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HISTORY OF MEDICINE

Textbook for students
of Foreign Citizens

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The textbook deals with the development of healing and medicine from the time of the primitive communal system to the present, including in Kyrgyzstan. Much attention is paid to the process of forming the outlook of students. The contribution of prominent physicians to the process of forming medicine as a science is noted and their brief biographical data are given.

The training manual pays great attention to the development of healthcare in Kyrgyzstan, as well as the contribution of eminent doctors.

It is intended for the students of faculty of foreign citizens.

Full translation of the book Bolbachan O.A., Rozyeva R.S., Koshmuratov A.G., Artykbaeva A.K., Ishenova G.I. «History of medicine» (2013) into English.

CONTENT

FOREWORD

Medicine, like any science, is the result of a long and complex ongoing development. The process of the development of medicine both as a practical activity and as a science is an objectively existing process. The development of medicine goes along certain paths and laws of development; therefore, medicine should be studied in its historical development.

The history of medicine studies the development of medical activity in close connection with socio-economic pharmacy and shows how scientific medicine was formed on the basis of empirical knowledge.

Medical science developed not only in close connection with the economic and political development of society, but also in the struggle of the advanced scientific materialistic world outlook with the idealistic world outlook.

Acquaintance with the development of medicine from the primitive-communal system is of great importance for medical students in educating their materialistic world view and love for their chosen profession.

Objectives to master the discipline

The objectives of mastering the discipline are to teach students to clearly define the priorities of outstanding scientific discoveries, the contribution of medical professionals. Approaches for an objective assessment of theories of medicine and an understanding of the current stage of development of medical science and health practice.

The tasks are to familiarize future doctors with the general laws of the world-historical process of becoming, the development of healing and medicine from ancient times to modern times.

Place of discipline in the structure of the main educational process (OOP)

The subject “History of Medicine” refers to the humanitarian, social cycle in the structure of the PLO in the preparation of a medical doctor, pediatrician and dentist.

The subject “History of Medicine” is closely related to the study of this block with such subjects as philosophy, the history of the fatherland.

At the beginning of studying the history of medicine "Inputting knowledge" is that students should know the main stages of the historical process, the forms and methods of scientific knowledge of the world, as well as the development of medicine, the place and role of Russia and Kyrgyzstan in the modern world.

Competence of the student, formed as a result of the development of discipline

The specialist in the field of "Medicine", "Pediatrics", "Dental Affairs" should have the following general cultural competences (QA):

- the ability and willingness to analyze ideological ideas about the development of medicine throughout the history of mankind;
- to reveal the general laws of the historical process, the development of medicine and medicine, as well as the struggle between the materialistic and idealistic worldview in medicine;
- show the interaction and unity of national and international factors in the formation of medical science in various regions of the globe;
- take care of historical heritage and traditions.

The student must have professional competencies (PC): to identify the natural scientific essence of outstanding discoveries in medicine.

The student should know:

- general patterns of the world-historical process, the formation and development of medicine;
- achievements of each new era in the field of medicine;
- distinction of traditional, traditional and scientific medicine;
- life and work of prominent doctors and medical scientists, their scientific achievements;
- history of the most important discoveries in medicine;
- history of the development of medical ethics.

The student should be able to:

- analyze the information value of the most important stages of the development of medicine;
- independently work with educational, scientific, reference books, prepare abstract messages and presentations.

The student must own:

- materialistic ideas of the development of medicine from ancient times to the present;
- to reveal the natural scientific essence of outstanding discoveries in medicine;
- the ability for a logical and reasoned analysis of the formation of medicine, the introduction of discussion and presentation of the material.

Thematic plan of lectures for students of specialty general medicine

№	Themes for lectures	Hours
1	«Introduction to the history of medicine.»	2
2	«Healing in a primitive society.»	2
3	"Medical treatment in the countries of the Ancient East (in Sumer, Babylon, Assyria and Ancient Egypt)".	2
4	"Medical practice in the countries of the Ancient East (India, Judea, China, Tibet).	2
5	«Medicine and treatment in the countries of the ancient Mediterranean (in the ancient world – Ancient Greece, Alexandria)	2
6	"Medicine and treatment in the countries of the ancient Mediterranean (in the ancient world – Ancient Rome).	2
7	«Medicine of the periods of the early and developed Middle Ages (Byzantium, Arab caliphates)».	2
8	«Medicine of the periods of the early and developed Middle Ages (Kievan Rus, Armenia and Georgia)».	2
9	«Medicine of the Late Middle Ages (development of anatomy, physiology and surgery)».	2
10	«Medicine of the late Middle Ages (the history of the emergence of epidemics and medicine of the Moscow State)».	2
11	«Medicine of the New Age: biomedical disciplines (the formation of biology, genetics and histology)».	2
12	«Medicine of the New Age: medical and biological disciplines (the formation of anatomy, pathology, microbiology and physiology)».	2
13	«New Age Medicine: Clinical Disciplines.»	2
14	«Medicine of the New Time: Hygiene and Public Medicine».	2

15	«Modern Medicine (organization of the public health system)».	2
16	"Modern Medicine (Outstanding Medical Achievements and International Organizations)".	2
17	"History of Medicine and Healthcare of Kyrgyzstan"	2
18	"The history of medicine and healthcare of Kyrgyzstan. The contribution of prominent figures of medicine in the development of medicine «	2
	Total:	**36**

Thematic plan of seminars for students of a specialty general medicine

№	Themes for seminars	Hours
1	«Introduction to the history of medicine.»	2
2	«Healing in a primitive society.»	2
3	"Medical treatment in the countries of the Ancient East (in Sumer, Babylon, Assyria and Ancient Egypt)".	2
4	"Medical practice in the countries of the Ancient East (India, Judea, China, Tibet).	2
5	«Medicine and treatment in the countries of the ancient Mediterranean (in the ancient world - Ancient Greece, Alexandria)	2
6	"Medicine and treatment in the countries of the ancient Mediterranean (in the ancient world - Ancient Rome).	2
7	«Medicine of the periods of the early and developed Middle Ages (Byzantium, Arab caliphates)».	2
8	«Medicine of the periods of the early and developed Middle Ages (Kievan Rus, Armenia and Georgia)».	2
9	«Medicine of the Late Middle Ages (development of anatomy, physiology and surgery)».	2
10	«Medicine of the late Middle Ages (the history of the emergence of epidemics and medicine of the Moscow State)».	2
11	«Medicine of the New Age: biomedical disciplines (the formation of biology, genetics and histology)».	2
12	«Medicine of the New Age: medical and biological disciplines (the formation of anatomy, pathology, microbiology and physiology)».	2
13	«New Age Medicine: Clinical Disciplines.»	2

14	«Medicine of the New Time: Hygiene and Public Medicine».	2
15	«Modern Medicine (organization of the public health system)».	2
16	“Modern Medicine (Outstanding Medical Achievements and International Organizations)”.	2
17	“History of Medicine and Healthcare of Kyrgyzstan”	2
18	“The history of medicine and healthcare of Kyrgyzstan. The contribution of prominent figures of medicine in the development of medicine «	2
	Total:	**36**

Theme 1. INTRODUCTION TO THE HISTORY OF MEDICINE

Purpose of the theme

The student should know:

- definitions, concepts on the history of medicine;
- periodization of the history of medicine.

The student should be able to:

- analyze the development of medicine;
- conduct a presentation of essays.

Study Plan

1. **Analysis of themes on educational issues.**
   1.1. Definition, purpose, objectives, principles of the history of medicine.
   1.2. Periodization of the history of medicine and sources of study.
   1.3. The rudiments of healing in ancient and ancient people.
2. **Fastening material on control issues.**
   2.1. Definition of medicine.
   2.2. Definition of the history of medicine.
   2.3. The purpose and objectives of the study of the subject "History of Medicine."
   2.4. Sources of study of the history of medicine.
   2.5. Periodization and principles of the history of medicine.
3. **Distribution of themes essays to class number 2.**
   3.1. Traditional medicine, its essence, directions.
   3.2. Religious medicine.

Literature:

1. T.S. Sorokina. History of medicine. - Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. - Moscow, 2003. – 391 p.
3. T.S. Sorokina. History of medicine. - Moscow, 2008. – 560 p.

The subject history of medicine occupies an important place in the training of doctors. This is determined by the fact that, first of all, it is necessary for each specialist to have knowledge in the field of the history of medical science and public health, allowing them to develop

a critical approach to any phenomenon, as well as to comparing the current level of development of medicine at different historical stages.

The history of medicine studies the patterns of development and the history of healing of medical knowledge and medical activity of the peoples of the world throughout the history of mankind (from ancient times to modern times).

Medicine developed in close connection with the life of society, the economy, culture, and world outlook of people. Thus, the history of medicine is inextricably linked with history, philosophy, the humanities, medicine and other sciences. When studying the history of medicine you need to know the definition of "medicine".

Medicine is a practical activity and a system of scientific knowledge about the preservation and strengthening of people's health, the treatment of the sick and the prevention of disease, the achievement of longevity by human society in terms of health and efficiency.

The purpose of the subject is to put the past at the service of the present and see the future development of the medicine of the future.

Based on the purpose of the history of medicine, it is necessary to know how medicine developed at all historical stages, as well as the discovery of outstanding doctors and scientists who influenced the development of this science in different countries of the world. Based on the goals, the following tasks are solved:

Tasks of the history of medicine:

- reveal the general patterns of development of medicine and medicine;
- show the struggle between the materialistic and idealistic worldview in medicine and form the materialist worldview of students;
- show the unity of national and international factors in the formation of medicine in different regions of the globe;
- instill in students a love of the medical profession.

The history of medicine is divided into:

1. **general**: studies the development of medicine in general and the connection of this development with natural science, technology, and worldview.

2. **private**: studies the development of individual medical industries.

There are many different sources for studying the history of medicine:

- *before writing*: the data of archeology, paleontology, paleopathology, images of rock art.
- *with the emergence of writing*: manuscripts, printed works of doctors, historians, government and military figures, philosophers, materials of linguistics (linguistics), visual arts, ethnography, folk epos, folklore, photo and film documents.

The study of the history of medicine is based on the periodization of World History - its division by socio-economic formations. In each formation, medicine has peculiar features.

Periodization of World History:

1. the history of the Primitive society – 2 million years, 4 – 1 millennium BC.
2. the history of the Ancient World – 4 millennium BC.
3. history of the Middle Ages – 476 – 1640
4. history of the New time – 1640 – 1918
5. the history of the newest time – since 1918.

The history of medicine is based on the basic principles:

- historicism;
- a combination of national and international;
- continuity of ideas and discoveries;
- authenticity.

Selflessness in the medical profession.

In the activities of the doctor, the debt has long been interpreted as a matter of life and sacrifice. Famous words of doctors motto **"Aliis inserviendo ipse consumer"** ("Shining to others - burning myself").

- Reflect the category of duty and conscience in medicine.
- Dedication in the fight against epidemics, serving the duty of outstanding scientists and doctors in many countries.
- This was clearly expressed in their experiments on themselves in order to study the clinic of diseases and methods of dealing with them.

Among the prominent physicians who initiated the noble traditions was epidemiologist **D.S. Samoilovich**, heroically struggling with plague epidemics. To warn him, he suggested a precautionary method, which he tested on himself (he wore the patient's clothes, gauze dipped in pus of plague bubo).

His follower **S.S. Andreevsky** proved by means of self-infection the infectious and zoonotic nature of anthrax.

Professor T.N. Minh and O.O. Mochutkovsky introduced themselves to the patient's blood with typhus and relapsing fever, allowing a scientific discussion about the mechanism of transmission of these diseases. After these experiments, they suffered from a severe form of typhoid and almost died.

I. Mechnikov twice injected himself with the blood of a patient with typhus and almost never died, but he proved the role of insects in the transmission of infection.

Known epidemiologist **D.K. Zabolotny** repeatedly experimented on himself. He drank the culture of cholera vibrio in order to verify the effectiveness of immunization. A few years later, he infected himself with diphtheria to experience the effects of a new anti-diphtheria drug.

The well-known bacteriologist **E.F. Hamalei** conducted experiments on himself. He tested the effectiveness of the rabies vaccine. A well-known professor **Favre** infected himself with malaria to prove the role of the anopheles mosquito in the spread of this disease. **G.N. Gurbichevsky** introduced himself a scarlet vaccine made by him, proving its harmlessness to humans.

A. White, in order to study the plague, he vaccinated her from a woman who was sick with plague, he died a few days later.

The Nobel Prize winner, Japanese scientist **Noguhi**, to study the yellow fever carefully, went to Africa to the most dangerous centers of its distribution, where he became infected and died.

The famous Czech physiologist **Ya. Purkinje** repeatedly risked his life trying to figure out the effects of various drugs using his own experiments.

The life-threatening experiment was made by an American doctor **V. Forsman.** Through a vein with a catheter, he entered his right atrium. He put this experience on himself twice. The first time

he failed to push the catheter into the heart. A week later V. Forsman repeated this experience. He made a discovery, for which he was awarded the Nobel Prize.

