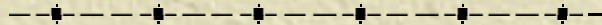
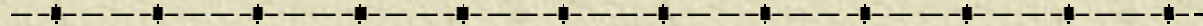
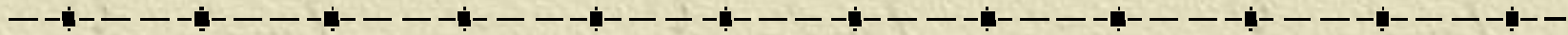


# Medicine of late Middle Ages





✦ **Later Middle Ages - XV-XVII century,**

✦ **In the life of the Western Europe peoples, this time is called the Renaissance**



## Main characteristics of Renaissance

- ✦ The revival of ancient culture
- ✦ In science, experimental method of cognition priority
- ✦ The rapid development of the exact sciences: invented and perfected measuring and precision instruments



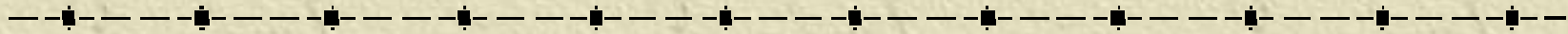
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✦ **Long-distance travel and geographical discoveries have enriched medicine of medicines**

✦ **Outstanding people of the Renaissance had a wide variety of interests and knowledge**


✦ **Much attention is paid to the study of the human body, anatomy**



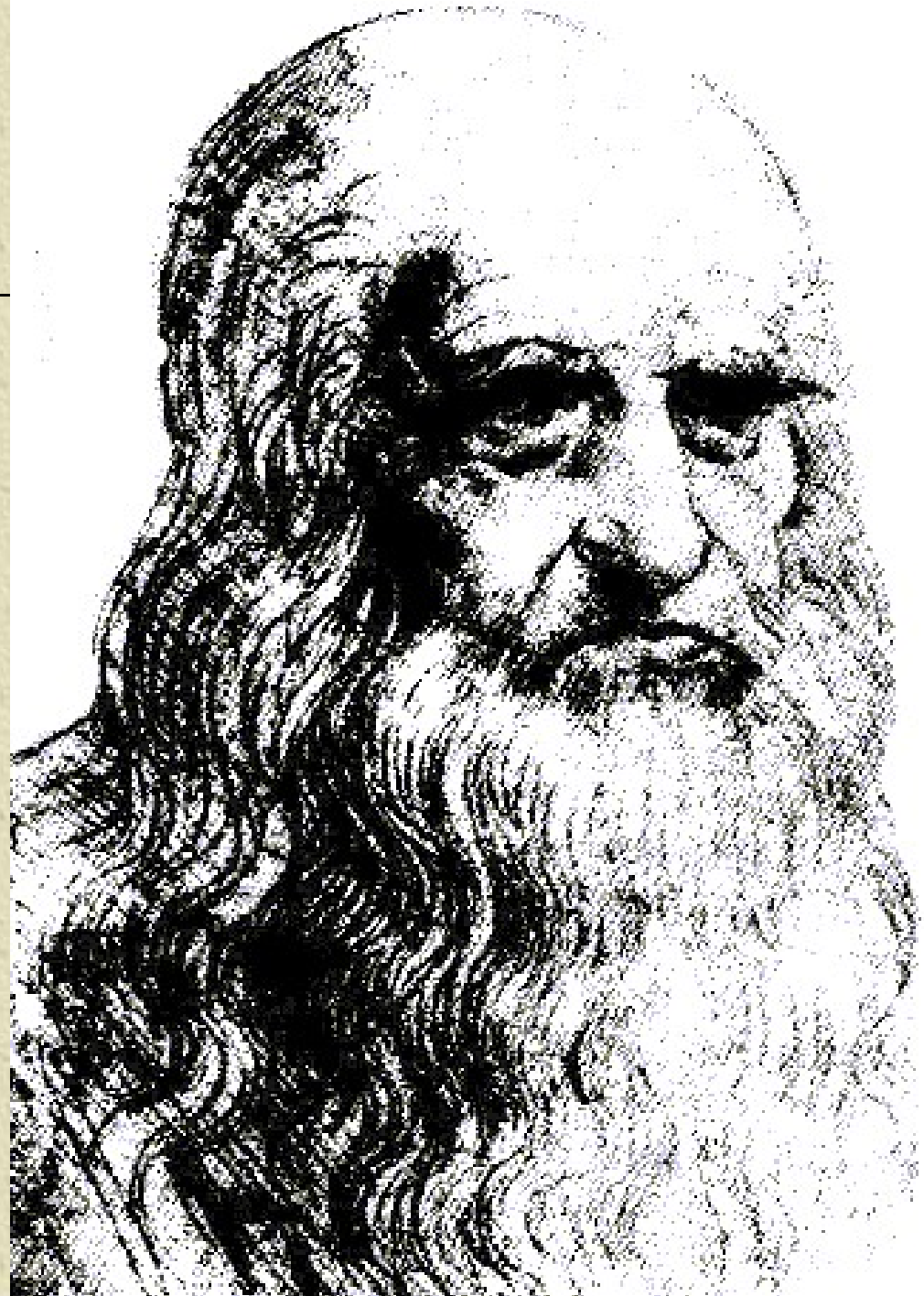


✦ **The Renaissance gave many creators of anatomy**

✦ **One of the great Italian artist is Leonardo da Vinci**



**Leonardo da Vinci**  
**1452-1519.**







Annunciation  
(~1472-1475)



Madonna of the  
Carnation (1476)



Baptism of Christ  
(1472-1475)





Leonardo da Vinci

— — — — —  
Madonna Litta

(1478-1482)

Hermitage, St. Petersburg, Russia



The paintings of this period :



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Leonardo da Vinci

Mona Lisa (La Gioconda)

