

HISTORY OF PHARMACY AND DEONTOLOGY

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A fresco depicting a seated figure, likely a philosopher or scholar, with a long white beard and hair. He is wearing a dark blue robe and is seated on a golden throne. He holds a book with Greek text, including the words "ΒΙΒΛΙΟΝ", "ΚΑΙΡΟΝ", "ΣΤΕΦΑΝΟΝ", and "ΜΑΡΤΥΡΟΝ". The background features a draped canopy with a decorative border. The overall style is characteristic of ancient Greek art.

PHARMACY PRACTICES IN ANCIENT GREECE

- **Mythological period**
- **Scientific period**

Mythological period

- Around 600 B.C. the Greeks integrated science into mythological thinking.





- **Chiron** was the most important *Centaur* in Greek mythology, famous for his teaching ability.
- Chiron is the teacher of the great healing power of **Asclepius**. He was the god of health. His father was Apollon.

- Apollon the father of Asclepius, was fell in love with Coronis. Coronis got pregnant with Asclepius. After a period of time Coronis had betrayed to Apollon and fell in love with another man. Apollon got so angry for this situation and gave an order to be burned alive. However, Apollon saved the child (Asclepius) from burning. He gave his son to Chiron to bring up him.
- Chiron educated him as a physician and he learned lot of thing from him. According to the legand he had been a master on bringing the deads to life. Zeus started to angry to Asclepius because he was breaking the natural order. So Zeus killed him. Then, Apollon placed the lifeless body of Asclepius in the sky amongst the stars.



Apollon, Chiron and Asclepius



- Honoring **Asklepios**, *the god of healing*, the Greeks built **healing centers**, called **Asklepions**, including a temple to the god and places for patients to sleep.
- They believed patients would be cured through visitations by Asklepions.

Diagnosis and Treatment

- Treatments included psychotherapy, massage, herbal remedies, mud and bathing treatments, surgeries and the drinking of water, which were prescribed according to what the patient had experienced.

- There were two steps in order for a patient to be considered to be treated in the Asclepion.
- The first of which is the **catharsis** or **purification stage**.
- **Catharsis** means giving a medicine and then providing the purification of human body. Therefore bad habits leaves the person.

- Afterwards, comes **incubation** or **dream therapy**.

- **HYGEIA**; daughter of Asclepios; she was the goddess of hygiene, health, sanitation. Hygieia cared not only to sick people, but also to animals.
- **TELESPHORUS**; son of him. He symbolized recovery from illness
- **PANACEA**; daughter of him. She was the goddess of Universal remedy. She was responsible for the medical plants.

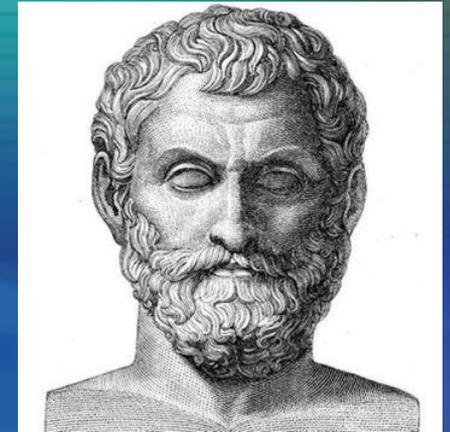


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Asklepios and his family

- There was even **a theatre** at the Asklepion, to entertain the patients who would often stay for weeks.
- All of this was done in the belief that healing was **a blessed art** and that *people's souls needed to be mended as well as their bodies.*

