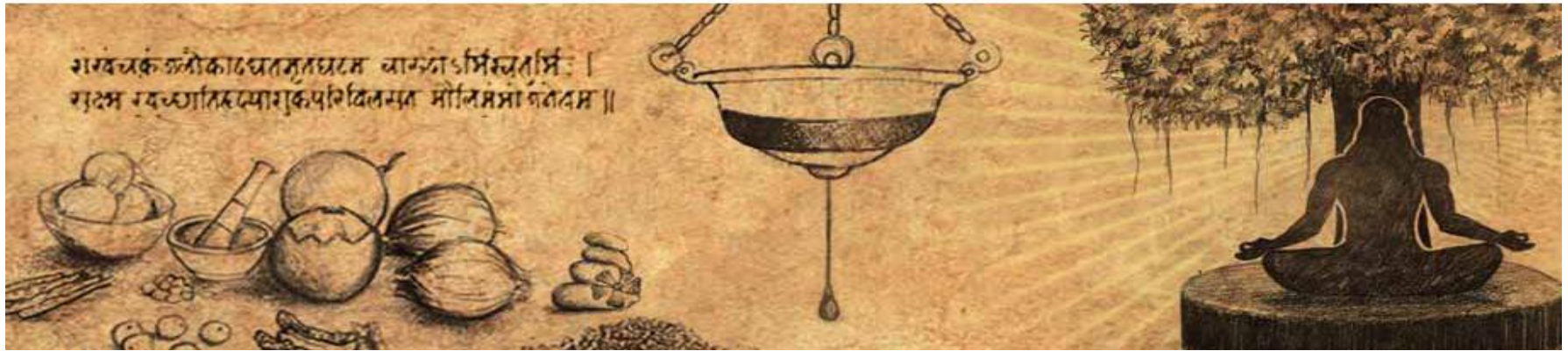


De Materia Medica

Inheritance of Ancient Medicine

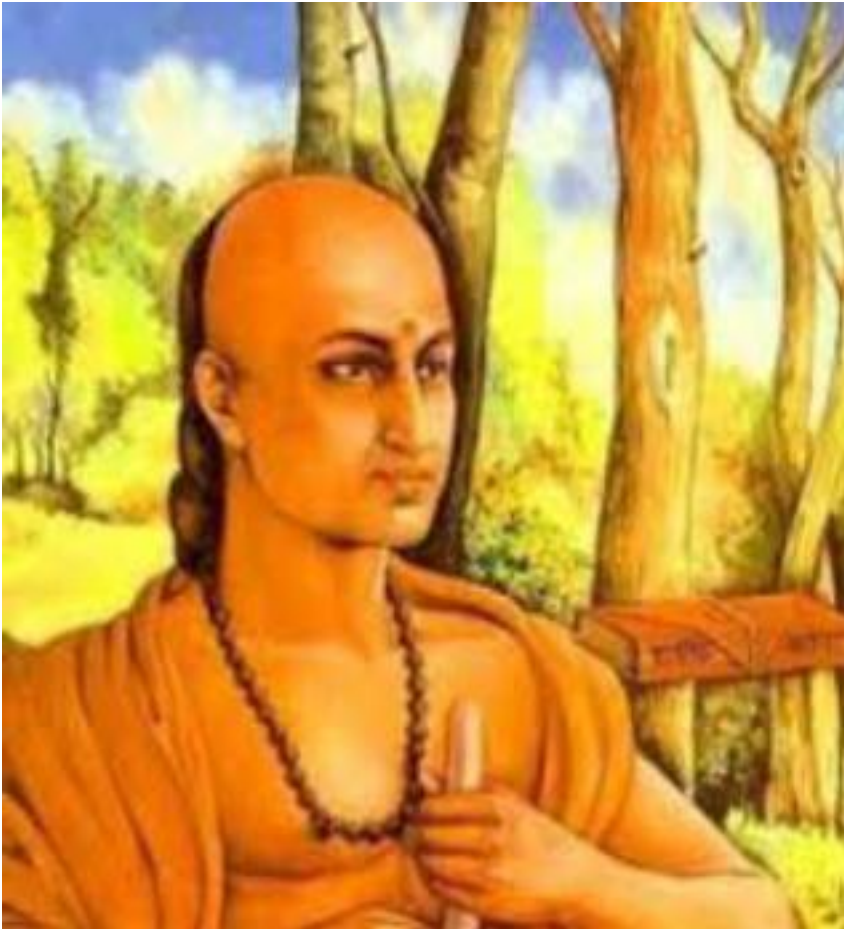
- After the fall of the Western Roman Empire and the onset of the Early Middle Ages, the Greek tradition of medicine went into decline in Western Europe, although it continued uninterrupted in the Eastern Roman Empire.
- After 750 CE, the Muslim Arab world had the ancient works on medicine translated into Arabic, and Islamic physicians engaged in some significant medical research.
- Notable Islamic medical pioneers include the polymath, Avicenna, who, along with Imhotep and Hippocrates, wrote **The Canon of Medicine**, considered one of the most famous books in the history of medicine.

Indian Medicine



- The Atharvaveda, a sacred text of Hinduism from the Early Iron Age, is the first Indian text dealing with medicine.
- The Atharvaveda also contain prescriptions of herbs for various ailments, which would later form a large part of Ayurveda.
- In the first millennium BCE, there emerges in post-Vedic India the traditional medicine system known as Ayurveda, is the "complete knowledge for long life.
- Its two most famous texts belong to the schools of Charaka born c. 600 BCE, and Sushruta born 600 BCE.

Charak & Charaksamhita



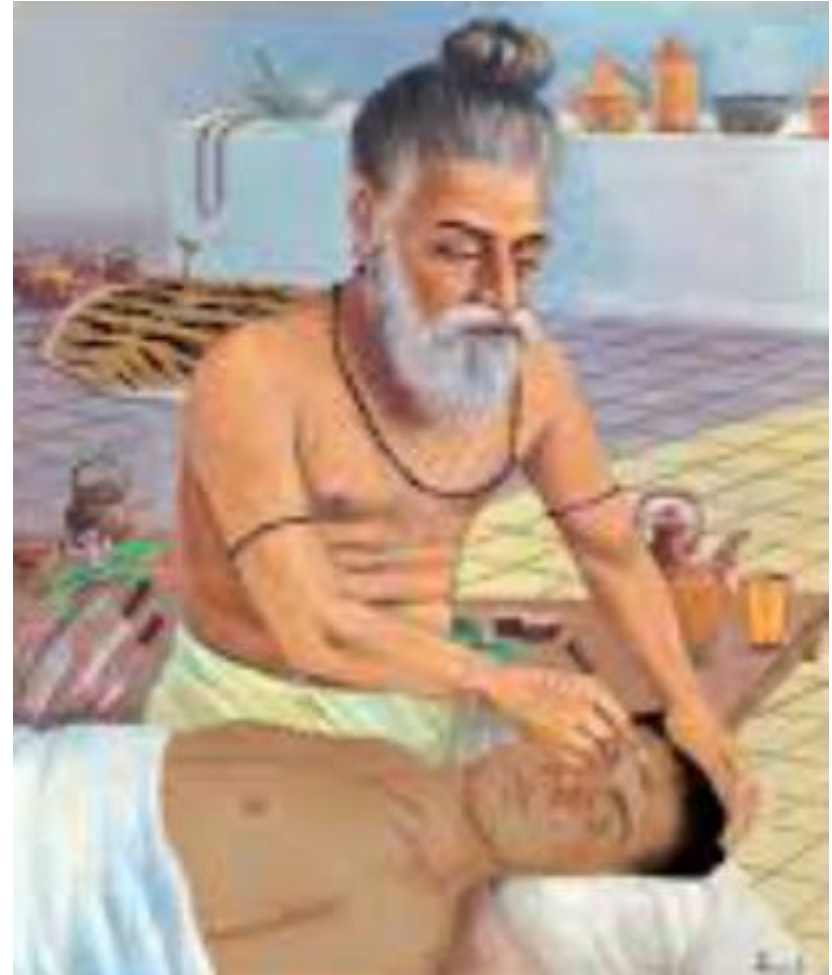
- According to the Charaka, stated in the **Charakasamhita**, health and disease are not predetermined and life may be prolonged by human effort.
- The Charaka Samhita contains 120 adhyayas (chapters) divided into eight parts.

Susruta & Susrutasamhita

- The compendium of Susruta, the **Susrutasamhita** defines the purpose of medicine to cure the diseases of the sick, protect the healthy, and to prolong life.
- Both these ancient compendia include details of the examination, diagnosis, treatment, and prognosis of numerous ailments.
- The Susrutasamhita is notable for describing procedures on various forms of surgery, including rhinoplasty, the repair of torn ear lobes, perineal lithotomy, cataract surgery, and several other excisions and other surgical procedures.