1514 - 1515

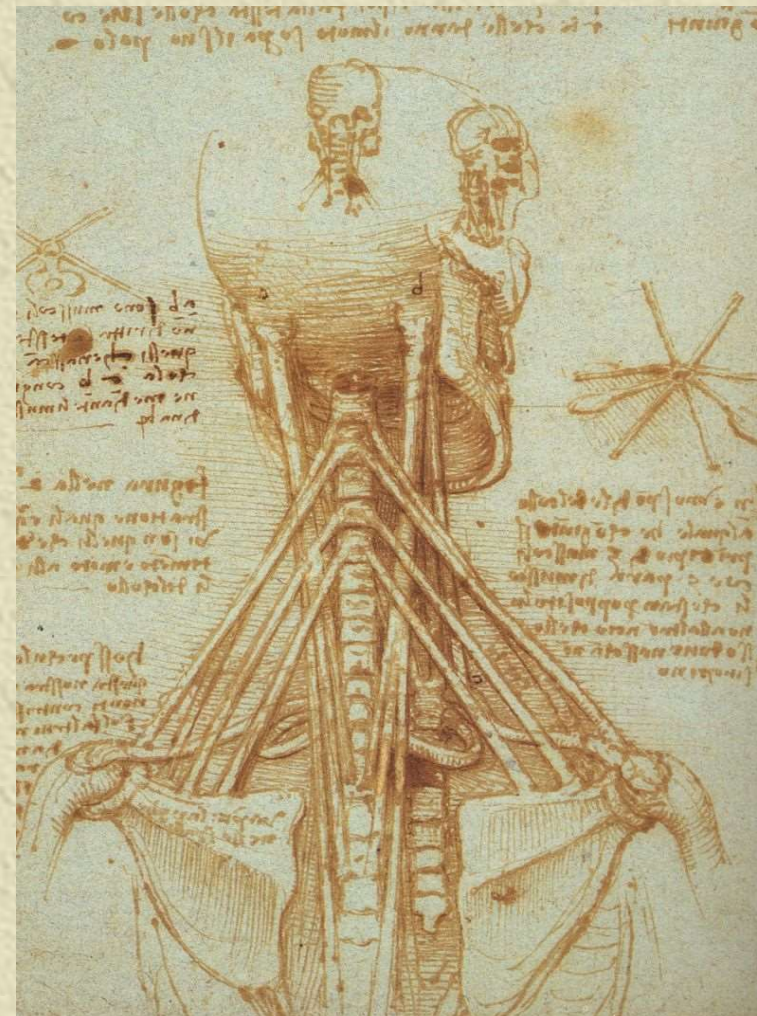
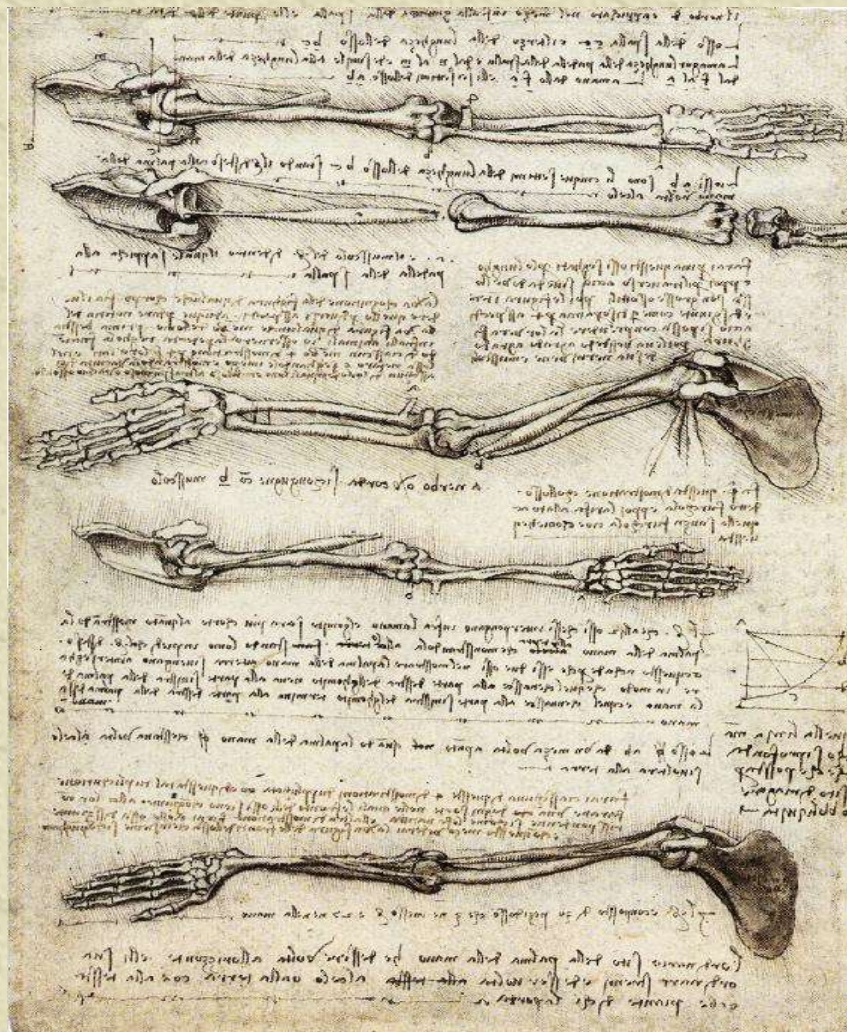
Oil on poplar panel. 77 x 53 cm (30.31 x  
20.87 inches) Louvre Museum. Paris, France

## Leonardo da Vinci

- 
- ✦ Produced an autopsy about 30 corpses
  - ✦ He made more than 200 sheets of anatomical drawings
  - ✦ Figure reflects not only the physical body, but also its function
  - ✦ He pointed out an error anatomist Mondino de Lyutstsi



# Anatomical notebooks of Leonardo Da Vinci





## Leonardo Da Vinci

When he has been creating the anatomical drawings were adhered a strict sequence.