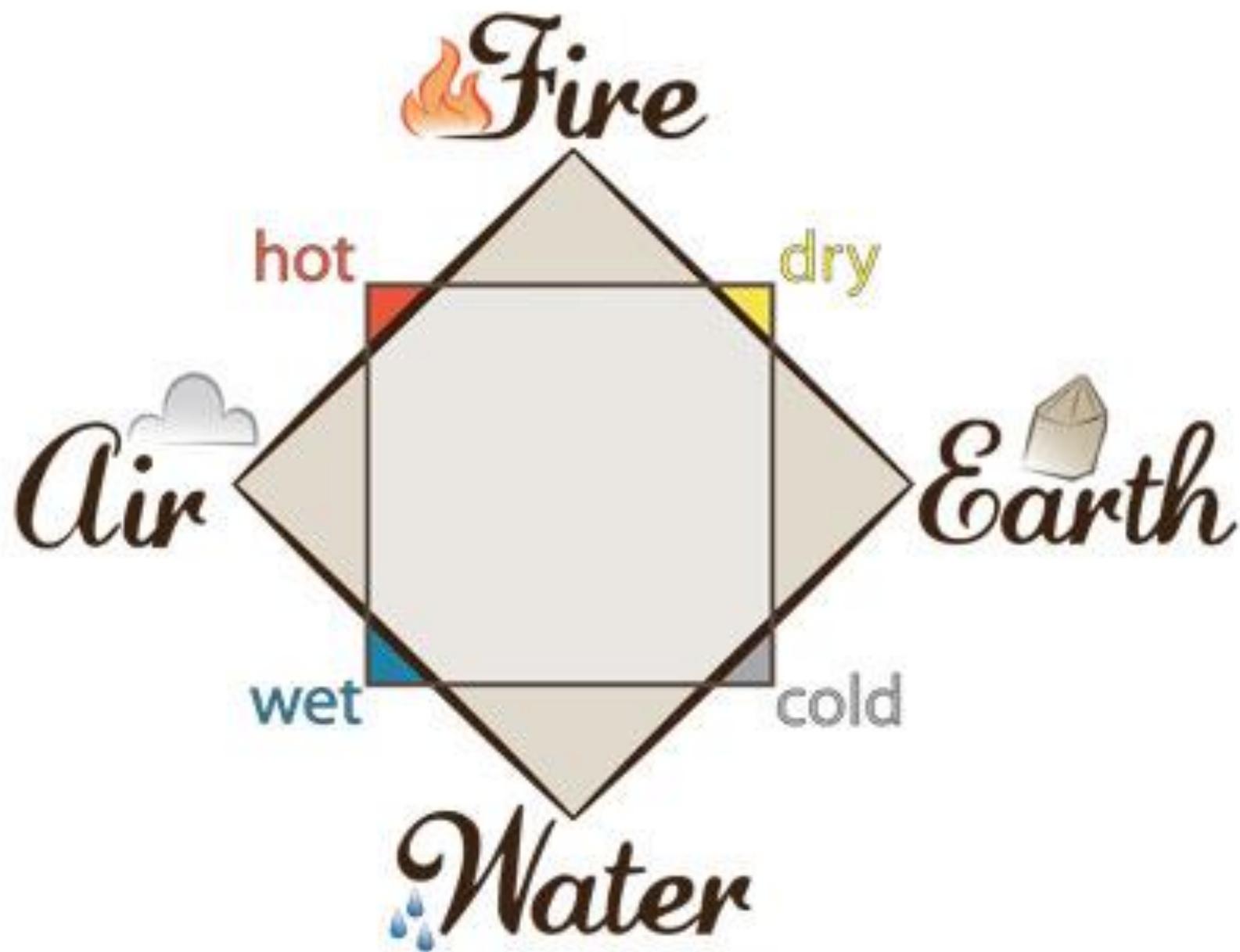
Thales



- The first recorded natural *philosopher* of **Miletus (an ancient port city in Egea)** was Thales, whom we can say flourished in 580 B.C. Thales was a wealthy man who had made a fortune selling olive presses and then retired.
- Thales was important for both thinking of **water** as the **main matter** and trying to explain nature by combining the facts.