Thus, moral duty, conscience are categories without which the existence of the medical profession is unthinkable.

Humanism in medicine

Education of future doctors towards a humane relationship with patients.

Medicine, unlike other professions, is closely related to human health and life. Hence the particularly moral qualities of the medical profession. Most fully they are defined by the concept of "humanism". Humanism is the ethical basis of medicine, its morality. At all times, great attention was paid to the selection of future doctors and the method of their moral training.

The principles of humanism are set forth in the Hippocratic Oath, the Geneva Declaration of the World Medical Association, the Oath of the Doctor of the Russian Federation, and the Oath of the Doctor of the Kyrgyz Republic.

- Humane treatment of the patient is the basis of medical ethics. Hippocrates said: "A physician should be a fine, kind, humane man by his liking. A physician should be thoughtful but not stern. "
- A representative of the medicine of the Ancient East, Avicenna described the image of the doctor: "The doctor must have a falcon eye, the hands of a girl, the wisdom of a snake, and the heart of a lion."

These statements combine the most important moral and spiritual qualities of a doctor. To become a doctor you must not only be able to observe ethical categories, such as duty, conscience, justice, love for the patient, but also understand the patient from a human point of view.

Profession doctor – a creative profession. A doctor cannot dogmatically follow certain tenets, without taking into account the nature of the course of the disease, psychological and other factors.

It is impossible to become a good doctor without love for your work, for a sick person. A doctor who is indifferent to the patient is

a great social and professional evil. After all, the doctor treats not only by applying various medical methods, but also affects the patient with his own personality. On this issue, there are a number of documents regulating the activities of a doctor, one of them in Kyrgyzstan is the "Code of Professional Ethics of Medical Workers".

"Code of Professional Ethics of the Medical Worker of the Kyrgyz Republic": the doctor must be noble, kind, merciful and humane; assist any person, regardless of gender, age, race, nationality or social status.

A very important aspect of humanism in the medical profession is the relationship between doctor and patient. When providing medical care, the doctor must:

- respect the honor and dignity of the patient;
- morally support the patient.

Thus, the education of medical students, as future doctors, in a humane relationship with a patient is of paramount importance. And this, in turn, leads to an improvement in the quality of medical care for the population. Therefore, questions and problems of medical ethics and deontology go beyond the relationship between the doctor and the patient, acquiring great social significance.

Theme 2. DOCTORING IN PRIMITIVE SOCIETY

Purpose of the theme

The student should know:

- the emergence of the beginnings of healing in a primitive society;
- the first religious ideas of primitive people.

The student should be able to:

• analyze the development of medicine in the era of primitive society;

• conduct a presentation of essays.

Study Plan

1. Analysis of themes on educational issues.

1.1. Healing in the flowering of primitive society.

1.2. Healing during the period of the disintegration of the

primitive society.

1.3. Magic medicine (totemism, fetishism, animism, magic).

1.4. Traditional, traditional and scientific (non-traditional) medicine.

2. Hearing of essays.

3. Fastening material on control issues.

3.1. The rudiments of healing in ancient and ancient people.

3.2. Healing in the flowering of primitive society.

3.3. Healing during the period of the disintegration of the primitive society.

3.4. The role of women in the application of methods of healing in primitive society.

3.5. Definition of fetishism.

3.6. Definition of totemism.

3.7. Definition of animism and magic.

4. Distribution of themes of essays to the lesson number 3.

4.1. Healing in Ancient Egypt.

4.2. The development of cosmetology in Ancient Egypt.

4.3. Mythology and medicine of Ancient Egypt.

4.4. Legal aspects of the doctor's activities in the Laws of King Hammurabi.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina. History of medicine. – Moscow, 2008. – 560 p.

Medicine in primitive communities.

In the history of the primitive era, there are three stages:

- Stage 1 – the formation of a primitive society (over 2 million years).
- Stage 2 – the flowering of the primitive society (about 40 thousand years).
- Stage 3 – the decomposition of primitive society (10–5 millennium BC).

Stage 1 of the formation of a primitive society is the longest, characterized by the emergence of the most ancient people (arkhantropov) and the ancient (paleoanthropus).

The rudiments of healing in the Oldest people:

- knew some healing and toxic properties of plants, animal organs, some minerals;
- took care of sick congeners;
- had the beginnings of hygiene skills (burned caves);
- there were no burials and related religious ideas.

Healing of the Ancients:

- knew the painful conditions associated with nutrition (searching for plant foods, people learned the healing and harmful properties of some plants, animal organs.);
- there were methods of self-help and mutual help (for injuries);
- collected medicinal plants and used them for treatment;
- knew the plants as, yarrow, centaury, gooseberry, ephedra, marsh.

It was believed that primitive people were completely healthy, and diseases arose later as a result of civilization, i.e. there was a "golden age". The study of the remains of a primitive man showed that his bones bear traces of traumatic injuries and serious diseases such as arthritis, tumors, tuberculosis, curvature of the spine, and dental caries.

When getting food, people got hurt, got sick from hypothermia, etc.

The flowering of primitive society.

The flowering of primitive society began about 40 thousand years ago. At the same time, a communal-clan system was formed (hunters, gatherers, fishermen, and then herders). The tribal community at the beginning of this period was a collective of equal not only in labor activity, but also in the sphere of consumption and distribution of products. The blood relationship was established between the descendants of the same mother, which led to the emergence of matriarchy (the head of the genus woman). The work of the woman was manifested mainly in the area related to housing, cooking, clothing.

Healing during the flowering of the primitive communal system:

- used vegetable, animal means;
- used physical methods (massage, intestinal lavage, etc.);
- mastered surgical procedures (treated wounds with drugs);

- put tires on fractures;
- knew the intoxicating and narcotic effects of natural painkillers;
- knew how to do bloodletting.

However, the empirical knowledge of primitive man was still limited. Primitive man could not foresee or explain the causes of natural disasters. His powerlessness in nature gave rise to fantastic ideas about the world around him. During this period, the first religious ideas began to emerge (totemism, fetishism, animism, magic), which affected the methods of healing.

Totemism is the belief of a person in the existence of a close kinship between his race and a certain type of animal or plant.

Fetishism – (fetico – amulet, talisman) is a belief in the supernatural properties of inanimate objects. At first this belief spread to the tools of labor, and then to amulets and talismans from the plague, cholera, etc.

Animism – (anima – soul) belief in souls, spirits and universal spiritualization of nature.

Magic – (mageia – witchcraft) belief in a person's ability to supernaturally influence other people, objects, events, or natural phenomena:

- healing magic – healing of wounds and ailments as a result of the ritual, which at the beginning could be performed by relatives, and then only the oldest clan.

The cult of ancestors was reflected in the primitive man's ideas about the causes of diseases: the emergence of which was understood as the result of the introduction of the spirit of a deceased ancestor into the body of a sick person.

Ritualistic rituals associated with the expulsion of the spirit of disease include trepanning of the skull, "sucking the spirit of disease" with the help of a buffalo horn, feeding the patient with bitter food – all this gave rise to shamanism (the use of medicines and religious rites).

Healing in the period of the decomposition of primitive society (10-5 millennium BC).

Decomposition of primitive society proceeded in two main forms: patriarchy and matriarchy. The doctoring during this period was as follows:

- traditional skills and techniques developed;
- the range of drugs has expanded;
- improved obstetric care;
- made tools for healing from metal (copper, bronze, iron);
- began to apply limb amputation;
- provided medical assistance to the wounded during the wars;
- did ritual circumcision;
- performed cesarean section.

During the period of decay, intratribal stratification occurs, strengthening the cult of religious ideas. This led to the emergence of professional ministers of worship with the formation of healing magic.

Thus, there is traditional and religious-mystical medicine.

Traditional medicine – methods of healing, prevention, diagnosis and treatment based on the experience of many generations of people, established in folk traditions.

Traditional medicine has evolved, emerging from the depths of traditional medicine, which has preserved traditions, principles, practical experience of healing, as well as initial concepts about the nature of man, his health and diseases.

Preparation of healers was carried out individually, the knowledge kept secret and passed from parent to children or a capable child of the tribe.

The task of the healer is to maintain the health of the community of health (physical and spiritual).

In addition to traditional medicine, there was religious medicine, when shamans, sorcerers, magicians who used various religious rituals in the treatment of diseases were engaged in treatment.

Religious rites were mysterious and incomprehensible to most members of the community.

Religious medicine with the use of spells and rites for therapeutic purposes:

- shamanism;
- sorcery.

Theme 3. DOCTORING IN THE COUNTRIES OF THE ANCIENT EAST (IN SUMER, BABYLON, ASSYRIA AND ANCIENT EGYPT)

Purpose of the theme

The student should know:

- features of healing in Sumer, Babylon, Assyria and Ancient Egypt.

The student should be able to:

- analyze the development of medicine in the era of slave society.

Study Plan

1. **Analysis of themes on educational issues:**
   1.1. Healing in Sumer.
   1.2. Healing in Babylon and Assyria.
   1.3. Features of the development of medicine in ancient Egypt.
   1.4. Mythology and medicine of ancient Egypt.
   1.5. Temple medicine of ancient Egypt.
2. **Hearing of essays.**
3. **Fastening material on control issues.**
   3.1. Cuneiform tables in Sumer.
   3.2. The main directions of healing in Babylon and Assyria.
   3.3. Hammurabi's laws on the legal status of healers.
   3.4. Features of healing in Ancient Egypt.
   3.5. The influence of the mythology of Egypt on the development of medicine.
   3.6. Sources of study of medicine in Ancient Egypt and their content.
   3.7. Priestly medicine of Ancient Egypt.
4. **Distribution of themes of essays to lesson number 4.**
   4.1. Ayurveda is a system of traditional ancient Indian medicine.
   4.2. The history of the development and physiological basis of acupuncture in ancient China.
   4.3. The philosophical foundations of Chinese traditional medicine.
   4.4. Basics of medicine in Tibet.
   4.5. Talmudic medicine of ancient Judea.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391 p.
3. T.S. Sorokina. History of medicine. – Moscow, 2008. – 560 p.

Healing in Sumer

The ancient East was the cradle of human culture. Here, earlier than in other countries, the transition from a primitive communal system to a slave-owning one took place.

The slave system prevailed in Mesopotamia in the 4–2 millennia BC.

In the south of the two anniversaries of the Tigris and Euphrates (Mesopotamia) territory of modern Iraq, city-states were created. Trade developed, crafts, cuneiform was created on clay tablets (the first writing in the history of mankind).

The territory of Sumer was no more than 15 thousand km2. The country's population is about 1 million people. Pottery was developed in Sumer, temples were built, canals and wastewater treatment plants were laid, the foundations of mathematics and geometry were laid.

Sources of studying medicine are two cuneiform tablets (3 thousand BC, discovered in 1889)

Doctors in Sumer:

- a cuneiform table was found describing 15 prescription drugs:
- *from plants:* mustard, fir, pine, dates, pear;
- *from animal organs:* milk, water snakes, turtles;
- *from mineral substances:* salt, oil, resin.
- on the cuneiform table shows the personal stamp of the doctor (with the image of medical instruments and vessels for drugs);
- doctors were priests.

All drugs were prepared in wine or vegetable oil.

Religion and temples in Sumer were the center of the economic cultural and political life of society. The priests led the crops, the harvest, and also engaged in medicine.

In the Sumerian language, healers were called "is-zu" – "who knows the water." The Sumerians created a code of laws, which were knocked out on stone pillars for public viewing, and then copied on clay tablets. In Sumer were developed strict hygienic rules.

In Ancient Sumer, religious ideas consisted of the fact that the world, in their opinion, was ruled by seven deities, and man was created from clay for the purpose of serving the gods. Therefore, there were constant sacrifices and rituals were performed in the temples. Healers worshiped the goddess of birth, the god of the plague, the goddess of healing.

Doctors in Babylon and Assyria

The Babylonian kingdom was built on the basis of the Sumerian civilization.

Assyro-Babylonian culture has reached a high level, especially under **King Hammurabi (1792–1750 BC)**. They have achieved great achievements in agriculture, pottery, in the manufacture of fabrics and the production of metals. Astronomy was developed (it was established that the year consists of 12 months, the time of the spring and autumn equinox was determined).

Healing was connected in two ways:

Direction of healing

- Asutu (the art of healing), healers were called Asu. All diseases were associated with natural causes.
- Ashiputu (the art of the spell), healers were called Ashipu. All diseases are associated with supernatural powers.

According to the ideas of the ancient Babylonians, the world is ruled by the gods: the sky, the earth, the water element. It was widely believed that the life, health and illness of a person depends on spirits (good, evil, devils), which are directed by the influence of heavenly forces. Their expulsion was carried out by the use of foul-smelling substances.

Doctors Asutu used anesthetic paste from grass henbane, they themselves collected medicines, boiled them with honey, beer, vinegar, bile. The composition of drugs consisted of more than 20 components.

The physicians of Ashipu drew magic circles around the patient and wrote the numbers 3.7 (to scare away the disease).