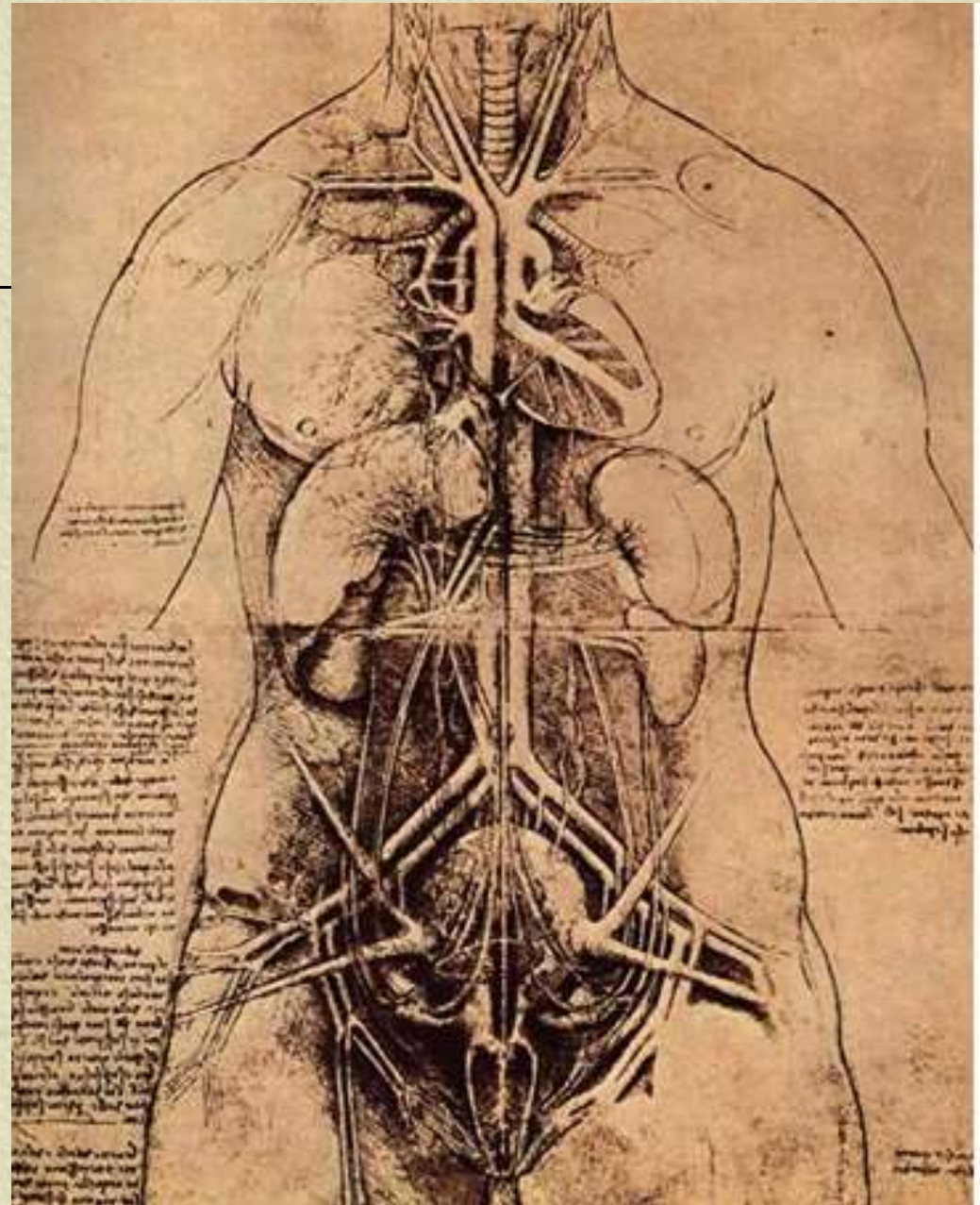
Tried to accurately reproduce human movements and he has focused on understanding muscular system and skeletal structure.