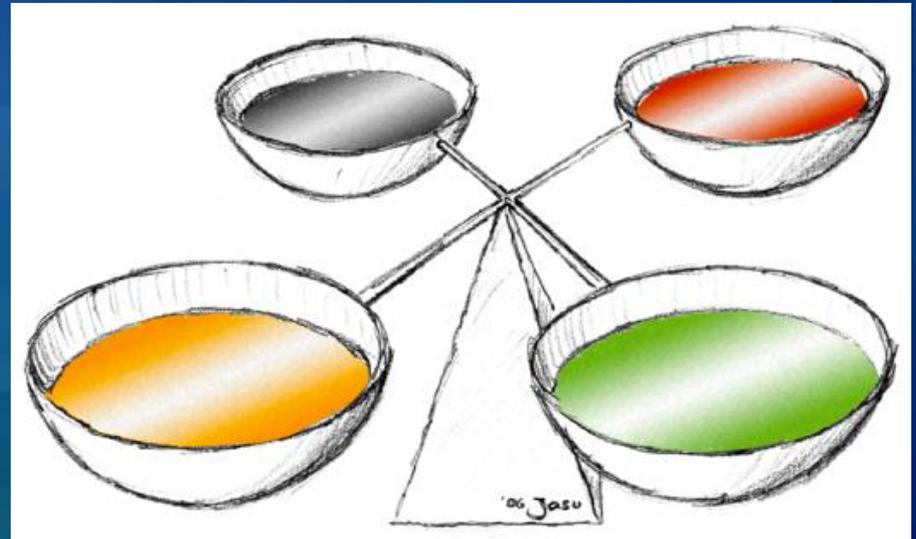
Empedocles

- According to Empedocles, there are 4 elements: **air, water, earth** and **fire**.
- He experimentally proved that air is a separate substance.
- He proclaimed that the moon shines with the reflected light, the Earth is in the form of spheres.
- He tried to explain the mechanics of breathing the eclipse.



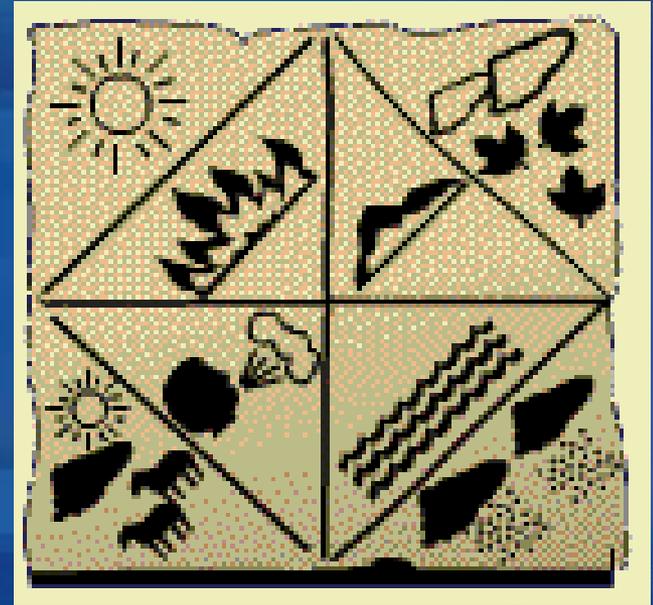
Greek thinkers emphasized idea of *balance* in all things.

- The idea of balance was reflected by belief in **four humors** of human body:
 - **yellow bile**
 - **black bile**
 - **blood**
 - **phlegm**



Their Balance Theory for “fours”:

- theory that **four elements**:
 - earth, air, fire & water



- the **four seasons**:

- summer, autumn, winter & spring

were all linked to the **four humors** in human body

Scientific period

- **Hippocrates.**

Hippocrates and Hippocratic Medicine

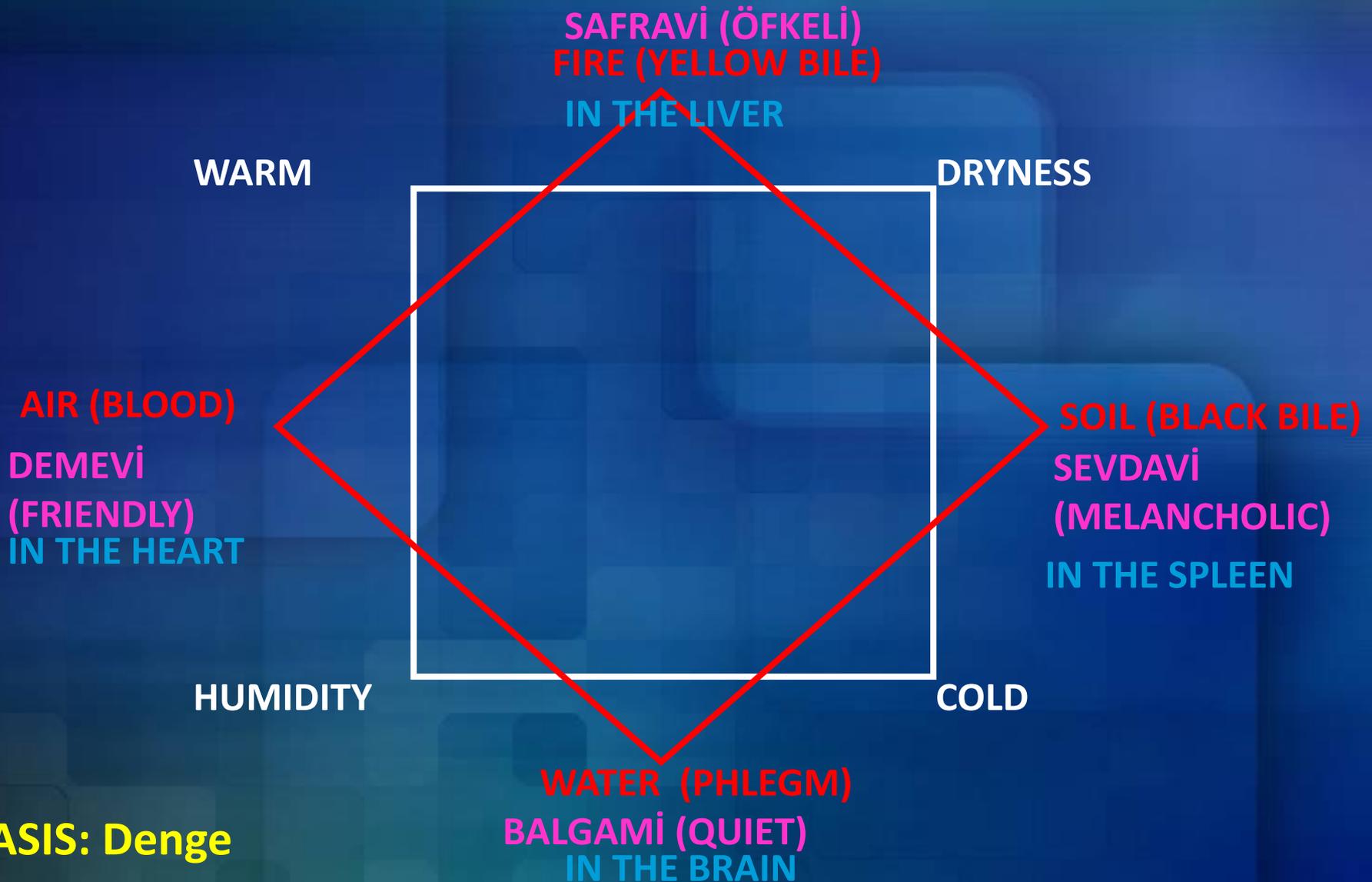
- Hippocrates' theoretical approach and medical practices are based on the concept of the philosophy on that period, especially on **Empedocles' doctrines**.
- He puts the medicine away from gods and he showed a positive science approach to medicine. He was known as the father of modern medicine.

The contributions of Hippocrates to medicine

- Observation and experimentation,
- Clinical lectures at the beginning of the patient: examination, observation and diagnosis of the symptoms- founder of clinical medicine

- According to the Theory of Elements, he established the Humoral Pathology
- He said that in human body there were four humors: blood, mucus, yellow bile, black bile.
- He argued that the foods that were consumed, turned into these four liquids and that the disease was the result of imbalance between these four fluids.

Humoral Patoloji=4 Hilt Teorisi



CRASIS: Denge durumu

- The equivalents of the **4 humors** which formed the nature in body are black bile, yellow bile, mucus and blood.
 - **BLOOD** (*which circulates through the body*) fluent and warm → AIR
 - **MUCUS** (*which is located in brain*) cold and fluent → WATER
 - **YELLOW BILE** (*which comes from liver*) dry and warm → FIRE
 - **BLACK BILE** (*which is located in spleen*) cold and dry → EARTH

TYPES OF ANCIENT GREEK PHYSICIANS

- **Military Surgeons**
- **Traveller Public Doctors**
- **Permanent Public Doctors**
- **Officer physicians**
- **Botanicians**
- **Sports Physicians**
- **Philosophers Physicians**