Susruta & Susrutasamhita

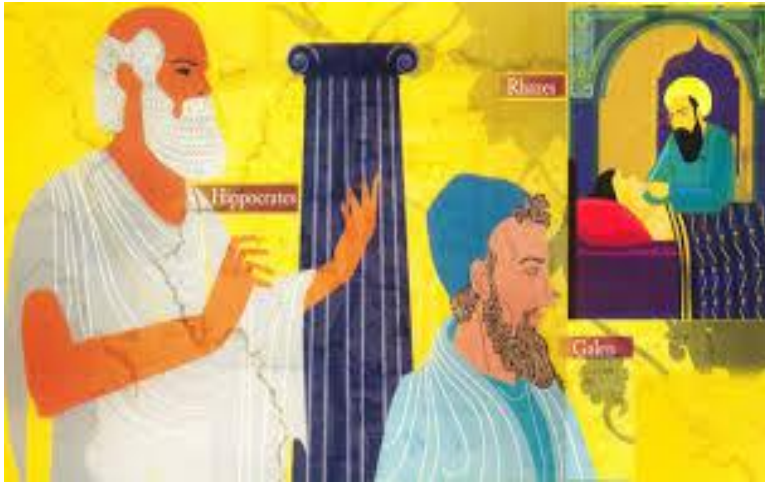
- Most remarkable is Sushruta's medical treatise consists of 184 chapters, 1,120 conditions are listed, including injuries and illnesses relating to aging and mental illness.
- The Sushruta Samhita describe 125 surgical instrument, 300 surgical procedures and classifies human surgery in 8 categories



Trepanning by Susruta



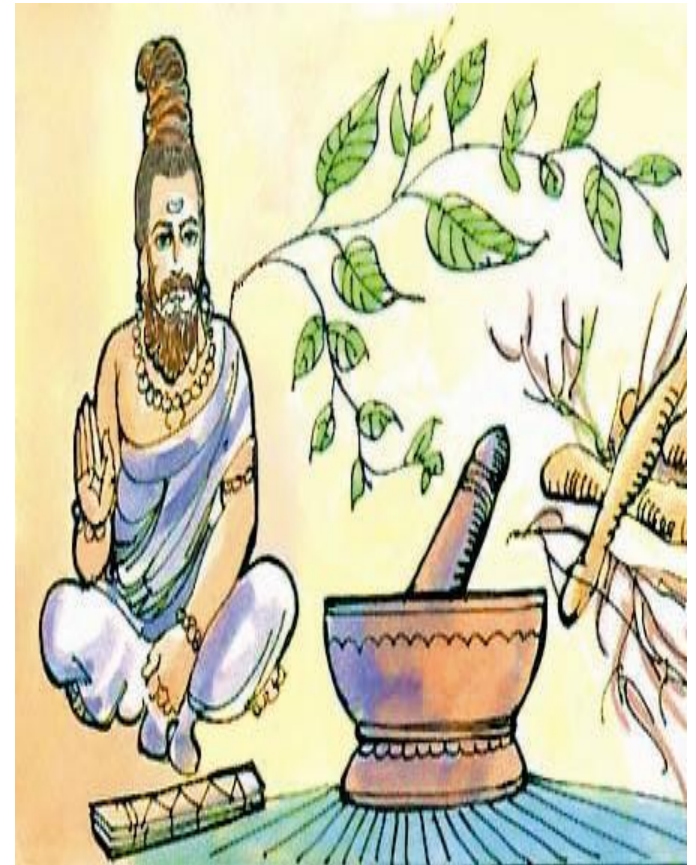
Unani Medicine



- Unani Medicine - based on the teachings of Hippocrates(460-377 BC).
- Based on the classical four humours: Phlegm, Blood, Yellow bile, and Black bile.
- Also been influenced by Indian and Chinese traditional systems.
- Popular products - Roghan Baiza Murgh (Egg Oil) and Roghan Badaam Shirin (Almond Oil) are commonly used for hair care.

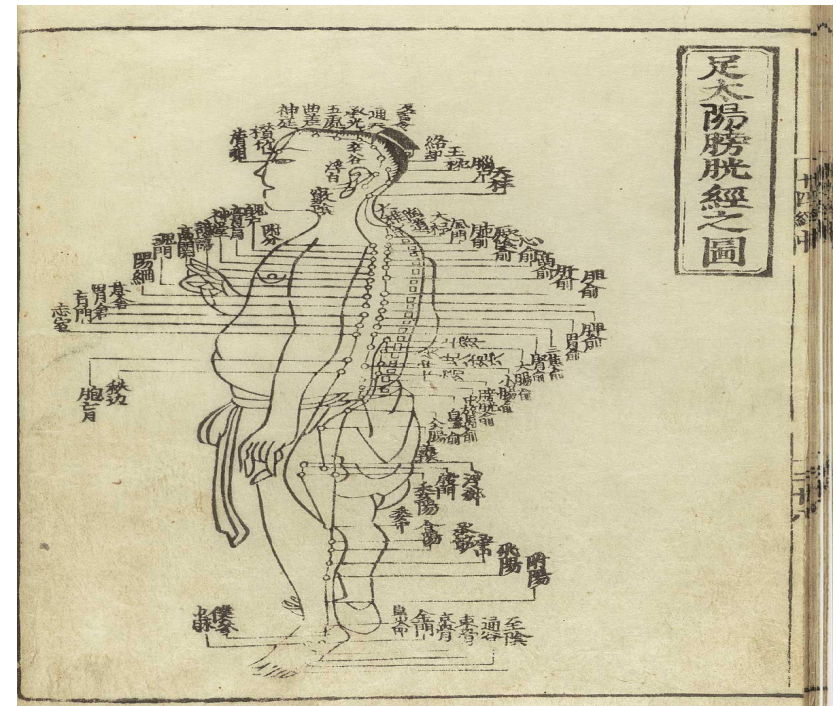
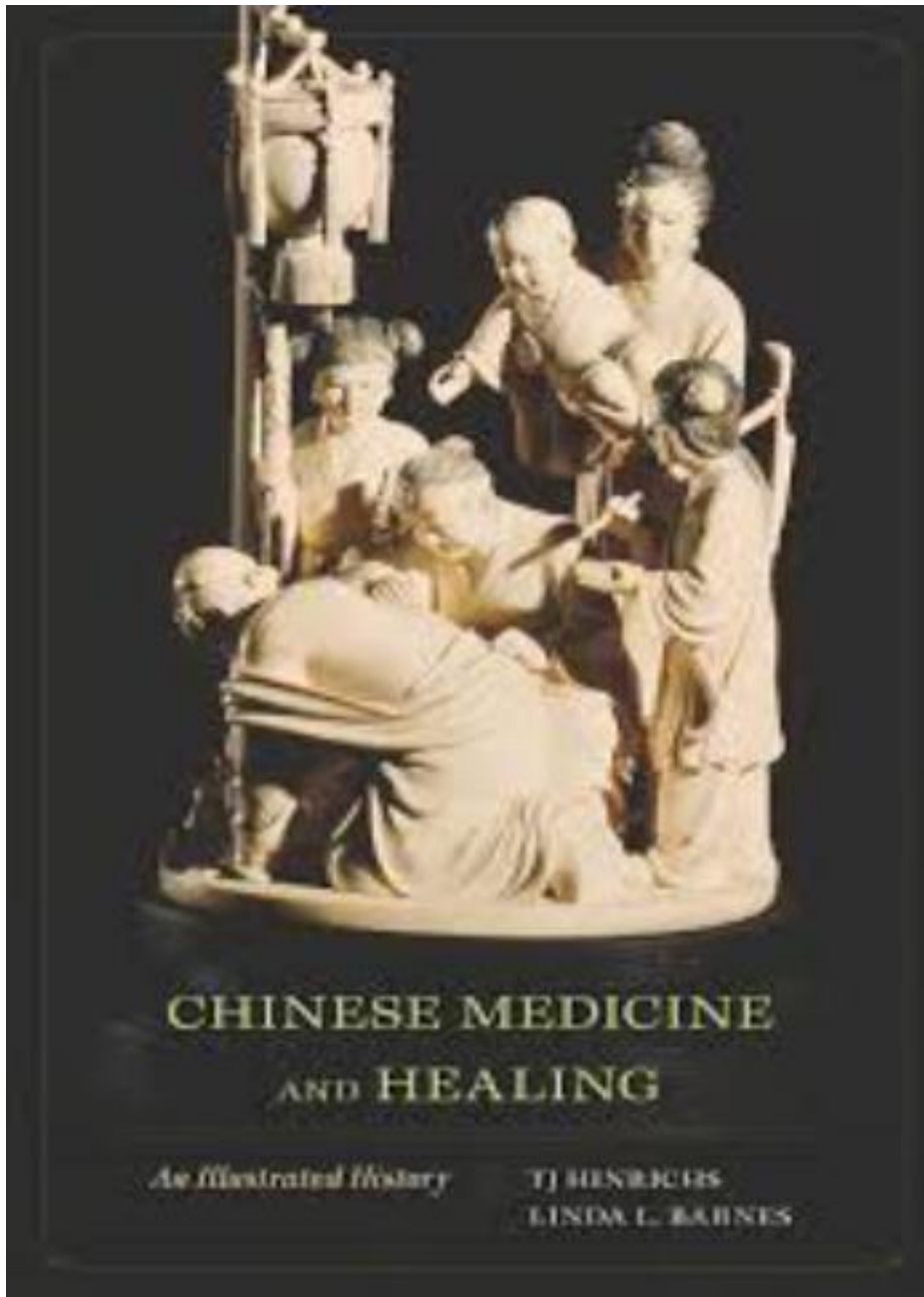
Siddha Medicine