In comments to his notes was showed the function of peripheral nerves

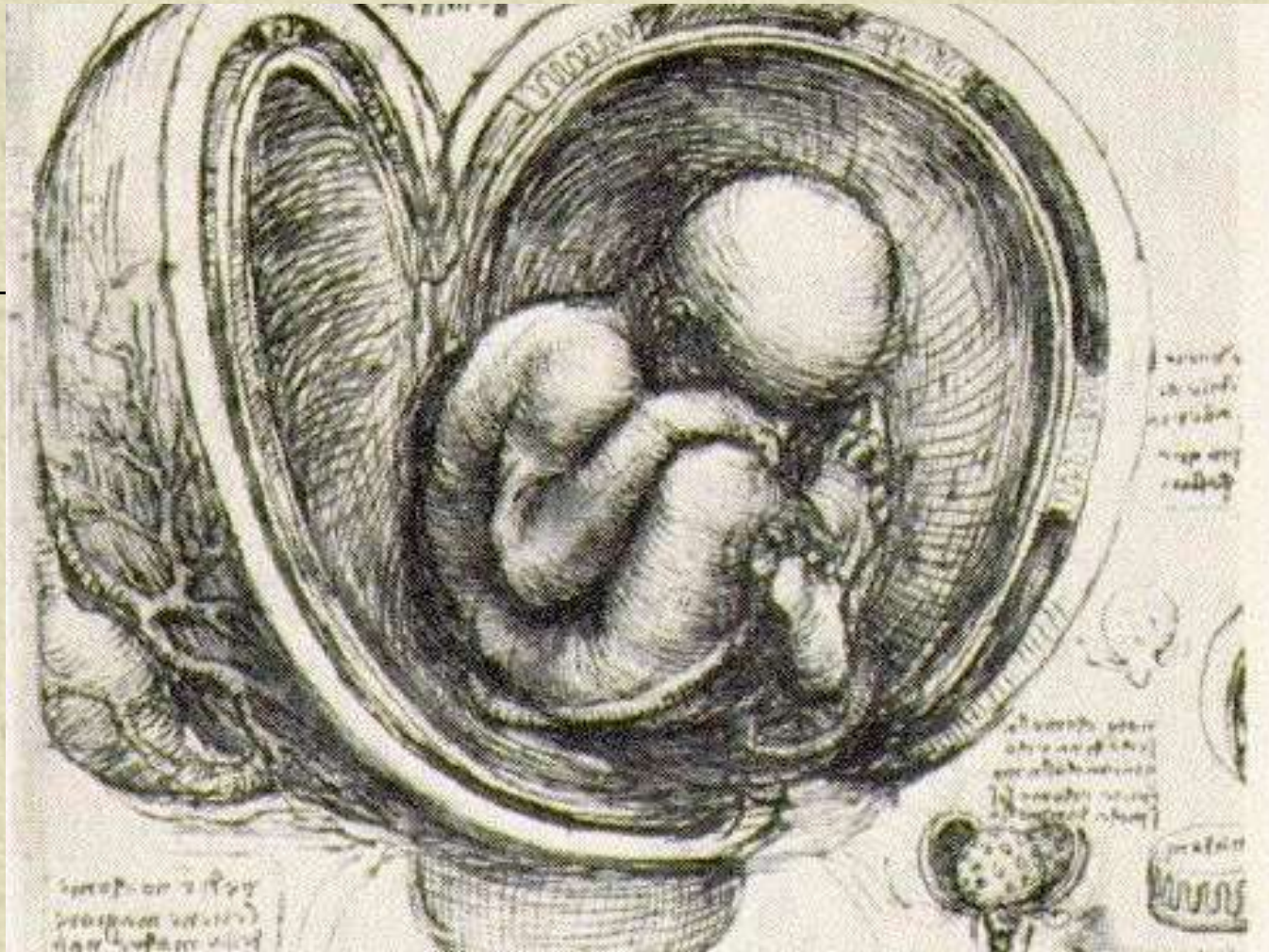


—■—■—■—■—

**He tried to imagine  
the spatial  
relationship of the  
nerve trunks and  
muscles**







**Leonardo da Vinci made a huge contribution to the development of anatomy. The golden age of anatomy were opened by his anatomical works.**



# The founders of scientific anatomy - Andreas Vesalius

- 
- ✦ **The newly built teaching anatomy: lectures accompanied by demonstrations of autopsies.**
  - ✦ **To conduct experiments on animals.**
  - ✦ **Pointed out an error of Galen**
  - ✦ **Described heart valves**