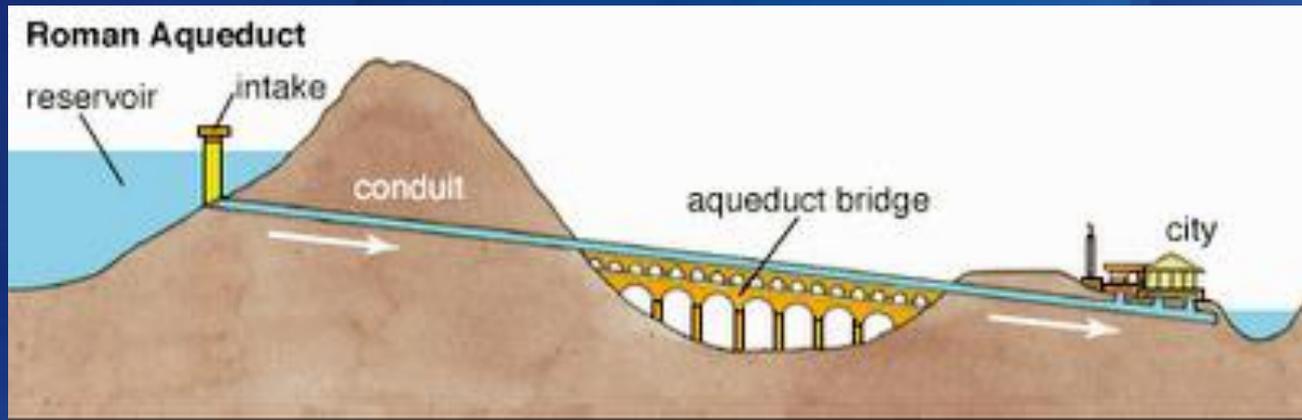
**PHARMACY
PRACTICES IN
ANCIENT ROME**

Romans - 9th Century BC

- Learned about disease & sanitation from Greeks
- Developed sanitation system of aqueducts (KEMERLİ KÖPRÜ) to bring clean water to cities
- Built sewers to carry off waste
- Built public baths with filtering systems
- Marks beginning of public health & sanitation.