The structure of man was not studied, because no autopsy was allowed. Women were involved in childbirth, doing cesarean section after the death of the woman. Hygienic knowledge was developed. Education medicine was family (from father to son).

The most famous monument of ancient Mesopotamia is the basalt pillar 2.25 meters high found in 1991. On it was carved a set of laws of King Hammurabi. It systematized and summarized the ancient laws governing various aspects of life. The code of laws was a collection of articles of the lawsuit, some of which are devoted to the activities of the doctor and his judicial responsibility to the patient.

Ancient Egyptian medicine

Ancient Egyptian civilization was represented by the ancient, middle and new kingdoms.

The Ancient Kingdom: pyramids were built (the first pyramid of Pharaoh Djoser – erected by the sage, healer and **architect Imhoten** – **28 century BC**).

Middle Kingdom: the creation of medical and mathematical papyrus.

New Kingdom (the flowering of civilization):

- development of Egyptian astronomy (a day consists of 24 hours, a year consists of 364 days of 12 months each);
- development of medicine, culture, etc.

Sources of study of ancient Egyptian medicine are:

- Smith papyrus (about 1550 BC) – described the brain, heart, blood vessels, kidneys, intestines, muscles, 48 cases of traumatic injury, the prognosis (without elements of magic);
- Ebers Papyrus (circa 1550 BC) – recipes for the preparation of drugs (900), treatment of diseases are indicated, all this is accompanied by magic spells. Contains 1000 cosmetic recipes;
- hermetic books (42 pieces. "Ambre") – on the structure of the human body, diseases, surgical instruments, medicines, obstetrics.

Since the emergence of the Egyptian state, the country's medicine has been represented by the following representatives:

- craftsmen-healers (specialized in the treatment of a particular disease);
- representatives of family schools of physicians passed on their knowledge from father to son;
- priestly – worship of the gods (magical medicine).

The requiem cult was expressed in the fact that they believed in the afterlife and considered it a continuation of the earthly. The soul after death, in their opinion, moved into the body of an animal or bird. Therefore, the religious representations of the Egyptians were expressed in the form of animals or birds, because there was a cult of animals (buried in some cities). This was reflected in the fact that the gods were depicted as a man with the head or body of an animal. Animals such as snakes, bulls, dogs, cats embalmed, buried in sveshchennyh tombs.

Each city of Egypt worshiped its gods, in whose honor temples were built, in which the priests were engaged in healing. As a fee, they were given a gift of casts of a diseased organ of plaster, marble, silver, gold.

In Egypt, the embalming of corpses in which the Tarijevts were engaged was developed, but an autopsy was not performed (the brain was removed through the nose and the internal organs through a small incision on the deceased's abdomen). Consequently, the idea of the structure of the body was primitive.

In Egypt, **the doctrine of pneuma** is created: a special substance that enters the lungs, from them to the heart and from it through the vessels to the whole body.

The causes of diseases were associated with natural and unnatural causes.

Causes of disease:

- natural causes – junk food, intestinal parasites, weather changes;
- unnatural causes – instilling the spirit of the deceased into the human body: the foul-smelling substances were expelled by conspiracies, spells, and the preparation of medicines (from the paws of lizards, frogs).

In Egypt, "banks" were made from the horns of animals, bloodletting was done and an enema was first invented, which was used not only for medical purposes, but also to cleanse the intestines.

Bloodletting was used to remove "spoiled" blood.

Diseases of the teeth were treated conservatively, the fillings were installed, which were made from the special composition of the resin.

Surgical treatment was developed - some primitive operations were performed, as well as injuries were treated.

Hygiene skills were developed (body washing and changing clothes 3 times a day).

Theme 4. DOCTORING IN THE COUNTRIES OF THE ANCIENT EAST (INDIA, JUDEA, CHINA, TIBET)

Purpose of the theme

The student should know:

- features of healing in China, India, Tibet and Judea.

The student should be able to:

- analyze the development of medicine in the era of slave society.

Study Plan

1. **Analysis of themes on educational issues:**
   1.1. The development of medicine in China in the era of slave society.
   1.2. The history of medicine of ancient India.
   1.3. History of Medicine of Ancient Tibet
   1.4. Features of healing in Judea.
2. **Hearing of essays.**
3. **Fastening material on control issues.**
   3.1. The development of healing in Ancient China.
   3.2. The concepts of two principles (yang, yin) in Ancient China.
   3.3. Ancient Chinese philosophy about primary elements.
   3.4. The use of therapy zhen-jeou in Ancient China.
   3.5. The art of healing "Ayurveda".
   3.6. The activities of the ancient Indian healer Sushruty.
   3.7. Features of healing in Tibet.
   3.8. The role of Talmudists in the treatment of diseases in Judea.
4. **Distribution of themes of essays to lesson number 5.**
   4.1. Healing and medicine of Ancient Greece.
   4.2. Hippocrates and its contribution to the development of medicine.

4.3. Contribution to the development of medicine of Aristotle.

4.4. Contribution to the development of medicine of Ancient Alexandria Herophilus.

4.5. Erazistrat and his merits.

4.6. Cornelius Celsius - doctor, philosopher of ancient Greece.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391 c.
3. T.S. Sorokina.. History of medicine. – Moscow, 2008. – 560 p.

Periodization of ancient India:

Stage I – the formation of Indian civilization (23–18 centuries. BC. E.)

- Sources of study medicine: sanitary facilities.

Stage II – Vedic (13–6 centuries BC)

- Writing "Vedas" – sacred texts ("Rigveda", "Samveda", "Atharvaveda").

Stage III – Buddhist or Classical (2-6 centuries BC)

- Writing a set of laws of Manu.
- Writing laws on medicine (Ayurveda).

In the formation of Indian civilization, the sources for studying medicine were archaeological excavations, during which sanitary facilities (wells, pipes, pools) were discovered. Other sources of study of medicine not found. The second period was characterized by the writing of "Ved" – the sacred texts were transmitted orally before the emergence of writing, and from 1 thousand BC. using ved. In the second stage of the Vedic period, the development of medicine was as follows:

Healing in the Vedic period

- "Rig Veda" (set of magical rites) – the prognosis of tuberculosis and bleeding is described:

- magical rites of exile;
- healers were called "casting out demons."

- "Samveda" – magical chants and sacrifices (the diagnosis was made, the prognosis of the disease).
- "Atharvaveda" – diseases associated with evil spirits and the punishment of gods.

In the third stage – (Buddhist or classical) sources for the study of medicine are: the Manu Laws (1000–500 BC), "Vedas" – collections of household and religious regulations, treatises Sushruta.

Ayurveda (laws on medicine) was compiled 9–3 centuries. BC. There are 3 editions of Ayurveda, the full edition was written by the doctor Sushrut.

Ayurveda (9th – 3th centuries BC) combination of priestly and traditional medicine:

- considered the causes of disease: the wrath of the gods, climate change, weather, dietary disorders, personal hygiene;
- more than 150 acute and chronic diseases of the brain, heart, abdomen, urinary and genital organs are described;
- 760 medicinal plants are described;
- animal products (milk, fat, brain, bile) and mineral substances were used;
- described more than 120 surgical instruments.

The doctors of ancient India were able to perform surgery, and surgery was developed. When choosing a method of treatment, doctors took into account the time of year, the age of the patient, gender, temperament and constitution. Training in medicine was held at the temples.

The famous doctor of ancient India Sushruta made the third edition of Ayurveda, was the founder of plastic surgery and obstetrics.

The merits of the doctor Sushruta:

- knew how to bleed, amputation of extremities, hernia repair, laparotomy – to remove gallbladder stones;
- performed complex cataract surgery;
- carried out plastic surgery on the face to eliminate the defects of the ears, nose and lips "Indian method";
- knew a number of obstetric techniques (embryotomy);
- divided the causes of disease into natural (climate), supernatural sent by the gods;
- described the stages of inflammation, treatment of internal diseases, had a complete understanding of the structure of the human body (the bodies were not forbidden to open);
- was the founder of medical ethics (it was forbidden to treat criminals and take remuneration for treatment).

Medical education in ancient India was as follows**:**

- medical schools (at temples).
- family education (from father to son).
- at the medical school, they studied for 7 years (knowledge was transferred from Greek doctors), at the end of the training, the doctors swore an oath (to heal and not betray the sick, to keep medical secrecy).

Ancient China and Tibet

The Ancient Chinese state originated in the middle of the 26th century BC. in the valley of the Yellow River. By this time Chinese writing appeared, they learned how to make silk, porcelain, paper.

Chinese texts were recorded on turtle shields, bamboo tablets and paper (1 BC). The population was about 60 million people.

There are 2 periods in the history of healing.

The history of the development of healing

- Stage 1 – the formation of traditional healing (17th c. BC):

- the formation of the philosophy of treatment, knowledge was transferred orally.

- Stage 2 (3rd century BC) – medical essays on acupuncture, pulse diagnostics on turtle shields, bamboo tablets, and paper were recorded.

The Chinese likened the body to the world in miniature, and all the processes in the body – the relationship of "primary elements": fire, earth, water, wood, metal. The man who is the product of the interaction of heaven and earth contains these 5 elements. Each element is associated with the time of year. Tree – spring, fire – summer, metal – autumn, water -– winter. These elements correspond to the organs of the human body. Since man consists of the same primary elements as the universe, he is closely interconnected with them. In the body, as in the outside world, a constant struggle between two forces was assumed, health or illness was determined by their relationship. These opposing forces were defined as "yang" and "yin".

The concepts of diseases in ancient China were based on a materialistic basis. Health was understood as equality between primary elements.

In the diagnosis, much attention was paid to the pulse (28 species); a universal method of acupuncture treatment was developed: Zhen (injection) – Tszyu (cauterization) – therapy and acupuncture (insertion of a needle at a certain depth in order to remove excessive yang or its deficiency). Introduction of needles was carried out in certain points of the body, which were studied from drawings or on body models (600 vital points). At first, the students learned the philosophy, learned to master the needle, achieving high perfection. The pupil had to pierce a notebook suspended from a string with a needle, and she shouldn't deviate.

Medicine of Ancient China:

- traditional (use of plant, animal products: used the meat of tiger, scorpions, hedgehogs, etc.), as well as mineral resources were used;
- secular medicine - professional healers (at the imperial court there were specialists in internal, external, female, children's and eye diseases);
- surgery was poorly developed - it was forbidden to operate and open the body;
- development of pharmacology (the first pharmacopoeia was compiled from 52 volumes).

China's largest physician was Hua-To – he invented painkillers, healed her with surgery on the skull, chest and abdomen, was engaged in preventing the disease "the doctor is not the one who heals, but who prevents the disease."

Medicine in Tibet developed on the basis of Indian and Chinese, incorporating their methods of diagnosis and treatment. Under the founder of the Tibetan state, Srontsang-Gunpo (7th century).

Medicine in Tibet:

- monks were engaged in treatment;
- had a clear understanding of the therapeutic doses and the strength of the drugs;
- it was necessary to specify the time of taking the medications than drinking water (snow water, wine, but not boiled water), what kind of food can be taken during treatment, indicated the daily regimen;

- the work “Jude – Shi” (“the weapon of fearlessness”) was written by the doctor Yutogjondan (1112-1203);
- he summarized the experience of doctors, was written on behalf of the Buddha, is intended for learning by heart and is a logical scheme of treatment.

Medicine in Judea experienced the strongest influence of Egyptian medicine (for 400 years they were captives of the pharaohs). Medicine in ancient Judea was as follows:

- all diseases were interpreted as punishment for sins;
- priests treated, called for prayers, sacrifices;
- performed simple surgeries;
- used drugs: from wine berries, fish bile;
- King Solomon compiled the “Book of Medicines”;
- Talmudic medicine was developed (Talmud – a set of religious interpretations).

The Talmudists used numerous medicines from olive oil, aromatic plants of onion, pepper, goat milk – all this was accompanied by spells and prayers. Recommended to make bloodletting in healthy people to cleanse the body. They knew that in humans there are 252 bones, the lungs are enclosed in two shells, the removal of the spleen is not fatal.

Theme 5. DOCTORING AND MEDICINE IN THE COUNTRIES OF THE ANCIENT MEDITERRANEAN (IN THE ANCIENT WORLD – ANCIENT GREECE, ALEXANDRIA)

Purpose of the theme

The student should know:

- features of healing in ancient Greece, Alexandria;
- the contribution of Aristotle, Erazistrat and Herophile to the development of medicine;
- Hippocrates’ contribution to medicine.

The student should be able to:

- analyze the development of medicine in the ancient world.