**Andreas Vesalius**  
**1514-1564.**



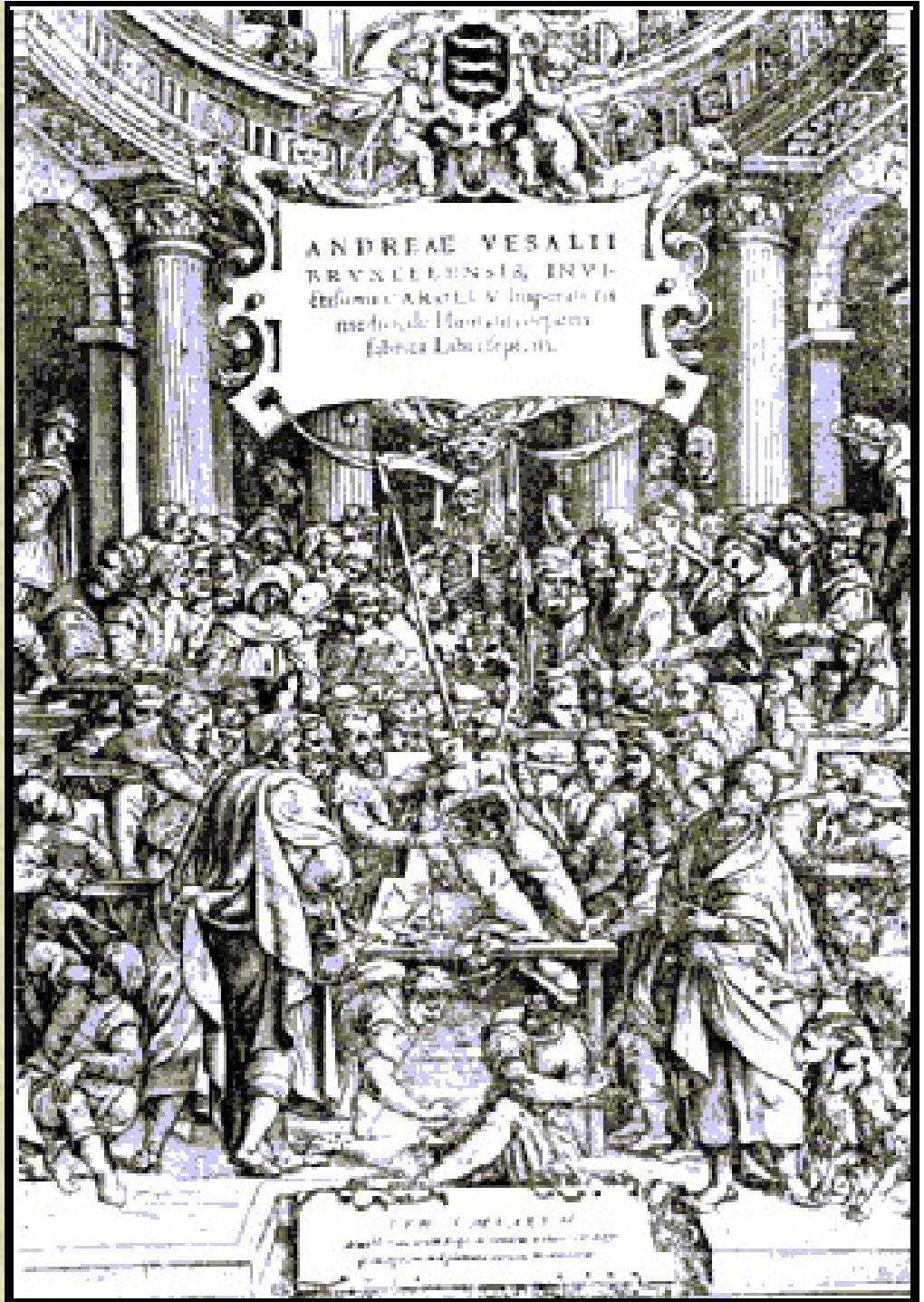


# Teaching of anatomy



—•—•—•—•—•—•—

**The main work  
Vesalius “About the  
structure of the  
human body”**



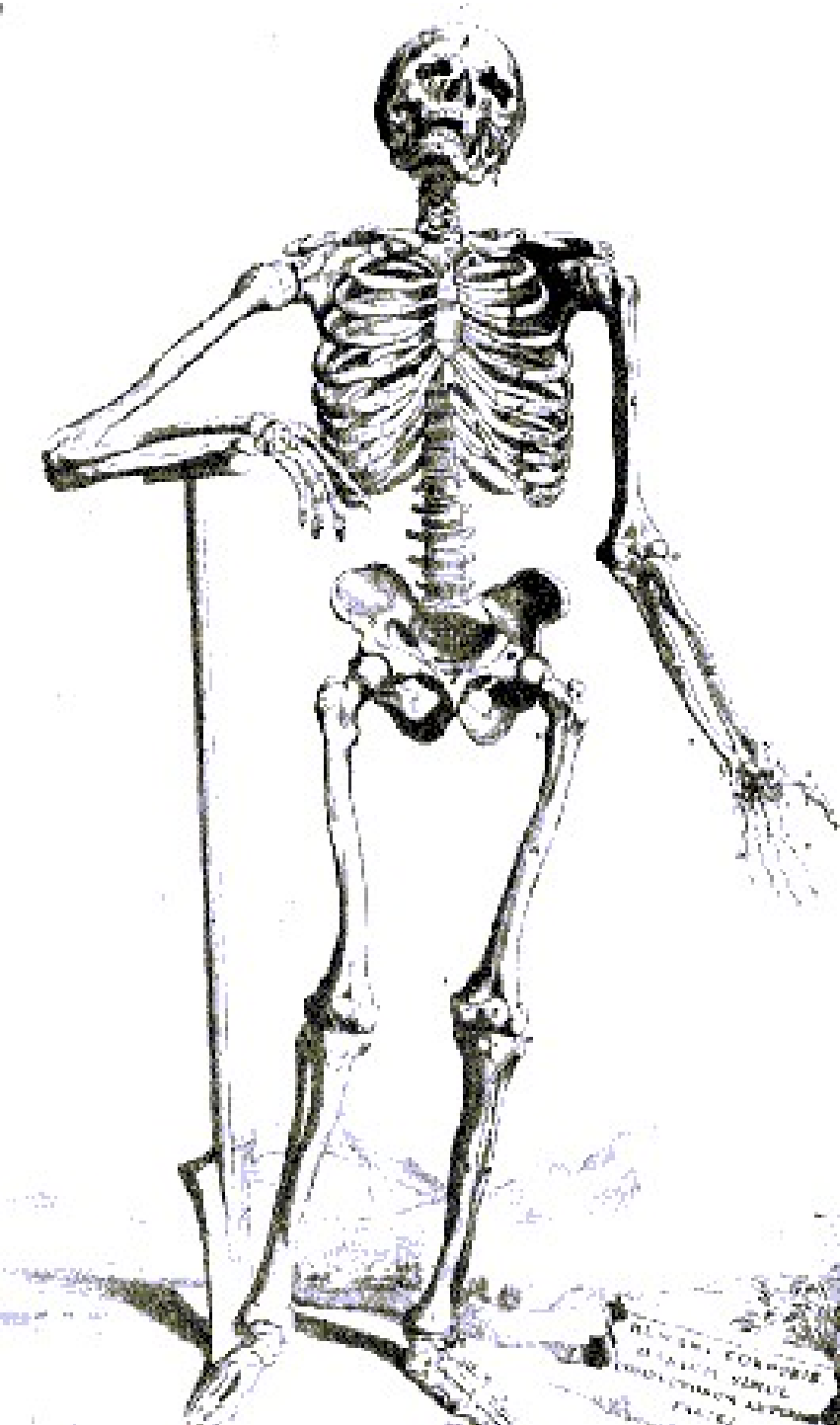


## **Work Vesalius' :**

### **“About the structure of the human body ”**

- 
- ✦ In a systematic manner were investigated the skeleton, ligaments, muscles, blood vessels, nerves, internal organs**
  - ✦ The book has artistic drawings**
  - ✦ Feature of drawings: the skeleton and muscle were depicted in motion**