- The Siddha science is a traditional treatment system generated from Dravidian culture.
- Siddha medicine recognizes predominance of three humors-vaadham, pitham and kabam.
- It is assumed that when the normal equilibrium of the three humors is disturbed, disease is caused.
- Diet and lifestyle play a major role in health and in curing diseases



Chinese Medicine

- China also developed a large body of traditional medicine.
- Most of the philosophy of traditional Chinese medicine derived from empirical observations of disease and illness by Taoist physicians.
- The foundational text of Chinese medicine is the Huangdi neijing, (or Yellow Emperor's Inner Canon), written 5th century to 3rd century BCE.
- Traditional Chinese Medicine, based on the use of herbal medicine, acupuncture, massage and other forms of therapy has been practiced in China for thousands of years.
- Assorted dried plant and animal parts are widely used in traditional Chinese medicines



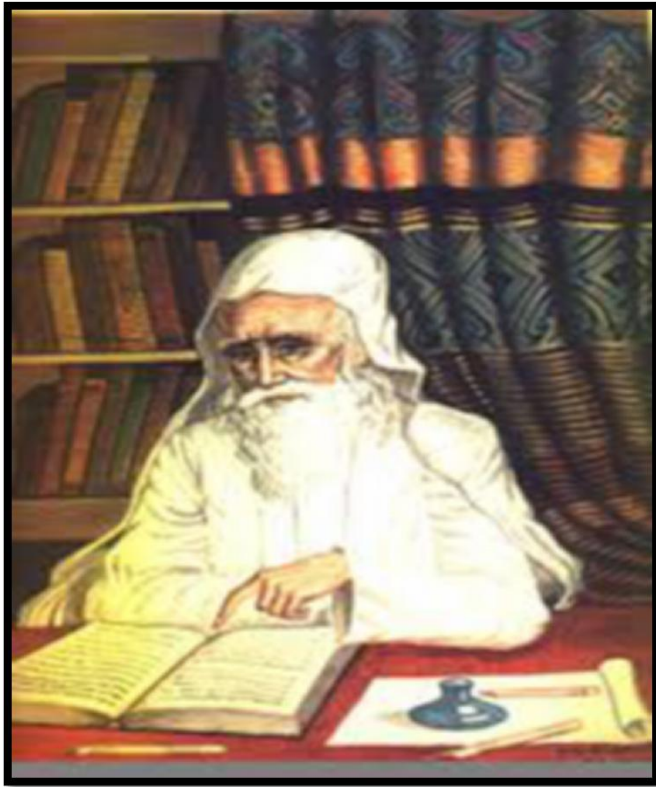
Acupuncture technique





History of Medicine of Medieval Ages

Hunayn ibn Ishaq (809-873 AD)



In the 9th century, Hunain Ibn Ishaq translated Greek medicinal books into Arabic.

His book, “Ten Treatises on Ophthalmology”, is the first known systematic treatment of the field of ophthalmology.



Wise Women

- Throughout the ancient and medieval periods, ordinary people in Europe who could not afford the services of physician went to ‘wise’ women who possessed knowledge, of traditional or folk medicine.
- They dealt with all kinds of illnesses and medical conditions, including childbirth and, in some cases, abortion.
- Their methods of diagnosis and treatment were based on the belief that all human life was linked to the rest of creation.
- Wise women also used many practical herbal remedies.



Man's leg wound is being treated, while herbs for a soothing ointment or healing drink are being prepared

- The Middle Ages contributed a great deal to medical knowledge. This period contained progress in surgery, medical chemistry, dissection, and practical medicine.
- Medical school also first appeared in the Medieval period.

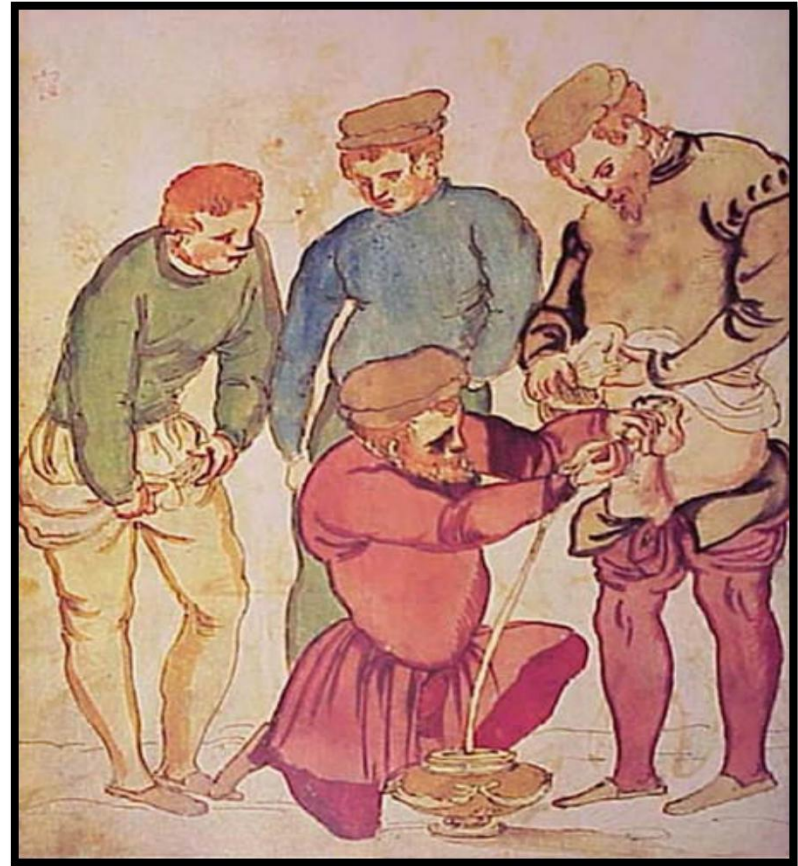


A dentist with silver forceps and a necklace of large teeth, extracting the tooth of a well seated man.

Surgery in Medieval era



Eye Cataract Surgery: Painful procedure that rarely saved patients' sight



Blocked Bladders: Metallic catheters inserted into the bladder

Surgery in Medieval era



Bloodletting: A cure-all for almost any ailment. The cure was removing excess fluid by taking large amounts of blood out of the body.



Clysters: A medieval method of injecting medicines into the anus.

Barber surgeon



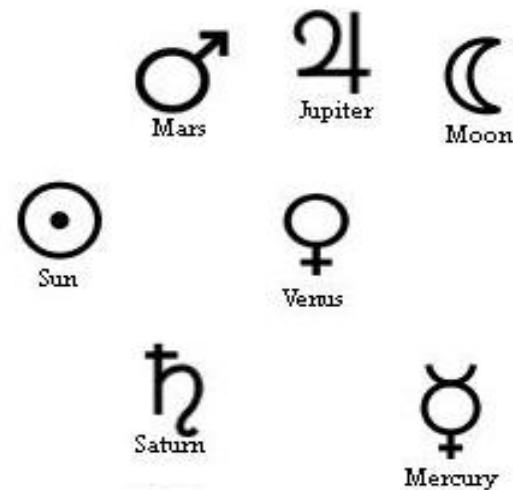
In the 13th century a new type of craftsmen emerged in towns. They cut hair, they pulled teeth and they performed simple operations such as amputations and setting broken bones.

Churches ran the medieval hospitals



Astrology in medieval medicine

- Medical practitioners regarded different signs of the zodiac and planets as having governance over different parts of the body, as controlling different diseases, and as affecting the usefulness of different drugs.



- From the brain to the feet, from Aries to Pisces, from Mercury to Venus, the health and status of a human body seemed constantly dependent upon extraterrestrial bodies.

Four Humors

Four internal fluids of the body blood, phlegm, black bile, and yellow bile are needed to remain in balance in order to keep a person in balance.

Too much of one fluid or too little of another led to illness, ill-temperament, and more.



Girolamo Fracastoro (1476–1478)



✓Proposed a scientific germ theory .

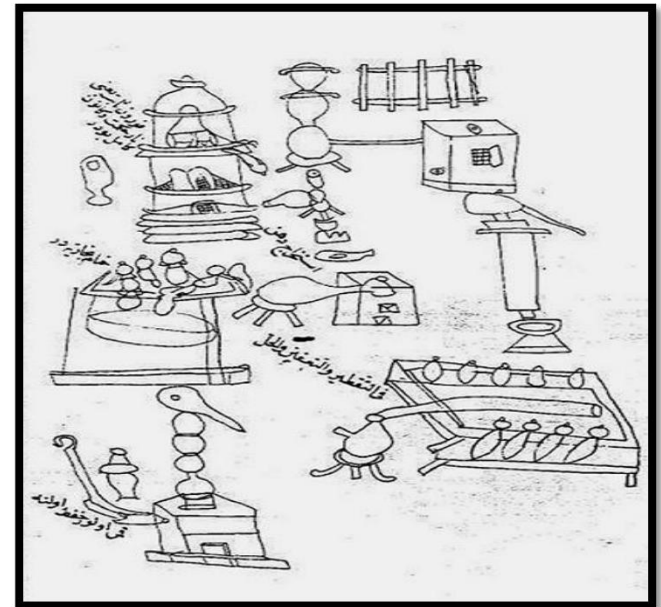
✓In 1546 , he published a book “On Contagion and Contagious Diseases”, stating that each is caused by a different type of rapidly multiplying minute body which were carried by the wind or transmitted by touch.