Study Plan

1. **Analysis of themes on educational issues.**
   1.1. Features of the development of medicine.
   1.2. Medical schools of Greece, Hippocratic contribution.
   1.3. The development of medicine in Alexandria.
   1.4. The contribution of Aristotle, Erazistratus and Herophile to the development of medicine.
2. **Hearing of essays.**
3. **Consolidation of material on control issues.**
   3.1. Stages of development of medicine of Ancient Greece.
   3.2. Philosophy of the Croton School of Medicine.
   3.3. Knid Medical School and its directions.
   3.4. Basics of the Kos School of Medicine.
   3.5. Sicilian School of Medicine, its philosophy.
   3.6. Hippocrates – the ancestor of ancient Greek medicine.
   3.7. The role of Aristotle in the development of medicine.
   3.8. Achievements of Erazistrata in the development of medicine.
   3.9. Herophilus achievements in the development of medicine
4. **The distribution of the abstracts to lesson number 6.**
   4.1. Medicine of Ancient Rome of the period of the republic, sanitary legislation.
   4.2. Medicine of Ancient Rome of the Empire.
   4.3. Medical education in Ancient Rome.
   4.4. Galen – an outstanding physician of ancient Rome (his merits and mistakes).

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Yu.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina. History of medicine. – Moscow, 2008. – 560 p.

Medicine in Ancient Greece

The countries of the ancient period had a great influence on the development of medicine. Features of the development of medicine and medicine have passed several periods.

1. **Crete – Mycenaean period** (3–2 millennium BC) – the center was the island of Crete:

- sanitary facilities were built: a system of pipes made of baked clay for the flow of polluted water, drainage channels, drains, ventilation, baths;
- written sources are not preserved.

2. **The pre-polic period** is characterized by the formation of temple medicine, in particular, such a direction as natural philosophy is being formed, i. e. a certain approach of the doctor to the treatment of patients.

Sources of study are: Homer's poems "Iliad" and "Odyssey" (about the family of doctors led by Asclepius and his daughters Hygiea, Panacea). Described 141 damage to the trunk and limbs, festering as a result of the bite of poisonous snakes.

Mention is made of the plague epidemic, melancholy, the birth of a viable infant.

The Asclepius family provided medical care to the wounded during the Trojan War. Considering the great merits of Asclepius and his daughters, they were deified (Asclepius is the god of healing, Hygiea is the goddess of hygiene, Panacea is the goddess of pharmacology).

In the third period, the development of temple medicine, secular healing and the creation of medical schools.

3. **Classical period** (5-6 centuries BC):

- the development of temple medicine (medical records were recorded on the walls of the temple, the recovered brought molds of diseased organs from marble, gypsum, gold and silver);
- the emergence of secular healing (organized to receive patients outpatient facilities "Atreia");
- creation of medical schools;
- sources for the study of medicine – "Hippocrates Collection" (III century BC). Works of ancient Greek doctors.

The development of the slave system of Ancient Greece and its strengthening to the VI. BC er led to the strengthening of the position of religion, to this period, the formation of temples, and with them, and temple medicine.

Temple medicine of Ancient Greece:

- priests treated, the sick and women in labor were not allowed

to enter the temple (religious rules did not allow all unclean things related to birth or death);
- the one who entered was washed and offered sacrifices to the gods;
- all the patients went to bed, under the influence of intoxicating fumigations, suggestions and hypnosis plunged into a "sacred" dream;
- sleep was interpreted by the priests (the diagnosis and prognosis of the disease was made);
- hydrotherapy, massage and gymnastics were used;
- in difficult cases, priests invited secular doctors to help.

In Ancient Greece there were several medical schools, and each of them was individual in its philosophy.

1. Kroton medical school reached its flowering in the VI. BC er:

An outstanding representative of the Croton school was the philosopher and physician Alkmeon of Croton. He opened the junction of the optic nerves and the auditory canal, wrote about the brain, as an organ of knowledge and the cause of certain diseases.

2. Knid Medical School (6th century BC)

An outstanding representative of this school was Evridon from Knid – a contemporary of Hippocrates, the author of many essays on the causes of disease, diagnosis and treatment.

3. Kos Medical School

An outstanding representative of this school was Hippocrates (460 BC, translated from the Greek "horse tamer").

4. Sicilian Medical School – founded in the 5th century BC.

The representative of this school was Empedocles (philosopher, politician, poet, orator, healer, priest), he believed that the essence of all things is fire, water, air, earth – they are unchangeable and unknowable. In each person there are these primary elements, diseases arise due to imbalance.

Medicine in Ancient Alexandria

After the classical period of Ancient Greece, the conquests of Alexander the Great and the development of medicine were concentrated in Egypt and Libya, where the states of Ptolemy were formed with the capital Alexandria (ie, several Hellenistic states were formed in the 4th century BC). The era of Hellenism was

a period of systematization of knowledge. The Ptolemies patronized the development of knowledge and invited their capital of Greek scientists, writers, poets, doctors.

At the royal court were founded Alexandria Mussayon (temple of the Muses), and the Alexandria Library was founded – the largest in antiquity.

The development of medicine was characterized by the emergence of anatomy and surgery.

The development of medicine of ancient Alexandria:

• anatomy (Greek. "Anatome" dismemberment):

- embalming of corpses;

- the live perception of the criminals was carried out (the abdominal cavity was opened, then the diaphragm was opened and death occurred).

• surgery:

- performed ligation of blood vessels;

- used painkillers (from the root of mandrake);

- invented a catheter;

- performed amputation of the extremities;

- conducted complex operations on the kidneys, liver and spleen.

Of great importance for the development of natural science was the teachings of the largest ancient Greek philosopher and thinker **Aristotle** (384 – 322 BC). His works on logic, philosophy, rhetoric, psychology, ethics, astronomy are an encyclopedic collection.

For Alexandrian medicine, Erazistrat and Herophilus made a significant contribution to the development of anatomy and surgery.

Erazistrat (330–255 BC – Court physician):

• studied the brain (cerebellum), cranial nerves (sensory and motor);

• believed that all organs are interconnected through nerves, blood vessels ("Blood flows through the veins (nutrients), is formed from food, and blood in arteries is formed from air, vital pneuma occurs").

Herophilus (335–260 BC):

• supporter of humoral teachings (about body fluids);

• in the work "On the Eyes" described the vitreous body, the retina of the eye;

- in the study "On the pulse" outlined the anatomy of the vessels (pulmonary artery).

Contribution to the development of Hippocrates medicine (460–377 BC)

Hippocrates' father came from the genus of the Asklepiades (doctors). He was the first Hippocrates teacher in the field of medicine. Hippocrates was a wandering doctor – periodevt (he treated the poor). His works such as Aphorisms, On Human Nature, On Air, Water and Localities are devoted to the classification of diseases, the explanation of diseases, he believed that a disease has its own natural causes. The main principles in the treatment indicated that it is necessary to treat the patient, and not the disease. In honor of his services, the oath of the doctors was called the Hippocratic Oath. Since, in most of his works, he pointed out the relationship between the doctor and the patient, the basic principles entered into the oath.

The main works of Hippocrates

- "Prognostics" (about therapy) gives a forecast of various symptoms and their effect on recovery (changes in the face, eyes, skin color, breathing patterns):

- described the face of the dying person "a sharp nose, sunken eyes, depressed whiskey".

- "On epidemics" – believed that epidemics do not arise from contagious diseases, but from specific causes. Described fever, tuberculosis, skin diseases.
- "On airs, waters, areas" – described the impact of weather and climate on human health. He described various types of people living in different localities and their diseases.

Theme 6. MEDICINE AND MEDICINE IN THE ANCIENT MEDITERRANEAN COUNTRIES (IN THE ANCIENT WORLD – ANCIENT ROME)

Purpose of the theme

The student should know:

- features of healing in ancient Rome;
- Galen's influence on the development of medicine.

The student should be able to:

- analyze the development of medicine in the ancient world.

Study Plan

1. **Analysis of themes on educational issues.**
   1.1. Medicine of Ancient Rome, the royal period.
   1.2. Medicine of Ancient Rome, the period of the republic
   1.3. The influence of Galen on the development of medicine.
   1.4. The formation of health in Ancient Rome.
   1.5. Medicine of Ancient Rome, the period of the empire.
2. **Hearing of essays.**
3. **Fastening material on control issues.**
   3.1. Features of the development of medicine of Ancient Rome, the royal period.
   3.2. Features of the development of medicine in Rome period of the republic.
   3.3. Medicine of the Roman Empire.
   3.4. The development of hygiene in Ancient Rome.
   3.5. Claudius Galen – an eminent physician of Ancient Rome.
4. **Distribution of themes of essays to lesson number 7.**
   4.1. Medicine in the Arab Caliphate.
   4.2. Contribution to the development of medicine Ar-Razi.
   4.3. Abu Ali Ibn Sina is a scholarly encyclopedist of the Medieval East.
   4.4. "The Canon of Medicine" Ibn Sina, its essence.
   4.5. Monastic medicine in Byzantium.
   4.6. Merit Oribasiya in the development of medicine.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Yu.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina. History of medicine. – Moscow, 2008. – 560 p.

Medicine of the tsarist period and the period of the Republic of Ancient Rome

In the history of Ancient Rome, there are three main stages: the tsarist period, the period of the republic and empire.

Tsarist period (8–6 centuries BC)

Rome was founded in 783 BC, and how the state was formed in the 6th c. BC.

In the royal period, much attention was paid to the improvement of Rome: sanitary facilities were created.

Sanitary facilities of Ancient Rome

- Water supply systems – aqueducts (the first was built in 312 BC, 165 km long) were built.
- Sewage (cloaca), baths (terms) were built.
- Underground canals were built.

Water pipes were made of baked clay, Aqueducts were placed on high pillars – arcades (more than 50 meters in height, supplied with water up to 900 liters per day per person). The work and serviceability of plumbing, sewage, term, markets, stadiums, temples was strictly regulated by law and controlled by the authorities.

Medical treatment in the royal period was as follows:

Tsar period (8–6 centuries BC):

- traditional medicine (treatment with herbs, animal organs and minerals);
- priestly medicine;
- there were no doctors of professionals – they treated people with traditional remedies and magic spells at home.

Of the traditional medicine, cabbage was the most popular remedy, from which medicines were made to treat many diseases.

In Ancient Rome, priestly medicine was developed, the priests were not doctors.

Priestly medicine of Ancient Rome

- Priests, fortunetellers (Garuspiki).
- Engaged in divination in the guts of sacrificial animals (liver, heart).
- Diagnosed and prognosed of the disease according to the internal organs of animals.
- Were able to make dentures from the bones of animals fastened with a gold bridge.

Medicine of the period of the republic (6th century BC – 31 AD)

There is a development of sanitary legislation, improvement of sanitary facilities, professional doctors appear, a materialistic direction in medicine is being formed.

Sanitary affairs of ancient Rome

- "Law 12 tables" (451–450 BC):

- The law is written on copper plates and hung out for citizens;

- in the law it was written down: the baby lost life to the ugliness, the dead could not be buried and burned in the city, the embalming of corpses was canceled.

- Supervision over the implementation of the law was assigned to magistrates (priests). They oversaw the construction of temples, markets, terms and their contents.

Much attention was paid to the construction of therm (hot baths). The first term was built in the III. BC. Mark Agripoy. It was the center of the social and cultural life of Ancient Rome.

The basis of medicine of Rome was the medicine of Greece.

Medicine of the Republic period (end of the 6th century BC – 31 BC)

- there are doctors - professionals from Greece, Egypt (doctors, slaves);
- there is a differentiation of doctors by type of assistance (surgeons, treatment of skin diseases, injuries, eyes);
- city doctors (arhiatra) appear.

Free citizens acquired a slave doctor – to treat him and his relatives. The slave doctor was released for a fee on "free earnings", the first free Greek doctor in Rome was Archagat. He was given a state house for private practice. He was very popular, but later he began to do surgical operations, cauterization, as a result of this, the Romans stopped referring to him and called him "flayer".

The medicine of the empire period (30 BC – 476 AD) is the flowering of science, culture, crafts and medicine. The development of medicine is associated with the emergence of military medicine, in connection with aggressive campaigns.

During the period of the empire, the development of medicine and medicine:

- valotudinaria hospitals were established in the army;
- there were no civilian hospitals in Rome (the doctor came to the patient's house);
- valeotudinarii were created in the estates for the treatment of slaves (the cured slave was set free);

- in the cities, the post of doctor "national arhiatry" was established;
- there were "provincial arhiatry" in the provinces;
- at the court of the emperor "court arhatry";
- organized "collegiums of arhatiat" under the supervision of the authorities;
- dentists, specialists who treated the bladder disease, surgeons worked.

As a result of the fact that doctors had great benefits, many doctors from other countries came to Ancient Rome, and competition and narrow specialization appeared.

Medical education was carried out in special and private schools.

Roman science was based on the writings of Cornelius Celsus, who wrote the first practical manual on medicine "Artes" ("Art"), where a large role was given to diet and hygiene, and also gave the first Latin terminology.

Contribution to the development of medicine Galen.

Galen (130-200 BC) – an outstanding physician of Ancient Rome was born in the city of Pergamum into the family of an architect. At the age of 14 he began to study philosophy, and at the age of 17 – medicine. His teachers were the prominent doctors of Ancient Alexandria: Herophilus and Erazistratus.

Merits Galena:

- correctly described the structure of the heart, coronary vessels and arterial duct;
- made a great contribution to the development of pharmacology;
- described all parts of the brain and spinal cord (7 pairs of 12 cranial nerves).