## Doctors anatomists the end of XVI- early XVII century

✦ Fallopius

✦ Eustachius

✦ Both

✦ Arantius

✦ Varoli

✦ Bauhin

✦ Azaleas

✦ Fabricius

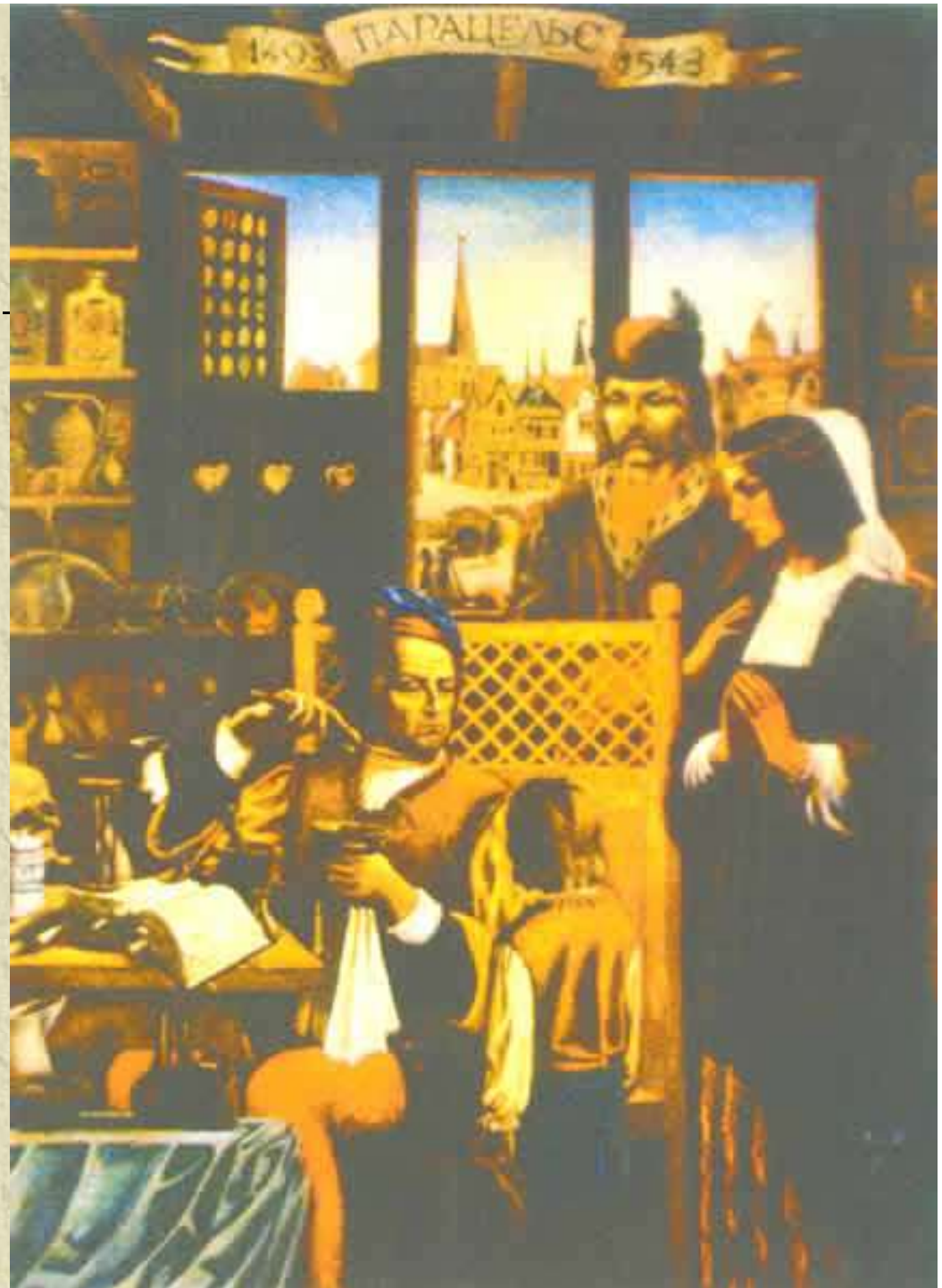


## **In the Renaissance, in the knowledge of nature played a big role experimental method**


- 
- ✦ Representatives of natural science have sought to check all the provisions empirically**
  - ✦ In medicine, one of the first opponents galenizma and scholasticism was Paracelsus**

— — — — —

**Paracelsus  
1493-1541.**





- 
- ✦ He spoke of the close relationship with medicine chemistry
  - ✦ For the treatment of extensive use of mineral substances  
(mercury, sulfur, antimony)
  - ✦ He developed a new doctrine about the dosage of medicines
  - ✦ Considers necessary for the doctor to work in the laboratory (tests, experiments)
  - ✦ He criticized the outdated doctrine of "the four juices of the body"
  - ✦ He condemns the misuse of bloodletting and cleansing of the body by the laxatives



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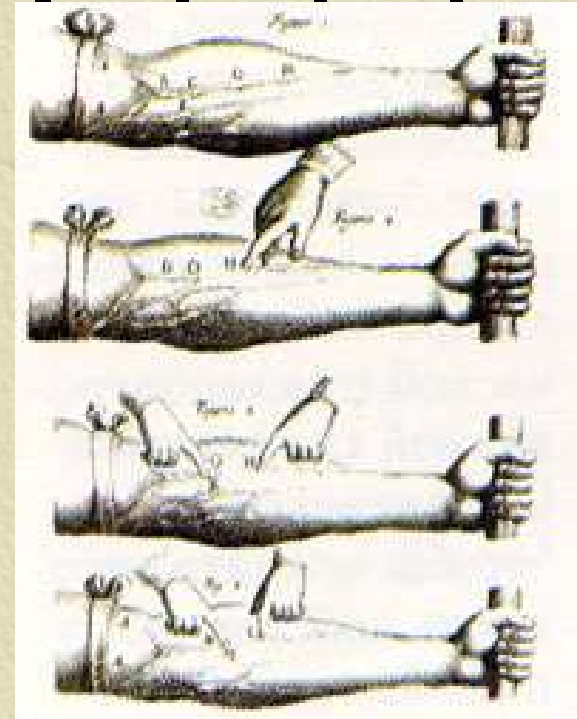
**The work Paracelsus  
"Great Surgery"**





## Development of physiology

- ✦ William Harvey (1578-1657 g):
- ✦ ~~He studied the embryonic formation of~~ the heart and vascular system
- ✦ Experimentally confirmed speculation predecessors about pulmonary circulation
- ✦ One of the first to carry out a comparison of clinical findings with further research of corpse

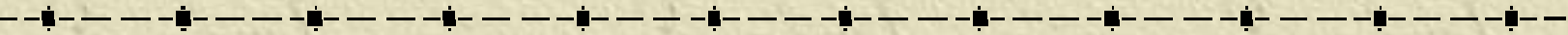


# Marcello Malpighi


(1628-1694)

- ✓ Using a microscope:
- ✓ He described the capillaries in the lungs and the blood capillary circulation.
- ✓ described erythrocytes and layer of skin.
- ✓ He gave a complete picture of the movement of blood in the body





- ✦ **Francis Bacon eminent English materialist philosopher has played an important role in the promotion of cognition the experimental method**
- ✦ **French philosopher Rene Descartes did positive impact on the development of medicine in the 17th century**



---

**Francis Bacon  
(1561-1626)**





## Francis Bacon

- 
- ✦ **He opposed scholasticism**
  - ✦ **He believed that nature should be studied based on the experience**
  - ✦ **He spoke about the need to develop of comparative anatomy**
  - ✦ **Attached great importance to prevention as the most progressive path in medicine**



— ■ — ■ — ■ — ■ —

**Rene Descartes**  
**1596-1650.**





## **Rene Descartes - ideologist yatro-mechanical trend in medicine**

- 
- ✦ He professed an idea of the unity of the materialistic world**
  - ✦ He autopsied corpses of people and animals**
  - ✦ He engaged in physiological studies, explaining the phenomena of life the principles of mechanics**