Paracelsus (1493-1541)



- The founder of toxicology.
- He is credited for giving zinc its name, calling it *zincum*.
- First to note that some diseases are rooted in psychological conditions.

Apparatus for distilling essence; furnace and bath (vapor heating)



Andreas Vesalius (1514 – 1564)

- Vesalius is often referred to as the founder of modern human anatomy.
- Proved Galen's ideas were wrong.
- In 1543 he published a book called *The Fabric of the Human Body*. It contained accurate diagrams of a human body.

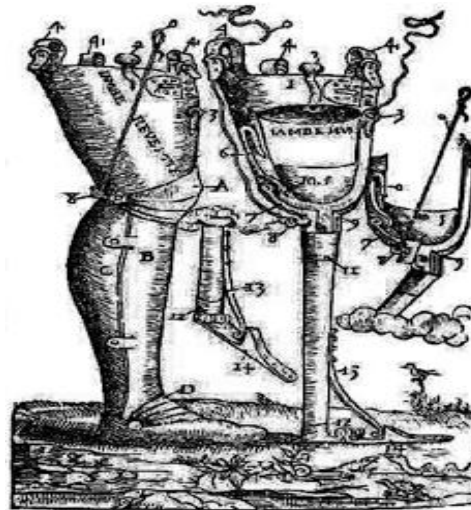
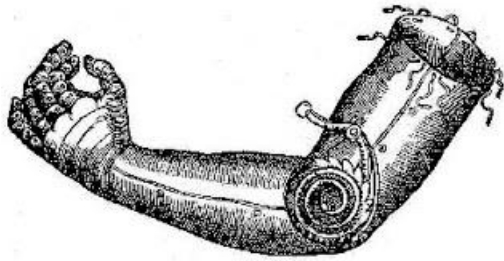
Image from Andreas Vesalius' *De humani corporis fabrica* (1543), page 163



Ambroise Paré (1510-1590)



- ❑ Considered as one of the fathers of surgery and modern forensic pathology.
- ❑ He was also an anatomist and invented several surgical instruments.

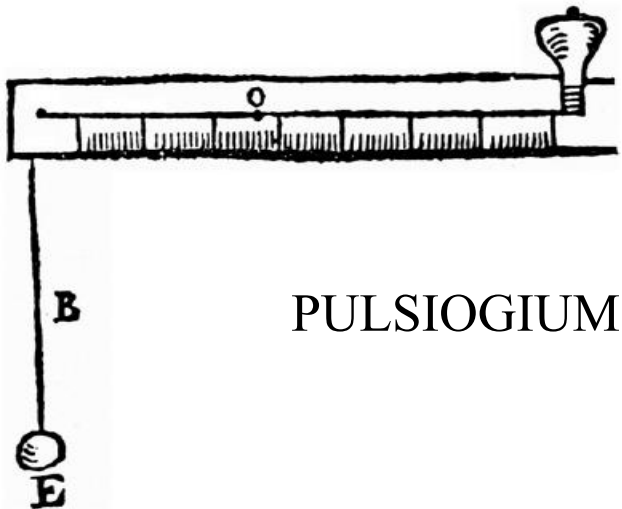


Paré Prosthetic arm, legs and hands

Santorio Santorio (1561 – 1636)



- ❖ Introduced the quantitative approach into medicine.
- ❖ Inventor of several medical devices, including the thermometer and pulsiogium
- ❖ Santorius studied the so called *perspiratio insensibilis* or *insensible perspiration of the body*, and originated the study of metabolism.



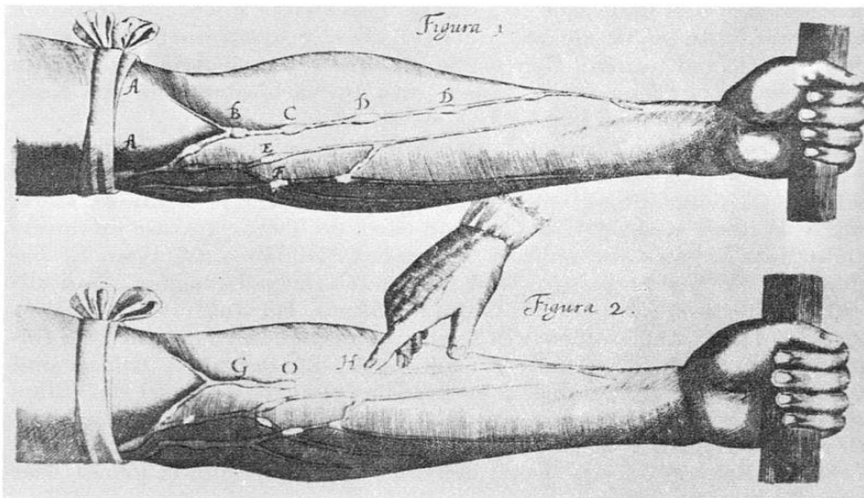
PULSIOGIUM



THERMOMETER

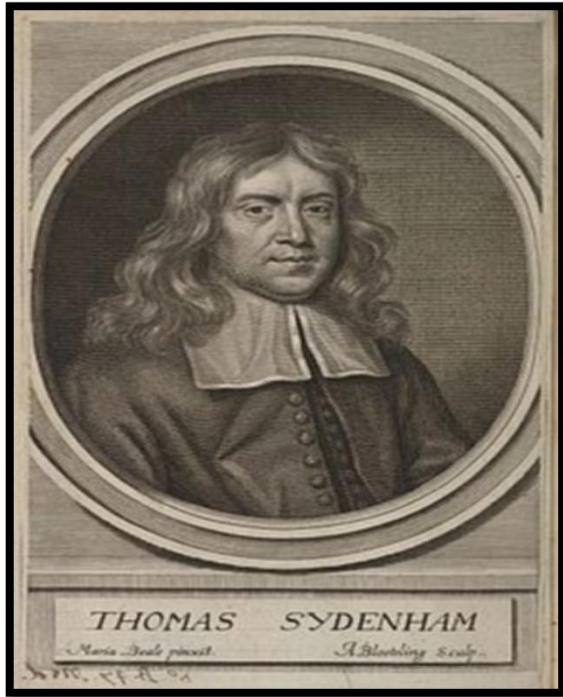
William Harvey (1578 – 1657)

- English physician who made great contributions in anatomy and physiology.
- He was the first known to describe completely and in detail the systemic circulation and properties of blood being pumped to the brain and body by the heart .



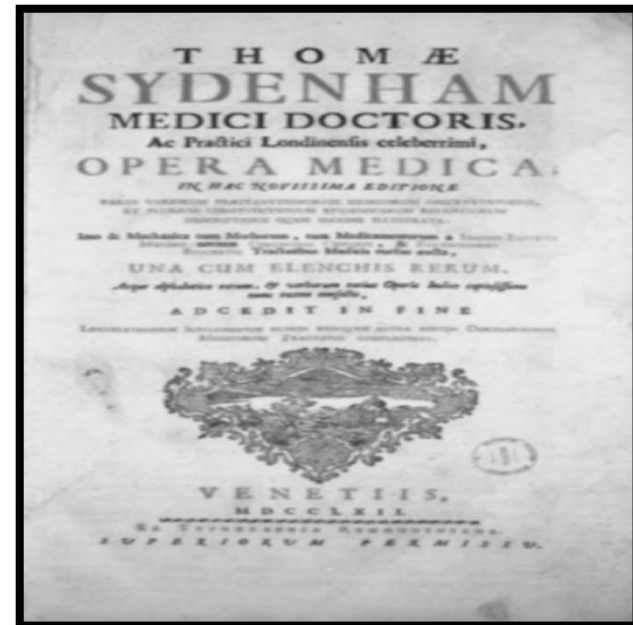
An experiment from Harvey's *de Motu Cordis*

Thomas Sydenham (1624-1689)



- He was known as 'the English Hippocrates'.
- He was the author of *observationes medicae* which became a standard textbook of medicine for two centuries.
- He discovered a disease, Sydenham's chorea, also known as St Vitus dance.