Galen's mistakes

- considered the blood circulation center;
- opened animals and transferred their anatomy to the human body;
- believed that all processes in the body occur during the decomposition of pneuma.

For several centuries, Galen's works were the main source of medical knowledge in Europe, but they were not correctly interpreted

by the Catholic Church, as a result of which scholasticism, galenism and dualism of Galen's teachings arose.

Theme 7. MEDICINE OF THE EARLY AND DEVELOPED MEDIEVAL PERIODS (BYZANTIUM, ARAB CALIPHATE, CENTRAL AND SOUTHEAST ASIA)

Purpose of the theme

The student should know:

- features of healing in Byzantium, the Arab caliphates;
- contribution to the development of medicine Ar–Razi, Abu Ali Ibn Sina.

The student should be able to:

- analyze the development of medicine in the Middle Ages.

Study Plan

1. **Analysis of themes on educational issues:**
   1.1. Features of the development of medicine in Byzantium.
   1.2. Organization of hospital business in Byzantium.
   1.3. Medicine in the Arab caliphates.
   1.4. Contribution Ar–Razi in the development of medicine.
   1.5. Abu Ali Ibn Sina's contribution to the development of medicine
2. **Hearing of essays.**
3. **Fastening material on control issues.**
   3.1. The main achievements of Oribas from Pergamum (Byzantium).
   3.2. Organization of hospitals in Byzantium.
   3.3. Medical education in Byzantium.
   3.4. Sanitary facilities in Byzantium.
   3.5. Features of the development of medicine in the Arab caliphates.
   3.6. Contribution to the development of medicine Ar–Razi.
   3.7. Organization of hospital work in the Arab caliphates.
   3.8. "Canon of Medicine", its content.

4. Distribution of themes of essays to lesson number 8.

4.1. Healing and medicine in the Old Russian state.

4.2. Medicine of Armenia, contribution of Mkhitar Heraci.

4.3. Medicine of Georgia, Kannaneli contribution.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
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Medicine in Byzantium

After the collapse of the Roman Empire, the era of the early (V–X centuries AD), and then the developed (XI–XV vv.) Middle Ages, characterized by the development and emergence of a new socio-economic structure – feudalism.

The successor of antiquity was Byzantium (from the name of the town in Asia Minor – Byzant), which became the largest scientific and cultural center. In subsequent years, became known as Constantinople, and with the capture of the Turks in 1453 – Istanbul, which combined many cultures.

Doctors of Byzantium were well acquainted with the works of ancient Greek and Roman doctors.

An outstanding encyclopaedist – a Byzantine physician – Aetius from Amida wrote the main essay – the four book guide to medicine in 16 volumes – systematized the works of Oribasius, Galen.

Aetius was a famous contemporary of Alexander from Thrall – the son of a doctor, wrote the work "On internal diseases and their treatment" in 12 volumes, was translated into Latin, Syrian, Arabic and Hebrew languages.

One of the most prominent physicians of this period was the Greek Oribasius of Pergamum.

Oribasy from Pergamum (325–403):

- systematized the works of Hippocrates, Galen, Heratot, Diaskorida;
- compiled an encyclopedic work "Medical Meeting" in 72 books;
- compiled an abbreviated version of the synopsis encyclopaedic set (review in 9 books), a manual for those studying medical science;

- compiled the work “Publicly available drugs” - for people who do not have medical education and are engaged in their preparation at home.

Sanitary facilities in Byzantium

The early Byzantine civilization inherited from antiquity the device and way of life of cities: water pipes, sewage systems, baths. This was most clearly manifested in the construction of Constantinople. Construction of aqueducts replenished water reserves in wells, fountains, cisterns (underground reservoirs). Valenta’s two-tier aqueduct (construction lasted from the 2nd to the 4th century), (aqueduct arcades 23 m high, 625 m wide, crossing the city from end to end and passing over streets and rooftops). A four-tiered aqueduct built during the reign of Justinian (arcade height – 36 meters, width – 140 meters). The Basaliki tank (532 g.) (Turk.Yerebatan Sarnici, which means “The palace that fell through the earth”, 112 m long, 61 m wide, 13.5 m high, vaults rely on 336 columns, volume – 80.000 cubic meters of water). The construction of baths (ceased to be the center of public life, as it was in ancient Rome, became a place of healing).

Medicine in the Arab caliphates

The Arab caliphates arose in the 6th–7th centuries, coinciding with the spread of Islam. This empire, a hundred years after the beginning of the conquest of the lands of the Roman Empire by the Arabs, surpassed the empire of Alexander the Great. There are three periods in the history of the Caliphate: its formation, prosperity and decay.

The development of science in the Arab Caliphates

- Science was developed, (Greek philosophy).
- Translated the works of ancient authors.
- The House of Wisdom was organized for the work of translators during the IX–X centuries. All literature has been translated into Arabic.
- Libraries were organized in cities: in Baghdad, Damascus, Cairo (40 libraries), which were transformed into centers of science (a prototype of the Academy of Sciences).
- 10 higher medical schools organized (in Europe 2).

Arabic-language medicine for 8 centuries occupied the leading place of the Mediterranean.

Approach to treatment in the Arab caliphates:

- the cause of the diseases was considered based on the teachings of Hippocrates (human temperament);
- the development of pharmacy and pharmacopoeia (collection of medicines):

- opening of the first pharmacy in Baghdad in 754;

- invented hydrochloric, nitric acid, bleach and alcohol (alcohol), arab.al-kuhl;

- fine powder;

- to the middle of the XIII century. Arabs knew more than 3,000 different drugs.

The outstanding philosopher, doctor and chemist of the early Middle Ages was Persian Abu.

Bakr Muhamad ibn Zakariy Ar–Razi (Razes), 850–923 (author of 236 medical records)

Of particular value are his works:

- treatise on "Smallpox and Measles" (1498) – formed the idea of infectiousness;
- wrote an encyclopedic work in 25 volumes "Comprehensive book on medicine" – a description of diseases;
- wrote the work "Medical Book" in 10 volumes – (generalization of knowledge in the field of the theory of medicine, pathology, healing, dietetics, cosmetology, hygiene, surgery, toxicology, infection);
- the founder of the hospitals in Baghdad (hung out pieces of fresh meat in different parts of the city, watched where it remained longer, built a hospital there).

Hospital case in the Arab Caliphates

The establishment of hospitals in the Caliphate from the very beginning was a secular affair and was an act of charity. Hospitals were set up with funds from caliphates, princes, and rich people, and they were generously funded, so visiting the hospitals was free of charge. The first large hospital was founded in 873g. Ruler Ahmad Ibn Tulun and was intended exclusively for the poor.

The Koran forbade the autopsy, so there was not a high level of knowledge in anatomy, surgery, while the study of infectious diseases and pharmacology was at a very high level.

Medicine among the peoples of the East in the states of Central Asia, East and Southeast Asia

In the 9th–11th centuries, Central Asia became one of the most important centers of scientific thought in the East. In 980, not far from Bukhara, in the village of Afshan (the territory of modern Uzbekistan) was born the great encyclopedic scholar of the Medieval East, succeeding in 12 sciences of Abu Ali ibn Sina. In the Latin West, his name eventually transformed into Avicenna.

Abu Ali Ibn Sina (980–1037)

- Doctor, philosopher, astronomer, mathematician, naturalist, poet.
- Compiled more than 450 scientific papers, of which 238 have survived to this day.
- Applied experience and observation in treating a patient.
- Fought against statements about the fate of a person affecting his health.
- His work has been studied for several centuries in western Europe.

His fundamental work "The Canon of Medicine" consists of 5 books, which wrote 20 years (in 1020).

In the "Canon" presented 811 medicines, plant (526), animal (125) and mineral (85) origin, indicating their actions, methods of use, rules for collection and storage. Many of them are unfairly forgotten, and only about 150 are used in modern medicine.

Ibn Sina argued that the world is not created, but eternal. He fought against the doctrine of fate, about rock.

The development of Chinese medicine

Traditional methods of diagnosis, treatment and prevention of diseases, originated in ancient (slave-holding) China, reached their peak in the Middle Ages (ie, during the period of feudalism).

Chinese medicine

- Skills of the traditional Zhen-jeou method (acupuncture and cauterization) were passed on individually from teacher to student.

- In 618, the first in the history of China was founded – "The Imperial Medical School – Tai and Shu", (almost 200 years before the establishment of the medical school in Salerno and 500 years before the creation of the first medical school in the Islamic world).
- Zhen-jiu was led: one teacher, an assistant and 10 instructors. At the school there were 20 needle makers and 20 students (by the middle of the 7th century, the schools expanded considerably and consisted of two departments – traditional medicine and pharmacology).
- Studied seven disciplines: internal medicine (7 years), children's diseases (5 years), surgery (5 years), diseases of the ear, throat, nose and teeth (4 years), mental diseases (2 years), acupuncture and massage (in during the entire period of study).
- The medical treatise "Ch'ien Jin Yao Fang" – "A Thousand Golden Formulas" appeared in the 7th century and was compiled by a well-known doctor, Sun Simyao (581–682).
- Bronze figures were made to teach the Zhen-jeou method, by Wang Weii. In 1026 he compiled a treatise "Illustrated Guidelines on Points for Acupuncture and Moxibustion on a Bronze Figure".
- Compiled atlas on Zhen-jiu therapy.

On the surface of the figure, there were 359 points for acupuncture and their names: a deep canal for needles corresponded to each point. Outside, the figure was made of bronze and covered with wax from the inside and filled with tinted water – if the pupil inserted the needle correctly, the liquid appeared on the surface.

The development of Tibetan medicine

Tibet is a vast area in Central Asia. By the eighth century, a large empire developed here, between Central Asia, China and India. Traditional Tibetan medicine was formed on the basis of traditional Indian medicine.

The main difficulty of studying was the work of **Zhud-Shi** ("The Secret Eight-Term Teaching of Tibetan Medicine" by the Indian doctor Jiwaka, a contemporary of the Buddha (VI century BC))

Zhud-Shi is written in verse form according to the traditions of India and Tibet, consists of 4 parts (156 chapters).

Part 1 – "Initial basis" – about the essence of Tibetan medicine, theoretical and practical foundations.

Part 2 – "Explanatory Basis" – theoretical ideas about the vital activity of an organism, the structure of its development, the formation of diseases and the approaches to their treatment, and the doctor's ethics.

Part 3 – "The basis of instructions" – treatment of internal diseases (more than 400 diseases).

Part 4 – "Additional basis", is devoted to the diagnosis of the pulse, the preparation of medicinal raw materials

Theme 8. MEDICINE OF THE PERIODS OF THE EARLY AND DEVELOPED MIDDLE AGES (KIEVAN RUS, ARMENIA AND GEORGIA)

Purpose of the theme

The student should know:

- features of healing in Kievan Rus, Georgia and Armenia;
- contribution to the development of medicine Mkhitar Heratsi, Kananeli.

The student should be able to:

- analyze the development of medicine in the Middle Ages.

Study Plan

1. **Analysis of themes on educational issues:**
   1.1. Medicine of Armenia,
   1.2. Contribution to the development of medicine Mkhitar Heratsi.
   1.3. Medicine of Georgia.
   1.4. Contribution to the development of medicine Kannaneli.
   1.5. The development of medicine in Kievan Rus.
2. **Hearing of essays.**
3. **Fastening material on control issues.**
   3.1. Features of the development of medicine in Armenia
   3.2. Features of the development of medicine in Georgia.

3.3. The content of labor Mkhitar Geratsi “Consolation in a fever.”
3.4. Content of labor Kannaneli “Incomparable Karabadin.”
3.5. Traditional medicine in Kievan Rus.
3.6. Methods of treatment of diseases in Kievan Rus.
3.7. The spread of epidemics in Kievan Rus.

4. Distribution of themes of essays to lesson number 9.

4.1. Andreas Vesalius and the beginning of scientific anatomy.
4.2. Medicine of the Renaissance.
4.3. Merit W. Garvey - founder of physiology.
4.4. Contribution to the development of the anatomy of Leonardo da Vinci.
4.5. Merit M. Servet.
4.6. Surgery Reformer Ambroise Pare.
4.7. Paracelsus and his merits.
4.8. Medical education in Western Europe.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina. History of medicine. – Moscow, 2008. – 560 p.

The development of medicine in Armenia

The formation of the Armenian state took place in the VII–VI centuries. BC. Subsequently, Armenia became one of the most important civilized centers of the Middle Ages. At the turn of III–IV centuries. Christianity came to Armenia from the eastern provinces of the Roman Empire. At the end of IV. Invented the Armenian alphabet.

As a result of the Arab conquest of VII. Armenia was included in the Caliphate.

The ties of Armenians with the peoples of Iran, Greece, Syria, Byzantium had a strong influence on the development of medical knowledge.

Armenian Medicine

- Traditional (used conspiracies, spells, prayers when using medicines from plants, animal organs and minerals).

- Professional (doctors-professionals knew how to listen to the heart, count the pulse, did operations, used painkillers from belladones).