Aqueducts

- Aqueduct acted as a continuous slope

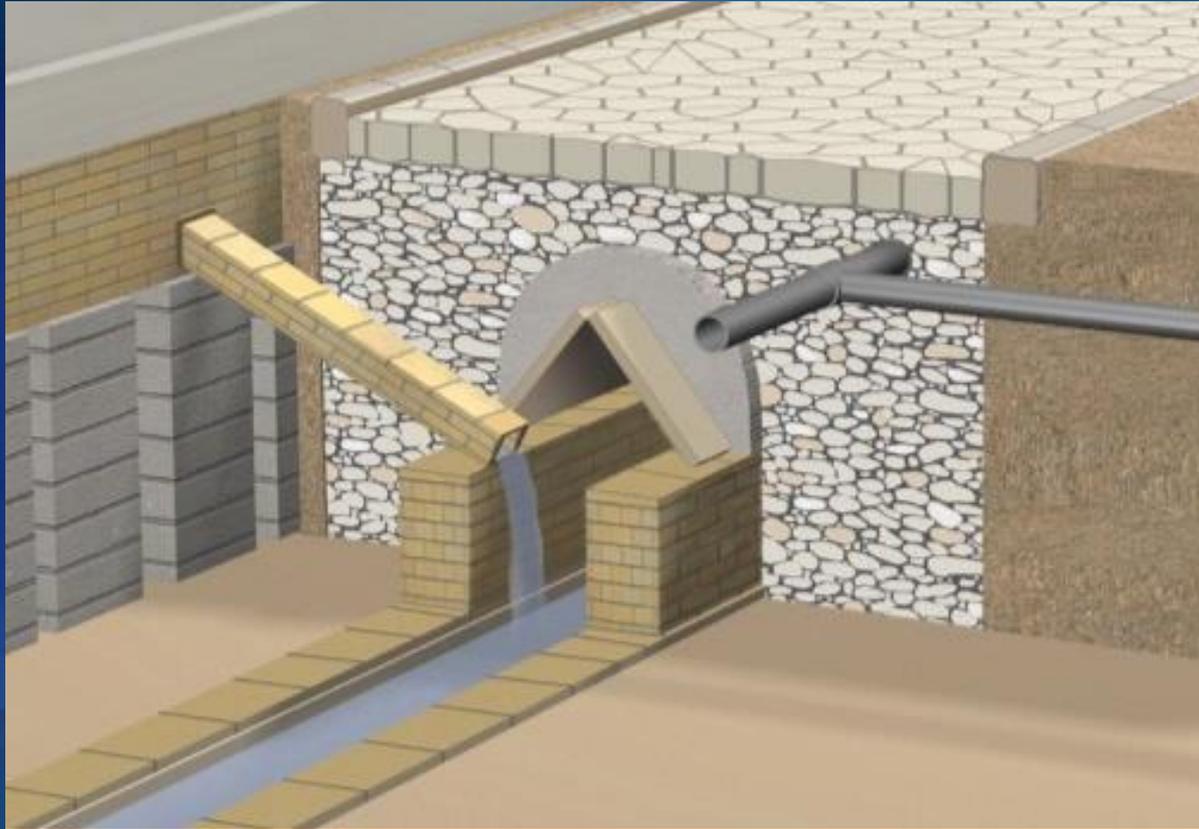


- Water had to be drawn from springs located in hilly areas, above Rome's position

Ancient Roman aqueduct System



Roman Sewers – carried waste away from cities



Ancient Roman Sewer



Roman pharmacy titles

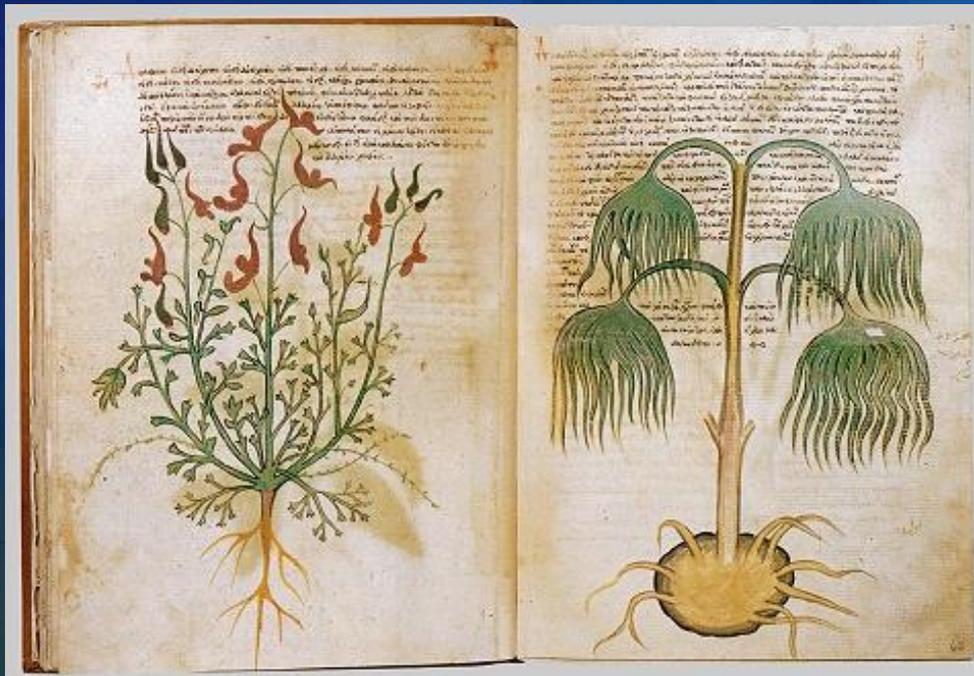
- *Pharmacopeia*: Maker of remedies
- *Pharmacotritae*: Drug Grinders
- *Unguentarii*: Makers of ointments
- *Pigmentarii*: Maker of cosmetics
- *Pharmacopolae*: Seller of drugs
- *Aromatarii*: Dealers of spices
- Pharmacist of today had not yet evolved

FAMOUS PHYSICIANS OF ROME

- SORANUS
- CELSUS (**DE RE MEDICINE**)
- *DIOSCORIDES* (M.S. I yy.)
 - MATERIA MEDICA**
 - PERI HYLES IATRIKES
 - HUNEYN BİN İSHAK (**KİTAB AL- HAŞAYİŞ**)
- *ASCLEPIADES* (METHODISM)
- *GALEN* (M.S.129-200)
 - HIERA
 - PICRA

Dioscorides

- His wrote the most famous book *Materia Medica* and it was translated into Latin by the name of *Peri Hyles Iatrikes* and to Arabic by the name of *Kitab Al-Haṣayīṣ* by **Huneyn bin Ishak**.