Opera medica

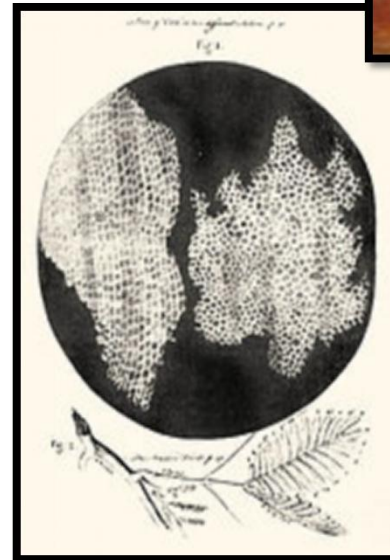


Robert Hooke (1635 –1703)

- Hooke's most important publication was *micrographia*, in 1665 documenting experiments he had made with a microscope.
- He coined the term "cell".
- He described flies, feathers and snowflakes, and correctly identified fossils as remnants of once-living things.
- He gave the Theory of elasticity; which is known as "hooke's law,



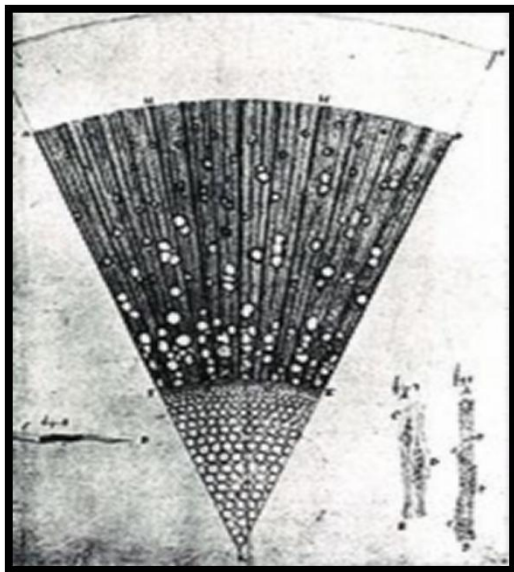
Hooke's
microscope



Cell structure of
Cork by Hooke

Antonie van Leeuwenhoek (1632 –1723)

- ❑ He is commonly known as "the Father of Microbiology".
- ❑ He was first to observe and describe microorganisms, which he originally referred to as *animalcule*.
- ❑ He was also first to document microscopic observations of muscle fibers, bacteria, spermatozoa, and blood flow in capillaries.



Microscopic section through one-year-old ash tree (*Fraxinus*) wood, drawing made by Van Leeuwenhoek.



Leeuwenhoek's microscopes

Cinchona tree



- 17th century doctors also discovered how to treat malaria with bark from the cinchona tree .
- The medicinal properties of the cinchona tree were originally discovered by peoples of Peru, Bolivia, and Ecuador.
- They used it as a muscle relaxant to abate shivering due to low body temperatures, and symptoms of Malaria.

Cinchona tree

To maintain their monopoly on cinchona bark, Peru and surrounding countries began outlawing the export of cinchona seeds and saplings beginning in the early 19th century leading to death of many World War soldiers.



Quinine



History of Medicine- Modern Age

History of Vaccination

Edward Jenner (1749–1823)

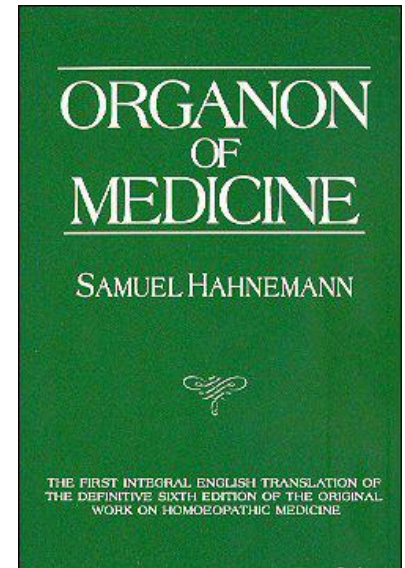
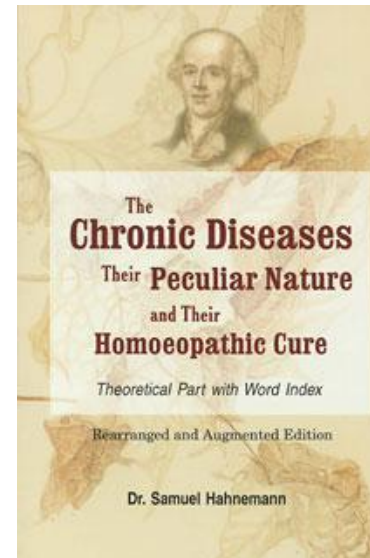
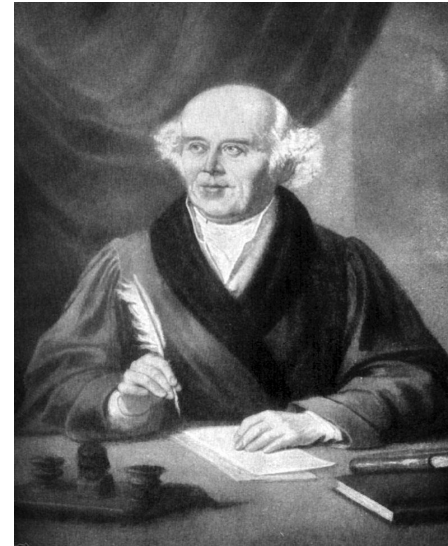
- Inventor of vaccination
- Observed that milkmaids who caught cowpox were immune to smallpox
- First vaccination on James Phipps, a boy of 8, on May 14, 1796



Birth of Homeopathy

Samuel Hahnemann (1755-1833)

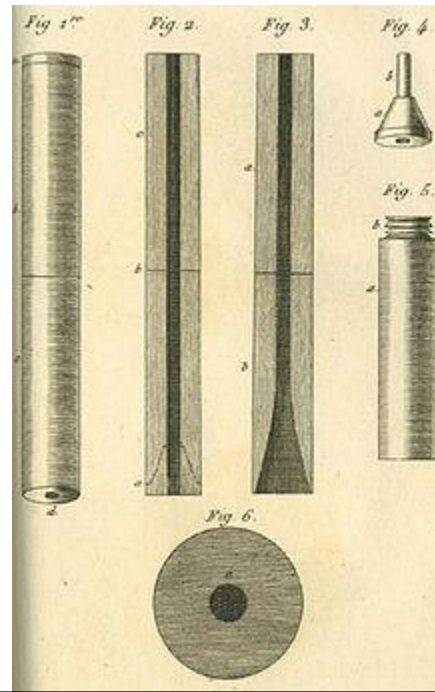
- Founder of Homeopathy
- Theory of “Similia Similibus Curentur”, or “Like Cures Like”
- Book written: The Chronic Diseases, their Peculiar Nature and their Homoeopathic Cure, Organon of Medicine



Invention of Stethoscope

Rene Laennec
(1781–1826)

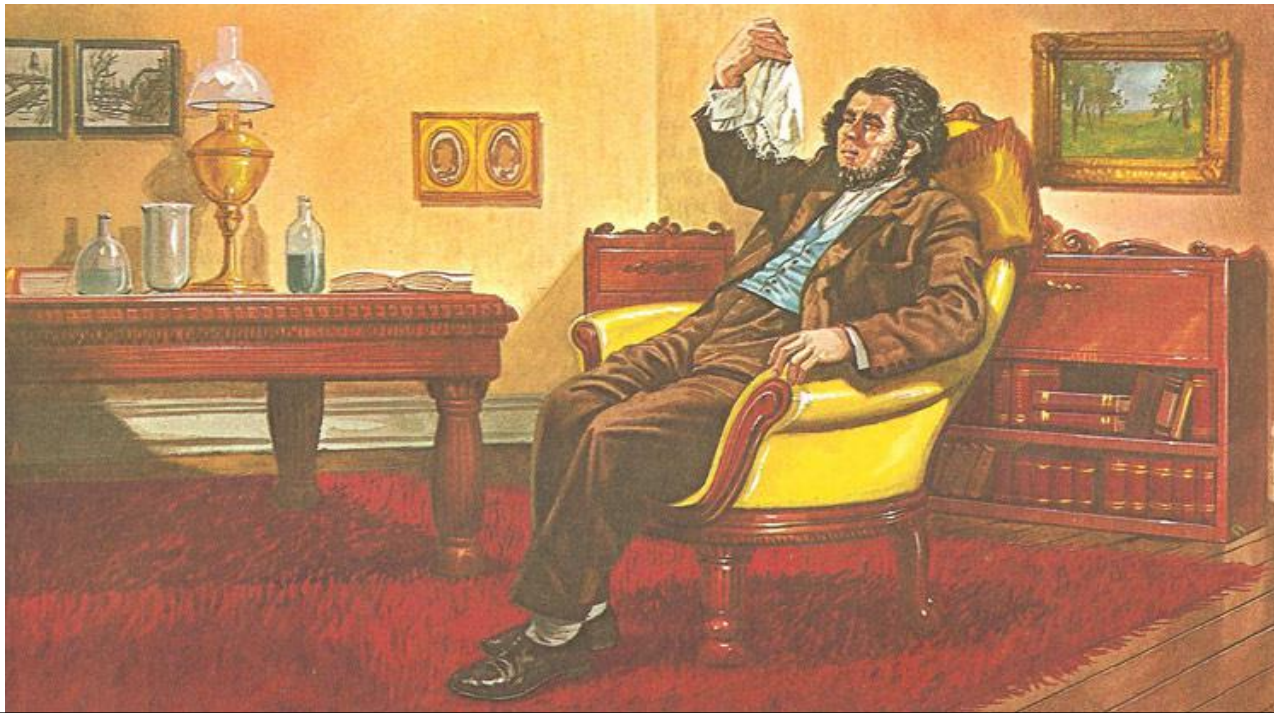
- Inventor of stethoscope
- To diagnose heart problems
- A quire of paper rolled into a kind of cylinder and applied one end of it to the region of the heart and the other to the ear to listen to the action of the hearts