Armenia was famous for medicinal plants that were exported to other countries. Back in the 1st century BC in Armenia there was a garden for the cultivation of medicinal plants. From the Armenian medicine to other nations penetrated: Armenian clay, borax, ammonia. By the 5th century AD, Armenians developed medical terminology.

Medical education in Armenia was characterized by the fact that in the era of the early Middle Ages there were no universities of their own, so young people were sent to study in Athens, Alexandria.

Ancient Armenia became one of the first territories where **a hospital case** began to develop. The first leprosarium was organized in the III century (260–270) were organized in 35 patients.

Disease prevention has long been considered an important means of preserving health (the philosopher David Anakht V–VI vv. In his work "The Definition of Philosophy" wrote: "Healing is the creator of health, because the goal of healing is either to preserve health or restore the lost").

Mkhitar Heratsi (XII century) – philosopher, doctor, astronomer was an outstanding representative of medicine in Armenia. Compiled the work "Consolation in fever" (1184), where he suggested that contagious contagious diseases are contagious *(300 years before Girolamo Frakastoro, described their development and the methods of treatment known at that time, he had been talking about the connection of diseases for five centuries before Bernardino Ramazzini with professions – blacksmiths, glassblowers, etc.).*

The following doctors made a great contribution to the development of Armenian medicine.

Contribution of outstanding doctors of Armenia

- Amirdovlat Amasiaci (XVth century) – The work "The Benefits of Medicine" wrote about the climate effect on human health
- Ovasap Sebastatsi (XVI cent.) – wrote the work "Excellent medical care cardinal moisture" about anatomy, function of the heart and brain.

- Buniat Sebastatsi (XVII century) – wrote the book "The Book of Medicine" about medicines and treatment of internal diseases.

Georgian medicine

After liberation from Arabian rule (the end of the ninth century), the main focus of Georgia's medical culture was the Telat Academy, founded in the twelfth century by King David IV at a monastery not far from Kutaisi.

During this period, marks the dawn of medical science and practical medical practice.

Sources of study of medicine in Georgia

- Manuscripts (X–XII centuries) – contain information on anatomy, physiology, embryology and hygiene.
- Karabadin (books on natural science) provides information about medicines and their preparation, anatomy, hygiene.
- Proceedings of ancient authors (Hippocrates, Aristotle, Celsius, etc.).

Church-monastic medicine was developed in Georgia, there were doctors-professionals who were educated at the Telat Academy, and traditional medicine was developed.

Among the original works of Georgian doctors of the Middle Ages, the earliest encyclopedic set is the Incomparable Karabadin, compiled by the eminent Cannaneli doctor (XI century).

Outstanding doctor of Georgia – Kannaneli (XI century):

- wrote the work "Incomparable Karabadin" in three parts:

- in the first book the general medical principles, about a structure of a body, physiology are stated;

- In the second book, the principles of treatment of diseases of internal organs, fractures, dislocations, as well as recommendations on hygiene and various diets;

- The third book describes the treatment of bites of poisonous animals and insects.

The development of medicine and medicine in Kievan Rus

The history of medicine and medicine of ancient Russia goes back to the depths of millennia – to the distant centuries of the formation of Slavic culture.

According to modern concepts, the history of healing and medicine in Russia is divided into four stages:

Stages of the history of medicine and medicine in Russia

1. The healing of the pre-Slavic period (VI century BC – IX century AD).
2. Medicine and medicine in Ancient Russia (late IX – mid XIII century).
3. Medicine of the period of the Invasion of the Golden Horde and the subsequent revival of the Russian statehood (mid XIII – late XV cent.).
4. Medicine of the Moscow State (XV – XVII century), (medicine of the late Middle Ages).

Medicine in Kievan Rus to a greater extent represented by traditional and monastic medicine, professional medicine was poorly developed.

Traditional medicine of Kievan Rus was represented by the following representatives:

- healers – sage, witch, witch (from other Russians. To know – know), wizards, enchantress, etc. (treated with conspiracies and drugs);
- healers (they prepared medicines from plants, animals, minerals such as chrysolite, silver, gold), *(healers passed their medical knowledge and secrets from generation to generation, from father to son in "family schools").*

At monasteries, monastic hospitals were organized to provide medical care to the sick, homeless, impoverished, and disabled. The monks provided medical assistance free of charge, and those in need received free meals. After recovery, patients had to work in the monastery gardens. The first monastic hospital appeared in 1091 in Kiev and Pereyaslavl.

In Kievan Rus there were no medical schools or universities where they would receive medical education. Medical education received in universities of Western Europe, so secular medicine was poorly developed. At the courts of princes and boyars, secular healers served. The "Izbornik Svyatoslav" was compiled – where information is given on the treatment and prevention of diseases

In Kievan Rus, during this period, there were frequent epidemics of plague and other infectious diseases, which in Russia were called "pestilence".

During the period from the eleventh to the eighteenth century, 47 "mora" are mentioned in the annals. They began, as a rule, in the border cities – Novgorod, Pskov, Smolensk, through which foreign merchant caravans passed (in the city of Smolensk in 1230 32 thousand people died from the plague).

During the epidemic, the population carried out measures to limit the spread.

The old Russian state – Kievan Rus existed for three – centuries, after the death of Prince of Kiev Mstislav Vladimirovich (1125–1132) – the son of Vladimir Monomakh, it broke up into several small principalities.

Theme 9. MEDICINE OF THE LATE MIDDLE AGES (DEVELOPMENT OF ANATOMY, PHYSIOLOGY AND SURGERY)

Purpose of the theme

The student should know:

- characteristic of the Renaissance;
- the emergence of scholasticism and galenism;
- renaissance medicine.

The student should be able to:

- analyze the development of medicine in the late medieval period.

Study Plan

1. Analysis of themes on educational issues:

   1.1. Characteristics of the Renaissance, the influence of scholasticism on the development of medicine, galenism.

   1.2. Medicine in Western Europe of the Renaissance period: the formation of anatomy (contribution of Leonardo Da Vinci, A. Vesalius, M. Servet).

   1.3. The formation of physiology as a science. Contribution of W. Garvey.

1.4. The development of surgery in Western Europe (Ambroise Pare).

1.5. Contribution to the development of surgery Ambroise Pare.

1.6. The first higher medical schools.

2. Listening essays.

3. Consolidation of material on control issues.

3.1. Definition of scholasticism and galenism.

3.2. Merit M. Serveta in the formation of anatomy.

3.3. Merit A. Vesalius in the formation of anatomy.

3.4. Merit L. Da Vinci in the development of anatomy.

3.5. Merit W. Garvey in the development of physiology.

3.6. The contribution of A. Pare to the development of surgery.

3.7. Higher medical schools in Western Europe.

4. Distribution of themes of essays to the lesson number 10.

4.1. Medicine in the Moscow State and the fight against epidemics.

4.2. The activities of the Pharmaceutical Order in Moscow State.

4.3. The doctrine of contagion and contagious diseases -– J. Fracostoro.

4.4. Medical education in Russia, the opening of the medical school.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina.. History of medicine. – Moscow, 2008. – 560 p.

Medicine in Western Europe of the Renaissance period.

In the 14th and 15th centuries, great changes took place in the social and cultural life of Western Europe: the birth of the capitalist mode of production was taking place, which required special knowledge, and this determined the advent of scholasticism to an experimental method in science. In addition, the influence of the Catholic Church became weaker and led to the emergence of the Renaissance epoch (that is, scientists, artists, poets sought to reflect the real world, that is, the revival of ancient culture).

The influence of scholasticism on the development of medicine

Until the middle of the XI century, the Christian church was one. In 1054 it split into western (Catholic from Greek. Katholikos – universal) and eastern (orthodoxos – orthodox), each of which was isolated.

On this basis, formed a medieval scholasticism.

Scholasticism (lat. Scholasticium) is a type of religious philosophy based on church dogmas (the basis of scholasticism is the influence of religion on the development of science).

This led to the emergence of Galenism.

Galenism is a distorted, one-sided interpretation of Galen's teachings.

Attempts to rethink or rework the scientific data permitted by the church were cruelly persecuted.

The period of the Renaissance epoch became a progressive revolution in the field of science, culture, etc., which led to the development of many sciences, including medicine.

The Middle Ages, which was recently considered barbaric, made a significant contribution to the cultural history of mankind.

The formation of anatomy and physiology as a science

In the era of "Renaissance" begins the formation of anatomy as a science. One of the founders was a brilliant Italian artist, scientist **Leonardo da Vinci (1452 – 1519):**

- one of the first in Western Europe began to open corpses and study the structure of the human body;
- described and sketched many muscles, bones, nerves, internal organs.

The sketches of Leonardo da Vinci, in their accuracy and skill, are superior not only to his contemporary works, but to many others. An example is a sketch of the position of the fetus in the uterus during buttocking.

One of the founders of anatomy was **Miguel Servet (1509 – 1553),** who wrote the book "Restoration of Christianity". It was burned in Switzerland in 1553, because looked at many of the body's processes from the standpoint of observation (had a more correct idea of the movement of blood in the lungs than Galen).

Another scientist who contributed to the development of anatomy was **Andreas Vesalius (1514 – 1564),** he studied at three universities – in Louvain in the humanities, in Montpellier and Paris, where he studied medicine. In 1537, at the age of 23, he received a medical degree. He was convinced that Galen's views on the structure of the human body were erroneous, corrected more than 200 errors in his writings. He published a short textbook of anatomy "Extract" – an abbreviated anatomy for students in the anatomical theater. Posted fundamental work "On the structure of the human body" (brought all the knowledge of anatomy in the system) in 7 books. Systematized anatomy as a science.

The development of physiology as a science (contribution of W. Garvey).

The birth of physiology as a science is associated with the name of the eminent English physician **William Garvey (1578–1657).** At the age of 21, he graduated from Cambridge University. At the age of 24, he received a doctorate in medicine, became a professor at the Department of Anatomy, Physiology and Surgery in London.

Merit W. Garvey:

- opened the small and large circle of blood circulation, veins, arteries (except capillaries);
- wrote the work "Anatomical study of the movement of the heart and blood in animals."

The great influence on the development of natural science was exerted by the activity of the eminent English philosopher **Francis Bacon (1561–1626).** Not being a doctor, Bacon largely determined the paths for the further development of medicine. In his work "On the Dignity and Improvement of Sciences," he formulated three main objectives of medicine: "the first is to preserve health, the second is to cure 'diseases, the third is to continue life". Being engaged in experimental work in the field of physiology, Bacon put several specific questions before medicine: about studying the anatomy of not only healthy but also a sick body, about the introduction of anesthesia, about the use of natural factors in the treatment of diseases and the development of balneology. The solution of these and many other tasks put forward by F. Bacon required centuries.

Formation of Yatrochemistry and Surgery in Western Europe

In the epoch of "Renaissance", iatrochemistry (a medical direction related to the development of chemistry) was widely developed.

Yatrochemists believed that the processes taking place in the body are chemical, therefore, the study of these processes and the treatment of diseases should be associated with chemistry.

One of the founders of iatrochemistry is an eminent physician and chemist **Theophrast Bombast von Hohenheim (1493–1541),** known as Paracelsus, a Swiss by birth, was educated at the University of Ferrara (Italy) and later lectured at the University of Basel in his native German language instead of the Latin accepted in the scientific world.

Paracelsus was one of the founders of the experimental method in science. *"The theory of the doctor is experience. No one can become a doctor without science and experience* " he argued.

At the time of Paracelsus, surgery in Europe was not considered a field of medicine and was not taught at universities (it was handicrafts). Paracelsus insisted on combining surgery and medicine (that is, therapy) into one science, because both come from the same root. He himself proudly called himself "the doctor of both medicine." His books "Minor Surgery" ("Chirurgia minor", 1528), "Big Surgery" ("Chirurgia magna", 1536) and others were very popular.

With Paracelsus, a radical restructuring of chemistry begins in its application to medicine: from the search for ways to produce gold to the preparation of medicines. According to Paracelsus, health is associated with the normal content in the human body of three origins: sulfur, mercury and salt; violation of their correct ratios leads to illness. That is why doctors and pharmacists of the Renaissance attached great importance to drugs containing sulfur, mercury and various salts, and often smelted them from natural ores themselves. In his writings, he also wrote about the diseases of miners and foundry workers associated with sulfur, lead, mercury, and antimony poisonings and, thus, laid the foundations for the future science of occupational diseases.

Development of surgery

In the Middle Ages in Western Europe there was a distinction between doctors who received medical education at universities and

were engaged in treating only internal diseases, and surgeons who had no scientific education, were not considered doctors, and were not allowed into the class. Surgeons were considered artisans and united in their professional corporations.

Surgery had no scientific methods of anesthesia until the middle of the XIX century. All operations were performed without anesthetizing patients. There was also no correct idea of wound infection and methods of disinfecting wounds. Therefore, most operations in medieval Europe (up to 90%) resulted in the death of a patient as a result of sepsis (blood infection) – the cause of which was not yet known.

A coup in these ideas was made by a French surgeon and obstetrician **Ambroise Pare (1510–1590).** He did not have a medical degree. He studied surgery in a Paris hospital where he was an apprentice barber.