## **In Middle Ages the Europe has experienced devastating epidemics of infectious diseases**

- 
- ✦ Caesarea - completely died out from the plague**
  - ✦ Naples - 60 thousand people were died**
  - ✦ Genoa - 40 thousand people**
  - ✦ Venice - 100 thousand people**
  - ✦ In the middle of the fourteenth century in Europe, the plague has claimed more than a third of residents**



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**Italian physician and  
philosopher Girolamo  
Fracastoro (1478-1553)  
became to study infectious  
(contagious) disease in the  
XIV century**

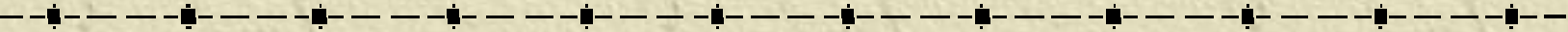


## Girolamo Fracastoro

- 
- ✦ He summarized the information about infectious diseases
  - ✦ Expressed his opinion about nature and transmission of infection
  - ✦ He developed provisions for the specific infectious beginning - "Contague"
  - ✦ Written work "About Contague, contagious diseases and their treatment"



## **Fracastoro believed that the infectious particles or "Contagium" there are 3 types**



- ✦ Some affect only in contact with the sick person**
- ✦ Others leave hearth and through it are contagious**
- ✦ Third affect at a distance**

## Surgical tools of barbers XVI-XVII centuries

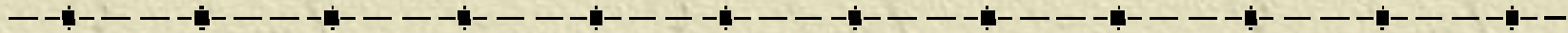




## The regimental barber assists wounded



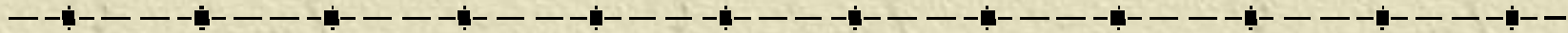
## **In the middle of the XVI century, surgery has been recognized as a university discipline**



- ✦ **Formation of Surgery as a science and a subject teaching**
- ✦ **The conversion of artisans in surgery (medical specialists)**



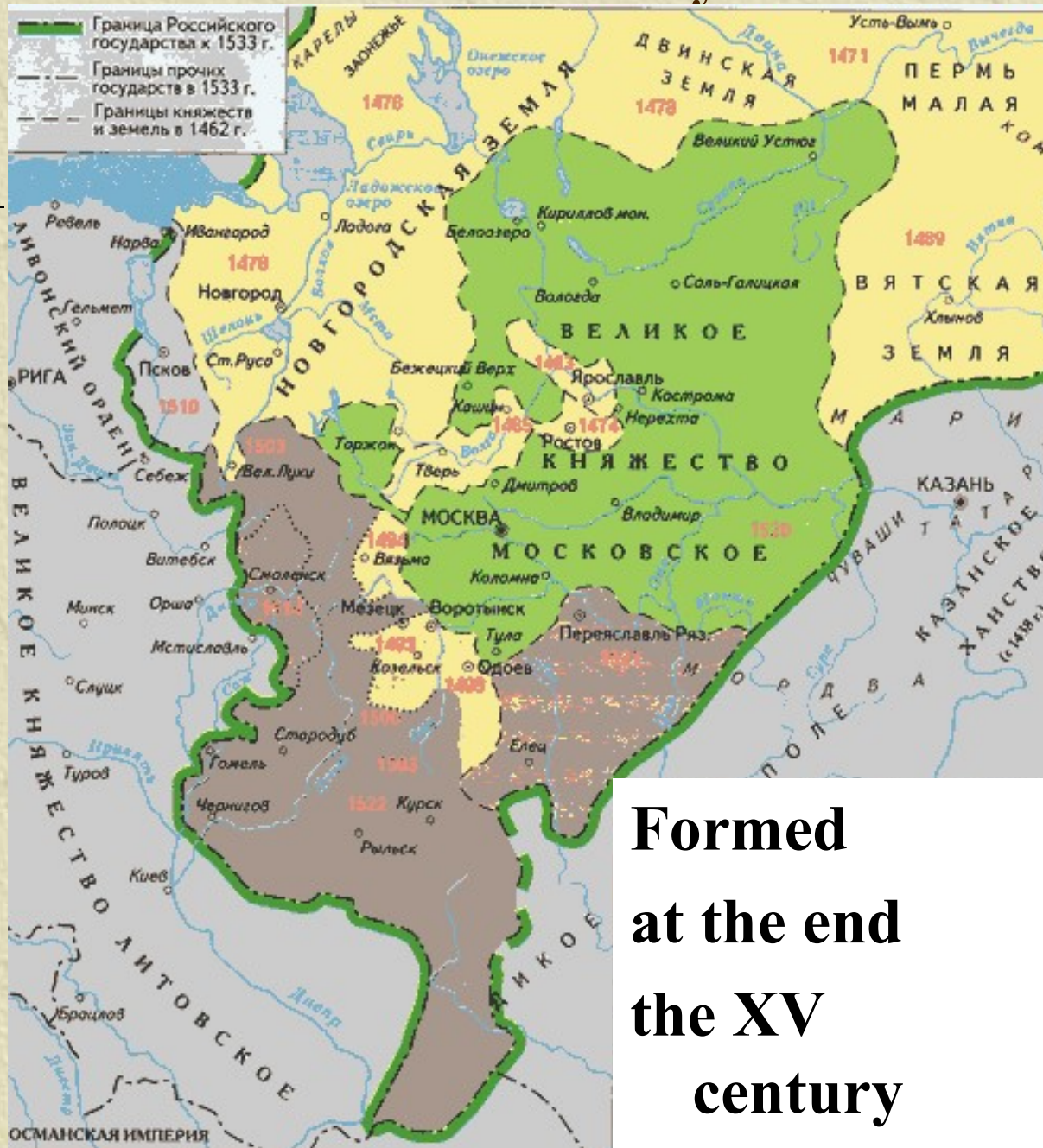
## Developed «professional medicine» or occupational medicine