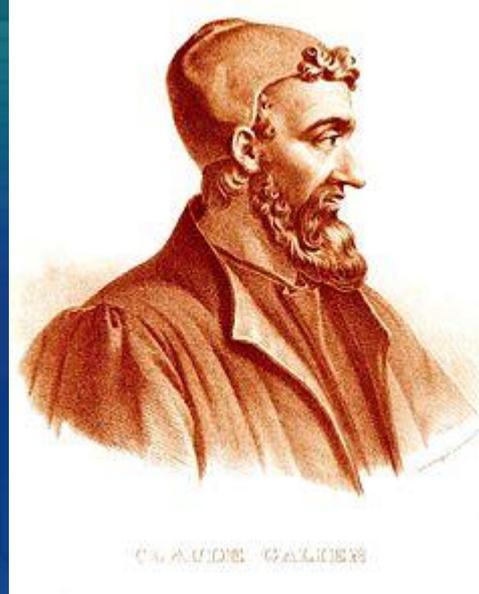
ASKLEPIADES

- He made his works on the basis of the atomic theory.
- He worked on **tracheotomy**. The surgical of Trechea.

- He used **diet, baths, and gymnastics** methods in his treatments.
- He treated mental patients by busyness, music, and exercise methods

GALENOS

- Galenos, the greatest representative of Greek medicine in Rome and follower of the Hippocrates.
- He was born in Pergamon.
- Galen of Pergamon.
- He is the most important and the most influential of the ancient Greek physician.



- The most important contributions to medicine was in **anatomy** and **physiology** fields which he has been focused during his long training.
- Galen is seen as the person who made the greatest contribution to medical science after Hippocrates.

Anatomy

- Galen took the Hippocratic idea of Observation into the body
- Widespread use of Dissection (the action of dissecting a body or plant to study its internal parts)



- Galen is recognized as the «**father of the pharmacist**» because of starting to get the medicines from the drugs.
- We called them as galenic drugs.
- He was the founder of polypharmacy. He has about 100 articles on pharmacy.
- Theory of Opposites (treat the heat with cold)

Preparation of Theriac in Europe

paste made of a mixture of vegetable, animal and mineral substances.



ALEXANDRIA MEDICAL SCHOOL

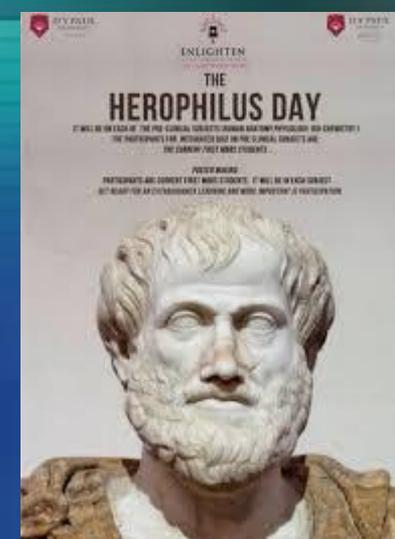
- ERASISTRATUS
- HEROPHILUS
- THEOPHRASTUS

ERASISTRATUS

- He was a Greek anatomist. Erasistratus was among the first to distinguish between veins and arteries.
- He believed that the arteries were full of **air** and that they carried the "**animal spirit**" (**pneuma**).

HEROPHILUS

- Herophilus was born in Istanbul and was the most important anatomist of the ancient era. He is considered as the «**father of the anatomy**».
- It is known that he had *significant dissections* on cadavers.
- He used portable **waterclocks** to measure the pulse of patients correctly.



- It is stated that Herophilus made dissections on nearly 600 inmates.
- Gave the name of «duedonum».
- He made studies on the liver, pancreas, salivary glands, brain and nervous system.
- Through dissections, Herophilus was able to deduce that veins only carried blood.

THEOPHRASTUS

- Known as the “**Father of Botany**”