Ambroise Pare significantly improved the technique of many surgeries, re-described the rotation of the fetus on the leg, (the ancient Indian method, forgotten in the Middle Ages), applied ligation of vessels instead of twisting and cauterization, designed a number of new surgical instruments and orthopedic devices, including artificial limbs and joints. Many of them were created after the death of Ambroise Pare according to the detailed drawings left by him and played an important role in the development of orthopedics.

At the same time, along with brilliant works on orthopedics, surgery, obstetrics, Paray wrote an essay "On freaks and monsters", in which he cited many medieval legends about the existence of "people-animals", "people-fish", "sea devils" and ... p. This indicates the contradictions in the views of outstanding figures of the most complex transitional Renaissance era.

The activity of Ambroise Pare largely determined the development of surgery as a science and contributed to the transformation of the artisan-surgeon into a full-fledged specialist doctor. The transformation of surgery associated with his name was continued by his numerous followers and successors in different countries.

Medical education in Western Europe

The first higher medical schools in Western Europe appeared in Italy.

- *The Salerno School of Medicine* (9th century) – the successor of ancient medicine:

- it was forbidden to practice medicine without a license from this school;

- in 1213 transformed into a university;

- was a center for training medical personnel.

- *Universities were established in Bologna, Montpellier, Paris, Padua* (they were the prototype of church institutions), students memorized what the professors said, i.e. there was scholasticism and galenism.

In the Middle Ages, terms such as, university, faculty, dean, student appeared.

Terms of the Middle Ages:

- associations of people of the same profession were called **university (universitas – community);**
- **faculty (facultas – ability, skill, talent),** was introduced to denote various specialties;
- **the dean (deca – foreman)** – "the commander of ten";
- **student (studere – study),** called all students of the university.

Theme 10. LATE MEDIEVAL MEDICINE (HISTORY OF EPIDEMICS AND MEDICINE OF THE MOSCOW STATE)

Purpose of the theme

The student should know:

- Moscow State medicine.

The student should be able to:

- analyze the development of medicine in the late medieval period.

Study Plan

1. Analysis of themes on educational issues:

1.1. The emergence of epidemics in the Renaissance.

1.2. The doctrine of contagion (the contribution of Giralamo Fracastoro).

1.3. The development of pharmacy in Western Europe.
1.4. Medicine in the Moscow State.
1.5. Pharmaceutical order its function and role.
1.6. Preparation of Russian doctors, medical school.

2. Listening essays.

3. Consolidation of material on control issues.

3.1. Merit D. Frakastoro in the study of infectious diseases.
3.2. Definitions: university, faculty, professor, dean, student.
3.3. The development of pharmacy in Western Europe.
3.4. Pharmaceutical order in Russia, its activities.
3.5. The emergence of pharmacies in the Moscow State.
3.6. Preparation of Russian doctors, medical school.
3.7. Generalization of knowledge of traditional medicine.
3.8. Methods of combating epidemics in Russia.

4. Distribution of themes of essays to lesson number 11.

4.1. Evolutionary theory of Charles Darwin.
4.2. The founder of genetics – G. Mendel.
4.3. The essence of the cellular theory of Schleiden and Schwan.
4.4. K. Linna and his work system of nature.
4.5. R. Virkhov, the essence of the theory of "Cellular Cellular Pathology."

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina History of medicine. – Moscow, 2008. – 560 p.

The emergence of epidemics in the Renaissance

- Devastating epidemics of plague, leprosy, smallpox, syphilis (XIV century).
- Shelters for patients with leprosy were created, special measures were developed (wearing rattles, bells) to prevent the appearance of patients.
- The cause of the epidemic has not yet been sufficiently studied.
- Scientists thought that epidemics are caused by earthquakes, contagious fumes, and the special position of stars.

Spread of epidemics in Moscow State

- Overseas trade led to the spread of epidemics (there were 12 epidemics in the period of the 14th–15th centuries).
- To destroy the infection in homes used traditional remedies: fumigation with smoke, burning, etc.
- During epidemics, the dead were buried outside the city, and outposts were organized on the roads to the cities.

The first scientific concept of the spread of contagious diseases was put forward by Giralamo Frakastoro – an Italian doctor, physicist, astronomer, poet.

Giralamo Fracastoro (1478–1553):

- wrote the work "On contagion, contagious diseases and treatment" (in 3 books):

- described contagious diseases (smallpox, measles, plague, malaria, rabies);

- outlined the basics of the theory of contagion (a lively breeding infectious principle, released by a patient).

Development of pharmacy business in Western Europe and Moscow

- In Europe, the first pharmacies appeared in the 11th century in the Spanish cities of Toledo and Cordoba (754 in Baghdad).
- From small shops, they turned into large pharmaceutical laboratories that included visitors' rooms, storerooms, a laboratory.

The development of medicine is closely connected with the emergence of the pharmacy and the Pharmaceutical order.

Pharmaceutical

- In 1581, a court pharmacy was established on the territory of the Moscow Kremlin to serve the tsar and his entourage.
- In 1620, the Pharmacy Order was organized in the building of the State Pharmacy.
- The court pharmacy became open to the public, but drugs were released as an exception.
- In 1673 2 pharmacies were organized.

Pharmaceutical Order – a court institution for the management of medical and pharmaceutical affairs.

Medicine of the Moscow State

After the overthrow of the Mongol yoke (1480), the unification of the Russian lands around Moscow led to the formation of the Moscow state.

Medicine of the Moscow State:

- **traditional medicine** (herbalists, healers, zelyniki), which occupied a leading position until the 17th century;
- **monastic medicine** – monastic hospitals and almshouses (shelters for the sick, crippled and beggars) work at the monasteries;
- **secular medicine** (the first doctor who was educated at the University of Western Europe – George Skaryna);
- two civilian hospitals were established and they were taught medicine.

Theme 11. MEDICINE OF THE NEW AGE: MEDICAL AND BIOLOGICAL DISCIPLINES (FORMATION OF BIOLOGY, GENETICS AND HISTOLOGY)

Purpose of the theme

The student should know:

- features of the development of medicine, outstanding scientific discoveries;
- the formation of biology, genetics.

The student should be able to:

- analyze the development of medicine in the era of the New time.

Study Plan

1. **Analysis of themes on educational issues:**

   1.1. The great natural discoveries in the late XVIII and early XIX centuries.

   1.2. The formation of biology as a science.

   1.3. The formation of genetics as a science.

   1.4. The founders of histology

   1.5. The founders of embryology.

2. **Listening essays.**
3. **Consolidation of material on control issues.**
   3.1. The great discoveries of the natural sciences of the 18–19 centuries.
   3.2. C. Darwin – the founder of evolutionary theory.
   3.3. The founder of histology Marcello Malpigi.
   3.4. K. Linna and his work "The System of Nature".
   3.5. The founders of genetics.
   3.6. The founders of histology and embryology.
4. **Distribution of themes of essays to lesson number 12.**
   4.1. The reform of Peter I in the field of education in Russia.
   4.2. The history of anatomy in Western Europe and Russia.
   4.3. The history of the development of pathological anatomy in Western Europe and Russia.
   4.4. E. Jenner, his merits.
   4.5. IM Sechenov and his work "Reflexes of the brain."
   4.6. Louis Pasteur is the founder of microbiology in Western Europe.
   4.7. I.I. Mechnikov – Nobel Prize Winner.
   4.8. I.P. Pavlov – Nobel Prize Winner.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina History of medicine. – Moscow, 2008. – 560 p.

The development of biology and genetics of the new time

The term "New Time" was first introduced in the 16th century, identified with the period of development of capitalist relations, covering the period from 1640 to 1918.

A characteristic feature of the New History is the emergence of the English bourgeois revolution in 1640 (the boundary between the Middle Ages and the New time), as well as the development of the colonial system and the struggle for the redistribution of colonies ended in 1918.

Capitalist production required the development of natural science knowledge (mechanics, physics, chemistry). A special influence

on their formation was rendered by French materialism of the 18th century.

Features of the development of medicine are connected with the activities of materialist doctors.

- Henri Leroy (opposed to scholasticism).
- Julien Lametri (advocated for experience and observation).
- Pierre Cabanis (reformer of medical education).

The great natural discoveries (of the end of the 18th – the first half of the 19th c) were of decisive importance for the development of dialectic views on the nature and development of medicine.

The great natural discoveries (18–19 cc.)

- The theory of the cellular structure of living organisms (Schwann, Schleiden – 1838–1839) – proved that the cell is the main structural component of plants and animals.
- The law of conservation and transformation of energy (Lavoisier, Lomonosov – 1756–1774) - an idea was given of the transformation of food into blood.
- The evolutionary doctrine of C. Darwin (1859).
- The law of heredity and variability G. Mendel (1865).

Biology development

Biology (from the Greek. Bios – life, logos – teaching) – a collection of sciences about wildlife. The term biology was proposed by **J. Lamarck** at the end of the 18th century.

The formation of the evolutionary ideas of scientists of several generations was greatly influenced by the principles of systematics of the organic world, which were laid by the Swedish physician and naturalist **Karl Linnaeus (1707–1778)** and wrote the System of Nature (published 12 times during the author's life). kingdoms of nature "(plants, animals, minerals).

The works of C. Linnaeus contributed to the formation of the ideas of J. Lamarck and Charles Darwin.

The first theory of the evolutionary development of living beings was formulated by the French naturalist **Jean Lamarck (1744–1829)** – a pupil and follower of the French materialists and educators of the XVIII century.

The founder of the evolutionary theory is **Charles Darwin (1809–1882).** His basic work "The Origin of Species by Natural Selection, or the Preservation of Selected Breeds in the Struggle for Life" was published in 1859. In the subsequent works of C. Darwin "The Change of Domestic Animals and Cultivated Plants" (1868), "The Origin of Man and sexual selection "(1871) and other evolutionary doctrine received its further development. Darwin gave a materialistic (dialectic) rationale for the emergence of adaptive features as opposed to the idealistic (metaphysical) viewpoint on the initial expediency of the existing world. He was elected an honorary doctor of the University of Cambridge, Bonn, Breslav, and Leiden, a corresponding member of the Petersburg (1867) and Berlin (1878) Academies of Sciences. He considered the main factor of evolution to be variability, heredity, and natural selection under the conditions of the "struggle for existence".

The development of the genetics of the new time

Genetics (from the Greek. Genetikos – referring to the origin. Genetics, the doctrine of heredity and variability. The term suggested **V. Bateson** (V. Bateson) in 1906).

A serious scientific substantiation of evolutionary theory was the discovery of the laws of heredity by the Czech naturalist **Gregor Mendel (1822–1884),** who became the founder of one of the most important areas of modern biology – genetics.

Gregor Mendel – conducted famous experiments on the crossing of pea varieties, where he found that organisms contain hereditary factors that are transmitted to the offspring when crossed. In his work "Experiments on plant hybrids", the basic principles of the theory of heredity were formulated.

Genetics development

- In 1911, the "Chromosome theory of heredity" was created.

From this point on, the material theory of the gene became the leading theory of genetics.

Thomas Hunt Morgan (1866–1945):

- laureate of the Nobel Prize in Physiology and Medicine for 1933;
- analyzing the results of observations of flies flies, he came to the conclusion that heredity is subject to certain laws, and it

can be described by precise quantitative methods (that genes are localized in chromosomes and a number of qualities are transmitted to descendants in the aggregate).

Histology, embryology – formation in the period of the new time.

Histology (from the Greek. Histologia – tissue, teaching), in its development has passed two periods: **microscopic and microscopic.**

Dysmicroscopic period – microscopic technique is born (magnifying glasses, microscope). The term microscope (an increase of 30 times) appeared in 1625 and is associated with the name of **Robert Hooke (1635–1707).** In his work Hook in 1665, he described the smallest bodies and called them "cell".

Embryology (from the Greek. Embrion – embryo, logos – teaching) has historically formed as a study on embryogenesis – fetal development from the moment of fertilization to birth.

Of great importance for the development of histology, embryology and botany were the works of **Marcello Malpighi (1628–1694)** – an Italian physician, anatomist, naturalist and one of the founders of embryology. He first sketched the early stages of chicken development. In 1672, he presented to the Royal Society his works "On the Formation of a Chicken in an Egg" and "On the Development of an Egg", which were largely timed. They contained 12 tables with 86 figures and explanatory text, opened capillaries (1661g.)

The Dutch self-taught naturalist, **Anthony Van Levinghuk (1632–1723)** made a significant contribution to the development of microscopy and achieved high perfection in the manufacture of lenses, giving an increase of 270 times.

The first attempt to systematize body tissues (without using a microscope) was made by French physician **Marie François Xavier Bichat (1771–1802),** who is considered the founder of histology as a science. Created the first classification of body tissues (tissue system)

In its main features, the cell theory was formulated in the works of German scientists – botanist **Mathias Schleiden (1804–1881)** and the zoologist **Theodor Schwann (1810–1882).**

Mathias Schleiden – in 1838 showed that each cell has a nucleus and determined its role in the development and division of cells.

Theodore Schwann – in 1839 defined the cell as a structural unit of the plant and animal world.