Invention of Chloroform as Anesthetics

**James Simpson
(1811-1870)**

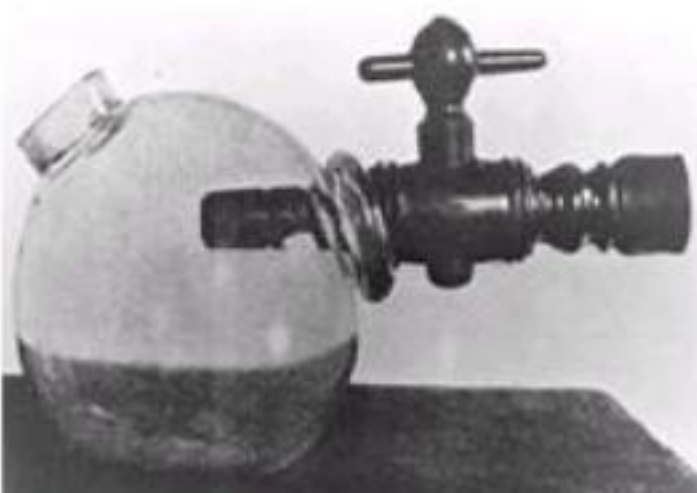
- Used chloroform for operations in 1847
- He tried inhaling chloroform and it knocked him unconscious



John Snow: The First Anesthesiologist



Joseph Clover (1825–1882) became the leading anaesthetist of London after the death of John Snow in 1858.

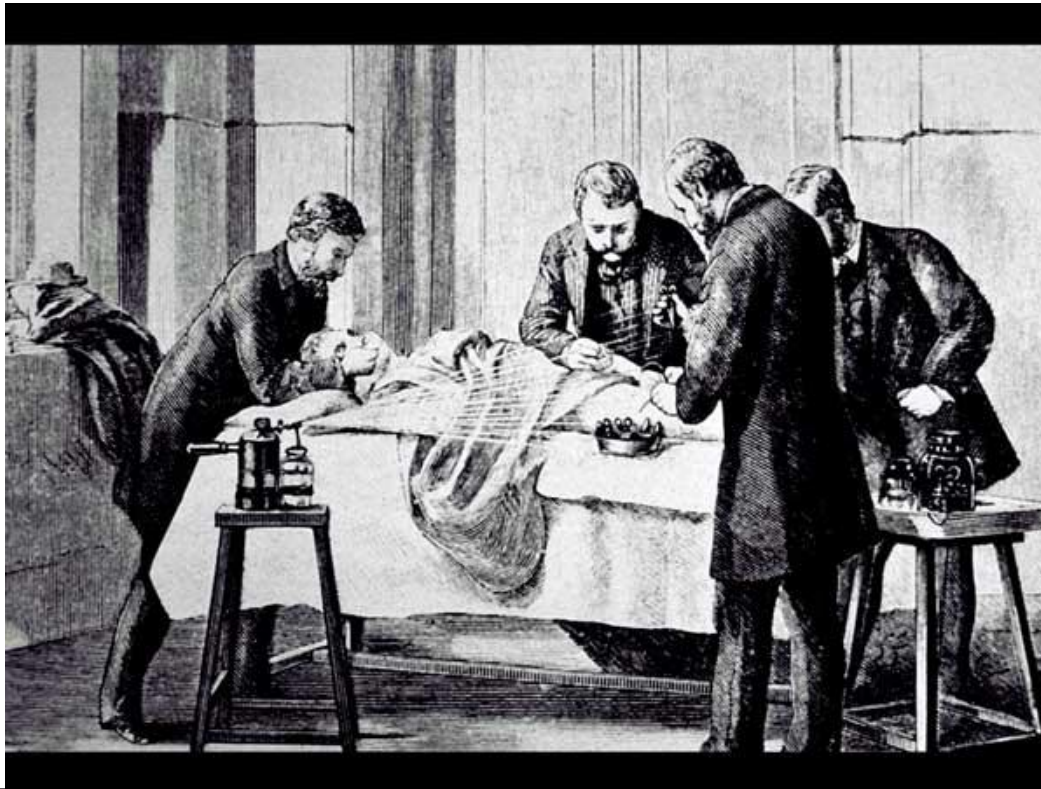


Morton's ether inhaler (1846)

Introduction of Antiseptic Surgery

Joseph Lister
(1827-1912)

➤ Infection prevented by spraying carbolic acid



Research on Infectious Diseases

Robert Koch (1843-1910)

- Research on infectious diseases: tuberculosis, cholera, and anthrax
- Honoured with Nobel Prize in Physiology or Medicine in 1905 for his work on tuberculosis

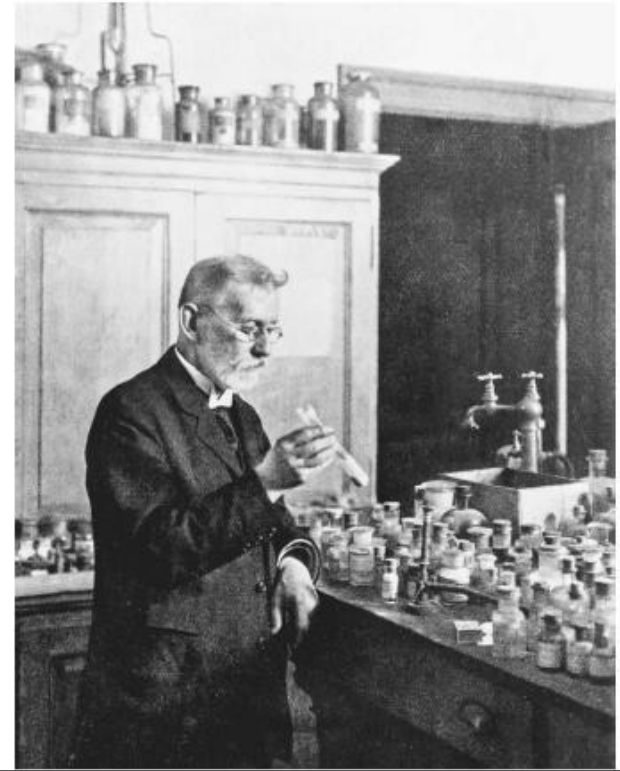


Koch and his wife, Emmy, upon receiving the Nobel Prize in 1905.

Research on Immunology

Paul Ehrlich (1854-1915)

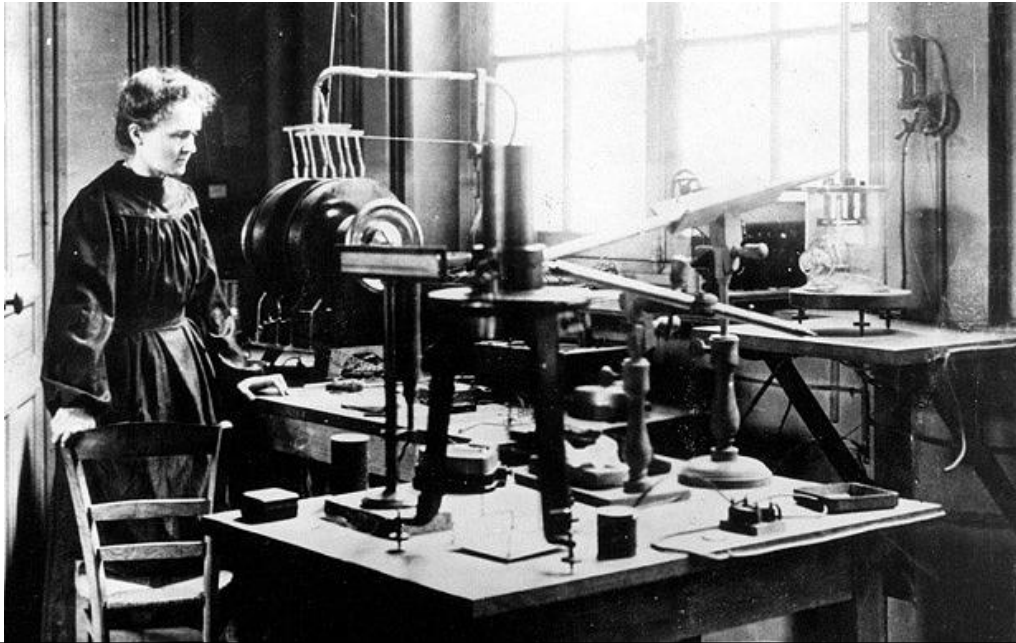
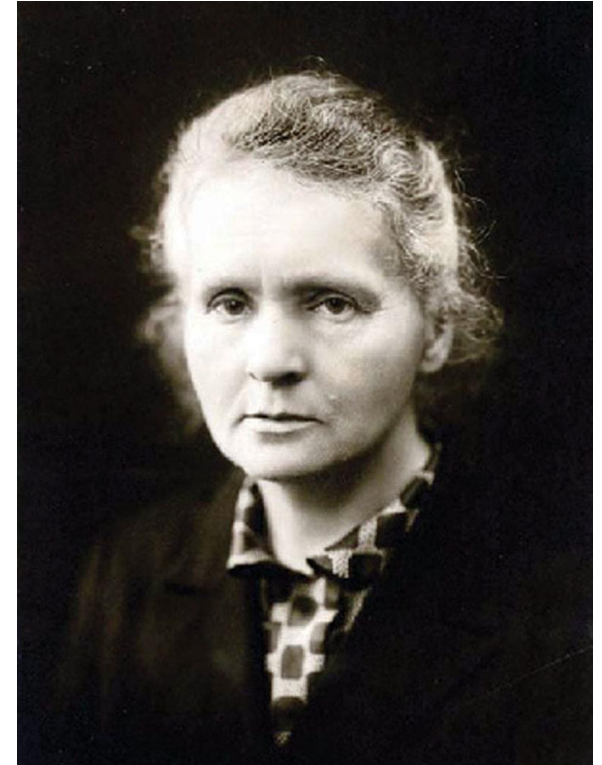
- Invented staining techniques
- Awarded Nobel Prize in Physiology or Medicine in 1908 for his contributions to immunology