- ✦ Bernardino Ramazzini (1633-1714) - the work “About the diseases of artisans)
- ✦ He studied the social aspect of occupational diseases



# Muscovy



**Formed  
at the end  
of the XV  
century**



# The Moscow Kremlin (Artist A.M. Vasnetsov)



## Written sources of information about the Moscow State medicine

- 
- **Domostroy (XVI century) - the rules and regulations of household hygiene**
  - **Resolution "Hundred Chapters of the cathedral" – about contempt of sick and crippled**
  - **Medical collections of "Vertogradov", "Trawniki", "Zelnik" - practical advice of traditional medicine**



## The manuscript of the XVII century





## Medicine in Muscovy XVI-XVII centuries

- ✦ Were divided the professions of medicine
- ✦ There were shops for sale of herbs
- ✦ There was a widespread nursing
- ✦ At the churches were organized shelters for crippled and who seriously ill



# Creating a monastery hospitals




✦ Developed the main provisions  
of monastic hospitals

Page of Stoglav XVI  
century





- 
- ✦ **There were widespread epidemics of infectious diseases**
  - ✦ **Were control measures:**
  - ~~✦ **Separation of sick from healthy**~~
  - ✦ **Burning the infected houses and districts**
  - ✦ **Establishing checkpoints**
  - ✦ **Burial of the dead away from the housing**



---

## **Creating a temporary military hospital**

- ✠ 1608 at the Trinity-Sergeevskaya Lavra**
- ✠ 1656 in Smolensk**
- ✠ 1678 in Moscow**



## **State Organization of medical affairs at the Moscow State**

- ✦ Establishment the Chamber of apothecary at the end of the XVI century**
- ✦ Creating a “apothecary order” in the XVII century (about 1620)**

## Apothecary order

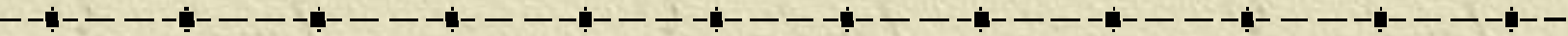
- ✦ In the early years it was located on the territory of the Moscow Kremlin in the stone building opposite the Chudov Monastery





## Functions of Apothecary order

- 
- ✦ **Collection and cultivation of medicinal plants**
  - ✦ **Purchase of medicines in other countries**
  - ✦ **Control over the practice of medicine**
  - ✦ **Invitation to foreign doctors**
  - ✦ **Appointment of doctors in regiments**
  - ✦ **Includes Medical Library**
  - ✦ **Translation of ancient medical writings of Hippocrates, Aristotle and others.**



- ✦ **The organization of civilian hospitals in the XVII century**
- ✦ **Development of charity:**
- ✦ **Boyarin Fyodor Rtishchev organized civil hospital on their savings**
- ✦ **FM Rtishchev made an offer**



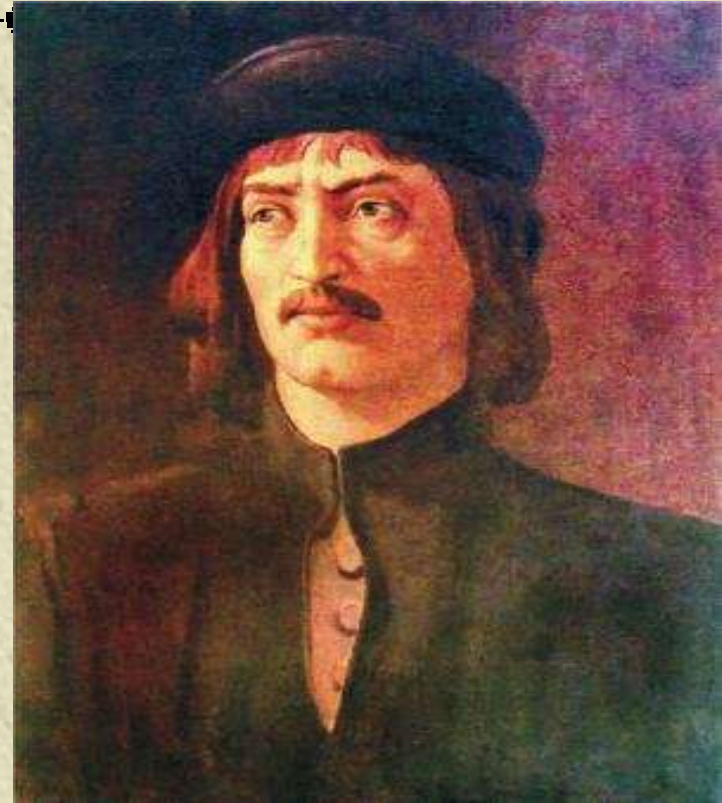
## Medical education at the Moscow State

- ✦ Invited foreign doctors were taught Russian doctors
- ✦ Physicians are trained abroad:
- ✦ Yuri Drohobych
- ✦ Georgy Skorina
- ✦ Ivan Almazenov
- ✦ Peter Postnikov

## Georgy Skorina

✠ Medical education got in  
**Krakow**

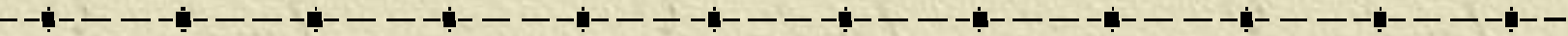
✠ In 1517 he translated into  
**Russian Psalter, in which  
the Moscow State learned  
to read and write**





## Development of Medical Education

- ✦ **Opening of the bonesetter school at Streltsy Department in 1653**
- ✦ **Opening of the treatment school at the Apothecary order in 1654**
- ✦ **Opening school of bonesetter affairs at the Pharmaceutical order in 1654**



**✦ XVI-XVII in Russia were a time of formation of pharmacies and pharmacy, the creation of hospitals in the cities, began training doctors from the Russians, the birth of the state organization of medical affairs.**