Concept of Radioactivity

Marie Curie
(1867-1934)

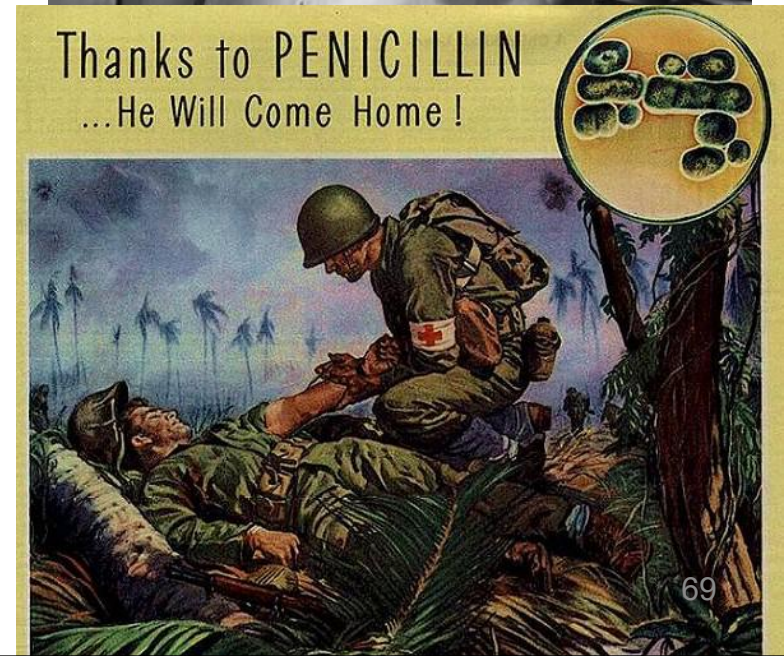
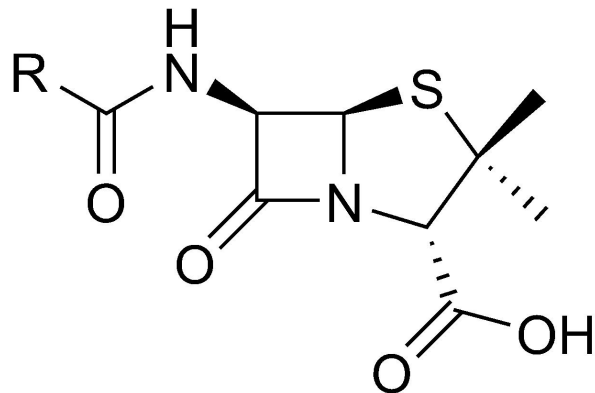
- Research on radioactivity
- Received Nobel Prize twice:
Physics and Chemistry



Discovery of Penicillin

**Alexander Fleming
(1881-1955)**

- Identified antibacterial substance penicillin secreted by *Penicillium* mould
- Wonder Drug that rescued the lives of thousands of soldiers during World War II



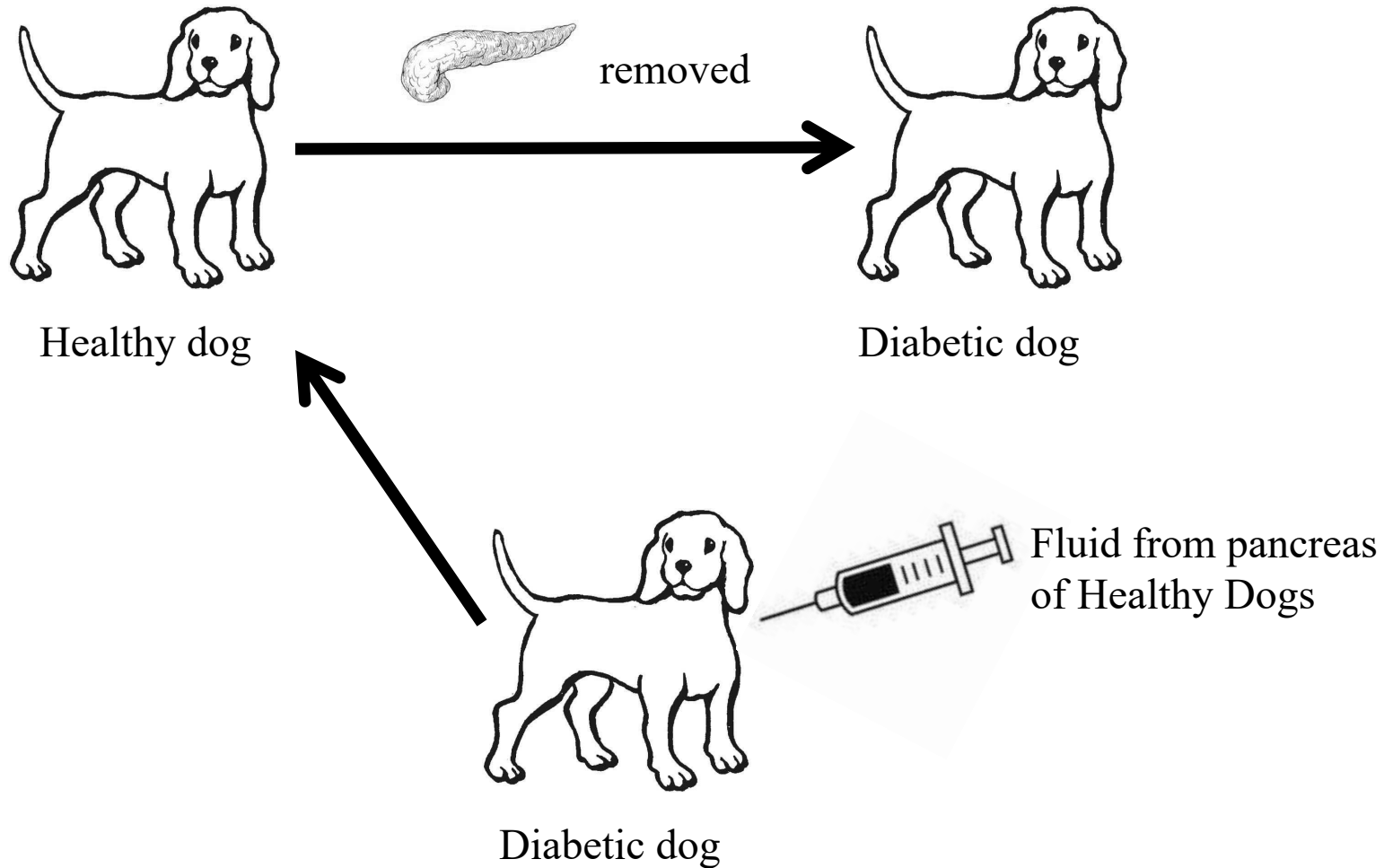
Discovery of Penicillin



Alexander Fleming received the Nobel Prize in 1945

Discovery of Insulin

➤ In 1921 **Frederick Banting and Charles Best** discovered the remedy for Diabetes



Discovery of Insulin



Frederick Banting and Charles Best

Received Nobel Prize in Physiology or Medicine on 1923

Deciphering Life's Enigma Code

James Watson, Francis Crick and Maurice Wilkins

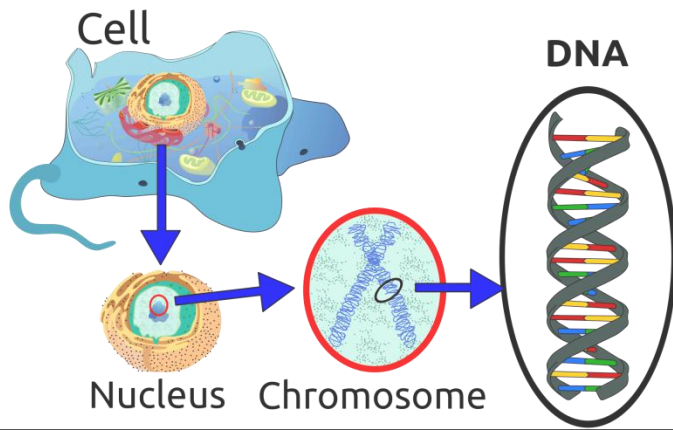
➤ Awarded Nobel prize in Physiology or Medicine on 1962 for their contribution in deciphering the structure of DNA



Francis Harry
Compton Crick
(1916-2004)

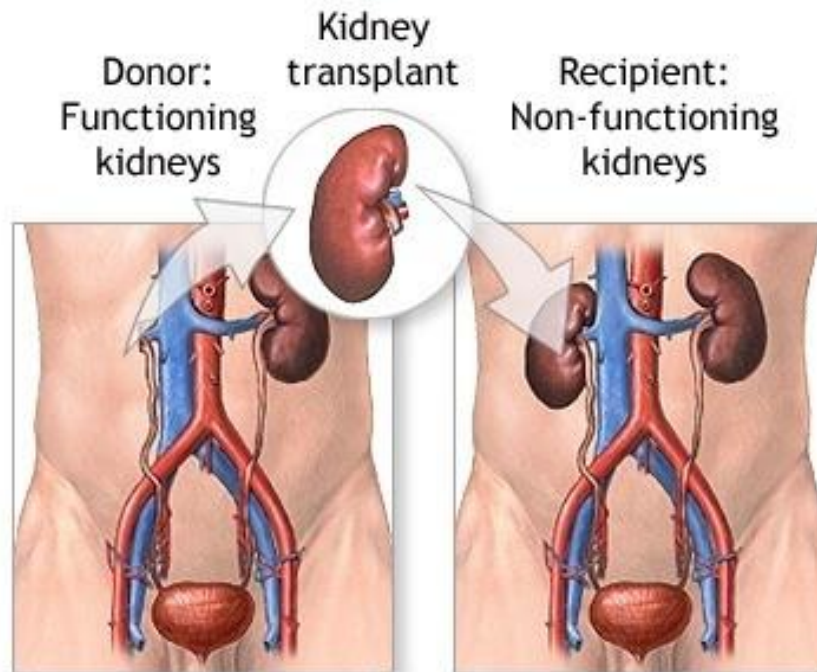
James Dewey
Watson
(1928 -)

Maurice Hugh
Frederick Wilkins
(1916-2004)



Organ Transplantation

- Most recent advance in the field of therapeutics
- Movement of an organ from one body to another or from a donor site to another location on the person's own body, to replace the recipient's damaged or absent organ
- 1954- First successful kidney transplant



Emergence of the concept of Adverse Drug Reaction



Emergence of the concept of Adverse Drug Reaction: Thalidomide Disaster

➤ Phocomelia observed in children because of the drug thalidomide administered to pregnant mothers since 1967



Acts and Guidelines to reduce patient compliance

- Drugs, though are inevitable to maintain good health, are sometimes associated with adverse effects.
- Thus regulations and numerous protocols were incorporated to increase the safety and efficacy of therapy. Clinical trial thus gained importance in modern therapeutics.
- Various Acts and agencies were introduced throughout the World to reduce patient suffering and increase the success of treatment
- World Health Organization and Food and Drug Administration are notable among these.

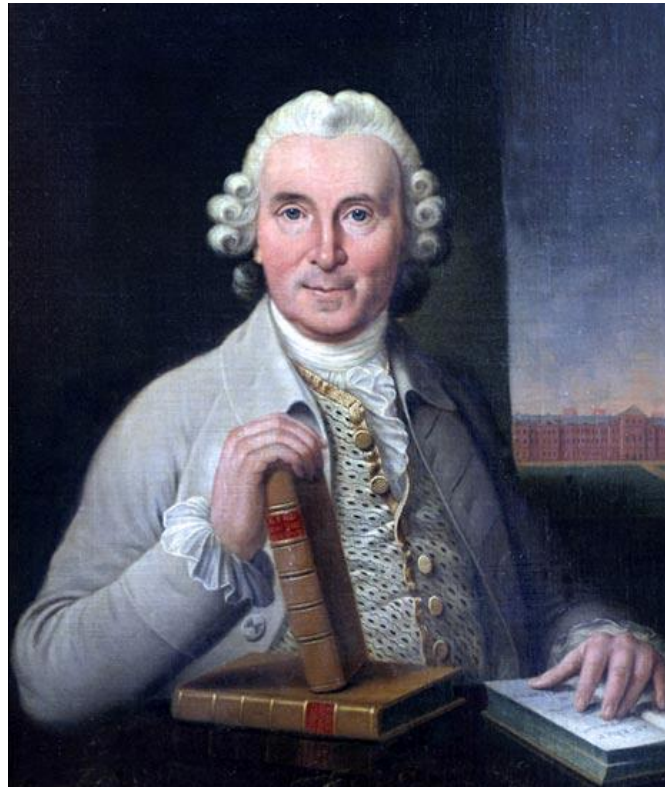
Clinical Trials

➤ Scientific investigations in human to study the safety and efficacy of various therapies



Evolution of Clinical Research

- World's first clinical trial recorded in the “Book of Daniel”- conducted by King Nebuchadnezzar a resourceful military leader
- **1747**- Controlled clinical trial conducted by James Lind on sailors suffering from scurvy





Food and Drug Administration

- Establishment: June 30, 1906
- Statutory Authority: The Federal Food, Drug, and Cosmetic Act (FFDCA)
- Objective: Ensuring the safety and proper labeling of foods and food substances
- Headquarters: White Oak, Maryland





Establishment of World Health Organization (WHO)

- Specialized agency of the United Nations- concerned with international public health
- Establishment: April 7, 1948
- Headquarters: Geneva, Switzerland



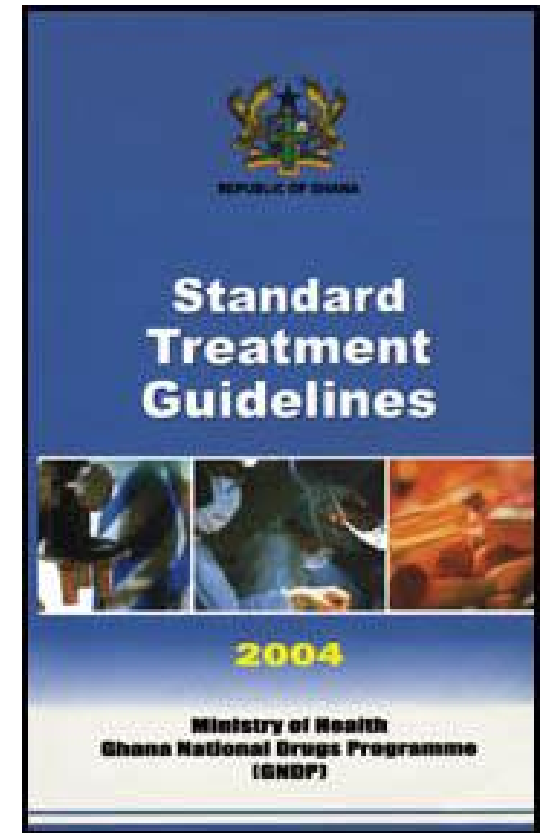
List of Essential Medicines

- “Those drugs that satisfy the health care needs of the majority of the population; they should therefore be available at all times in adequate amounts and in appropriate dosage forms, at a price the community can afford.”
- First established in 1977 by World Health Organization (WHO) and updated every two years



Standard treatment guidelines (STGs)

- A systematically developed statement designed to assist practitioners and patients in making decisions about appropriate health care for specific clinical circumstances
- Time-honored system to improve patient outcomes and to improve efficiency within the health care system
- Provide standardized guidance to practitioners
- The most appropriate medicines for use in specific diseases are listed



Key Features of STG

1. Simplicity
2. Credibility
3. Same standards for all levels
4. Drug supply based on standards
5. Introduced in pre-service training
6. Dynamic—regular updates
7. Durable pocket manuals

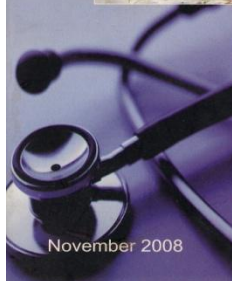
Gaining acceptance: Indian scenario





सुखमेव जयते

Draft Standard Treatment Guidelines FOR BASIC / PRIMARY HEALTH CARE FACILITIES



GOVERNMENT OF WEST BENGAL
DEPARTMENT OF HEALTH
AND FAMILY WELFARE

Swasthya Bhawan
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November 2008



सुखमेव जयते

STANDARD TREATMENT GUIDELINES

For Primary Health Care Facilities
Revised Edition January 2010



Developed By
INSTITUTE OF HEALTH AND FAMILY WELFARE
KOLKATA

Department Of Health and Family Welfare
Government of West Bengal

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Consumer Protection Act, 1986

- Act of the Parliament of India enacted in 1986
- Protection of the interests of consumers in India.
- Provision for the establishment of consumer councils and other authorities for the settlement of consumers' disputes and for matters connected therewith

Consumer Rights





Thank you