One of the founders of the cell structure theory was **Jan Purvanie Evangelist (1787–1869),** a Czech naturalist and social activist, founder of the Prague histological school, an honorary member of many foreign academies of sciences and scientific societies (including in St. Petersburg and Kharkov). Opened fiber conductive system of the heart (Purkinje fibers)

In Russia, histology developed in close connection with the achievements of world science. Since 1852, this subject has been allocated to an independent course. The first course of histology in Russia was given by the embryologist **K.M. Ber,** who headed the department of comparative anatomy and physiology at the Medical-Surgical Academy in St. Petersburg.

The development of histology in Russia:

- in the 40s of the XIX century, histology was included in the curriculum of related subjects – anatomy and physiology;
- the first departments of histology were organized in 1864 at Moscow and St. Petersburg universities.

Theme 12. MEDICINE OF THE NEW AGE: MEDICAL AND BIOLOGICAL DISCIPLINES (FORMATION OF MICROBIOLOGY, PHYSIOLOGY, ANATOMY AND PATHOLOGY)

Purpose of the theme

The student should know:

- features of the development of medicine;
- the formation of microbiology and physiology.

The student should be able to:

- analyze the development of medicine in the era of the New time.

Study Plan

1. Analysis of themes on educational issues:

1.1. The development of microbiology, the empirical period.

1.2. The experimental period in the development of microbiology.
1.3. The development of physiology in Western Europe.
1.4. The development of physiology in Russia.
1.5. The development of pathology in Western Europe and Russia.
1.6. The formation of an anatomical school in Western Europe
1.7. The formation of the anatomical school in Russia.

2. Hearing of essays.

3. Fastening material on control issues.

3.1. The merits of Edward Gener in the eradication of smallpox.
3.2. The contribution of Semmelweis and Lister to the development of asepsis and antisepsis.
3.3. Louis Pasteur's activity in the formation of microbiology.
3.4. Robert Koch, his achievements in the development of microbiology.
3.5. I.I. Swordsmen, the main services.
3.6. Sechenov I.M. – the founder of physiology in Russia.
3.7. Pavlov I.P. – an outstanding physiologist of Russia.
3.8. The founders of the pathological school in Western Europe.
3.9. The development of pathology in Russia.
3.10. The main merits of Frederick Ruysch in the development of anatomy.
3.11. Start anatomical studies in Russia.
3.12. Founders of the Russian anatomical school.

4. Distribution of themes of essays to lesson number 13.

4.1. Development of patient care methods
4.2. History of anesthesia and contribution to the development of surgery N.I. Pirogov.
4.3. The founder of therapy is S.P. Botkin.
4.4. The birth of asepsis and antiseptics.
4.5. History of blood transfusions.
4.6. History of nursing in Russia.
4.7. Formation and development of pediatrics in Russia.
4.8. Pierre Fochard – the founder of dentistry.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. –- 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina.. History of medicine. – Moscow, 2008. – 560 p.

Anatomy, pathology – their formation in the New Age period.

Anatomy (Greek anatome – cutting, dissection). The founder of the scientific anatomy is **Andreas Vesalius,** who not only corrected the mistakes of his predecessors and greatly expanded the anatomical knowledge, but generalized and systematized them (that is, made science from anatomy). After A. Vesalius, the professors began to personally publicly dissect the corpses of the dead, setting as their goal both the study of the structure of the human body and the teaching of anatomy to students.

In the 17th century the center of anatomical research from Italy moved to France, England and the Netherlands.

The largest anatomical school of that time was formed within the walls of Leiden University. Within the walls of Leiden University, one of the largest anatomists of that time received a medical education from the Dutchman **Frederick Ruysch** – a staunch follower of A. Vesalius (1638–1731) – a convinced follower of **Vezalia**. He graduates of advanced Leiden University. In 1665, Ruysch defended his dissertation and was invited to Amsterdam to give lectures on the anatomy of the city's surgeon's guild. For his merits, F. Ruysch was elected a member of the German Leopoldin Academy (1705), the Royal Society of London (Royal Society) (1720), and the Paris Academy of Sciences (1727). Created the first anatomical museum (more than 2000 exhibits.

In Russia, the onset of anatomical autopsies is associated with the reign of **Peter I (1682–1725)**, who showed great interest in medicine and the development of the medical business. While in Amsterdam (in 1698 and 1717), Peter I attended lectures and the anatomical museum of Ruysch, attended operations and anatomical dissections. In 1717, Peter I purchased the anatomical collection of Ruysch (about – 2 thousand exhibits) for 30 thousand Dutch guilders. She laid the foundation for the first Russian museum, the **Kunstkamera**, the Petrovsky Museum of Rarities. Peter I introduced in 1699 a course of

lectures for boyars on anatomy with a demonstration on corpses. In 1707, by his decree, the first hospital school was founded in Moscow at the General Hospital (an autopsy took place at which the tsar participated).

Teaching anatomy in Russia from the first steps was conducted on a natural science basis. At the beginning of the XVIII century. Specially for Peter I, the anatomical atlas of Gottfried Bidloo, "The Anatomy of the Human Body in 105 Tables", which was published in Amsterdam in 1685, was translated into Russian.

Russia in a short time became the birthplace of eminent anatomical scientists: Schepin, Zagorsky, Buyalsky, Pirogov.

Founders of the Russian Anatomical School

- **Konstantin Ivanovich Shchepin** (1728–1770) – Professor of Anatomy, taught medicine in Russian, founder of the anatomical school.
- **Peter Andreevich Zagorsky** (1764–1846) – approved the Russian anatomical terminology instead of Latin. He developed a methodology for teaching students anatomy on corpses. Created a classification of deformities (teratology).
- **Ilya Vasilyevich Buyalsky** (1798–1866)

- In 1828, he published Anatomical Surgical Tables, which combined data on topographic anatomy and operative surgery (36 figures and 14 tables representing life-size organs).

General pathology (pathological anatomy and pathological physiology)

Pathological anatomy (from the Greek. Pathos – a disease) – the science that studies the structural basis of pathological processes – was separated from anatomy in the middle of the XVIII century. Its development in the new history is conventionally divided into two periods: **macroscopic** (until the middle of the XIX century) and **microscopic**, associated with the use of a microscope.

The beginning of pathological anatomy as a science was laid by the Italian anatomist and doctor **Giovanni Battista Morgagni (1682–1771).** He created the first scientifically based classification of diseases, believed that the disease affects only a specific organ.

Francois Xavier Bisch (1771–1802) – argued that the painful process is localized not in the organ, but in the tissue.

The leading representative of the humoral direction was the Vienna pathologist, a Czech by nationality **Karl Rokitansky (1804–1878),** a member of the Vienna and Paris Academies of Sciences. In 1844, he created the first in Europe Department of Pathological Anatomy. His three-volume "Manual of Pathological Anatomy" (1842–1846), compiled on the basis of more than 20,000 autopsies made using macro- and microscopic methods of research, went through three editions and was translated into English and Russian. The main cause of the disease considered the change in the composition of liquids.

The principles of the morphological method in pathology laid **Rudolf Virchow (1821–1902)** – German doctor, pathologist and public figure. Having adopted the theory of cell structure, R. Virkhov first applied it to the study of the diseased organism and created the theory of cellular (cell) pathology, which is described in his article "Cellular Pathology as a Teaching Based on Physiological and Pathological Histology" (1858). Created the theory of cellular cell pathology

The first department of pathological anatomy in Russia was established in 1849 at Moscow University. It was headed by **Aleksey Ivanovich Polunin (1820–1888)** – the founder of the first in Russia anatomical school.

The beginning of the development of pathology in Russia is connected with the decree of Tsar **Peter I:**

- The Decree was adopted in 1722 on the mandatory opening of the dead, who died a violent death;
- In 1835, an autopsy was introduced for all the dead in hospitals.

Microbiology development

Microbiology (from the Greek. Mikros – small) as the science of microorganisms, their structure and life, as well as the changes they cause in humans, animals, plants and inanimate nature, arose in the second half of the XIX century. Medical microbiology is divided into bacteriology, virology, mycology, immunology, protozoology. In the history of microbiology, there are two main periods: **the empirical** (until the second half of the 19th century) and **the experimental** one, the beginning of which is connected with the activity of **L. Pasteur.**

In 1803, the Royal Jenner Society was organized, headed by Jenner himself. Society set as its goal the widespread introduction of vaccination in England. Only in the first one and a half years of its activity, 12 thousand people were vaccinated, and mortality from smallpox decreased more than three times.

Empirical period

- **Edward Jenner (1749–1823)** – an English doctor (May 14, 1796) publicly conducted an experiment using the smallpox vaccination method (Latin for vacca – "cow"). He instilled in the 8-year-old boy the contents of the pustules from the hand of a peasant woman infected with cowpox.

According to his method was made in 1802 by **prof. Mukhin** in Russia boy opeprivivanie and he was given the name Vaccines in honor of this event.

Empirical medicine is associated with the development of antisepsis (from the Greek. Anti-against, septiqos-putrid) and asepsis (the destruction of bacteria in objects).

The empirical beginnings of antiseptics (from the Greek. Anti-against and septicos-putrid, causing suppuration) are associated with the name of the Hungarian physician **Ignaz Zemmelweis (1818–1865).** Working in the obstetric clinic of Professor Klein in Vienna, he drew attention to the fact that in one department where students studied, the death rate from fever gave 30 %, and in the other where students were not allowed, the mortality was low. Ignaz Semmelweis found that the cause of septic diseases are dirty hands of students who came to the clinic after anatomy of corpses, suggested a method of protection-washing hands with a solution of bleach.

The English surgeon **Joseph Lister (1827–1912)** linked suppuration of wounds with the entry and development of bacteria in them, giving a scientific explanation to a surgical infection. Developed theoretically justified measures – with the use of 2–5 % solution of carbolic acid

The experimental period is associated with the activities of the French chemist **Louis Pasteur (1822–1895)** – the founder of microbiology, immunology.

The main discoveries of Pasteur are: the enzymatic nature of lactic acid (1857), alcohol (1860) and oil-acid (1861) fermentation, the study of diseases of wine and beer (since 1857) He refuted the hypothesis of spontaneous generation (1860, for which he received the award of the French Academy of Sciences). He gave the basis of ideas about artificial immunity (on the example of chicken cholera, 1880), created a vaccine against anthrax (1881), an anti-rabies vaccine (1885). In 1885 he organized in Paris the first anti-rabies station (lat. Rabies-rabies);

Ilya Ilyich Mechnikov (1841–1916), an eminent Russian biologist, pathologist, immunologist and bacteriologist, founder of the phagocytic theory of immunity, one of the founders of evolutionary embryology, organized the first Pasteur station in Russia to combat rabies and other infectious diseases. Winner of the Nobel Prize in 1908 for the theory of immunity. Posted fundamental work "Etudes about nature."

Of great importance for the development of medical microbiology were the discoveries of the German scientist **Robert Koch (1843–1910):** the founder of bacteriology, the Nobel Prize winner (1905); proposed a method of growing bacteria on nutrient media; isolated tubercle bacillus; established the etiology and pathogenesis of tuberculosis (Koch Triad).

The development of physiology

Physiology (Greek plysioloqia – nature, teaching), as science began its development from the experimental period – the works of the Swiss naturalist, physician **Albrecht Haller (1707–1777).** It studies the vital activity of the whole organism, its parts, systems, organs and cells in close relationship with the surrounding nature. The history of physiology includes two periods: **empirical and experimental**, which can be divided into two stages – before I. P. Pavlov and after it.

Albrecht Haller – established the essence of respiration in the lungs, established the properties of muscle fibers (elasticity, contractility and irritability), physiological knowledge associated with metaphysical thinking.

In the second half of the XIX century great strides have been made in studying the functions of individual organs and systems, in the study of some of the most simple mechanisms of regulation and activity.

In Russia, the creation of a materialistic trend is connected with the activities of **Ivan Mikhailovich Sechenov (1829–1905).** Outstanding contribution to the development of reflex theory, which is one of the main theoretical concepts of physiology and medicine. He studied the physiology of respiration, energy exchange, laid the foundations of aviation and space physiology. He wrote the work "Reflexes of the brain" (mental outlook, the level of culture is determined not by the individual characteristics of a person, but by the influence of living conditions and upbringing).

Another distinguished physiologist was **Ivan Petrovich Pavlov (1849–1936)** – the founder of the largest physiological school of our time, an innovator of research methods in physiology. In 1890 IP Pavlov, was elected professor of pharmacology (and in 1895, professor of physiology) of the Military Medical Academy (where he worked until 1925) and almost simultaneously as head of the physiological department at the Institute of Experimental Medicine in St. Petersburg. Winner of the Nobel Prize (1904). He substantiated the principle of "nervism" (the decisive role of the nervous system in the regulation of all body functions).

Theme 13. MEDICINE OF MODERN TIMES: CLINICAL DISCIPLINES

Purpose of the theme

The student should know:

- features of the development of medicine, outstanding figures of medicine;
- the development of therapy, surgery, dentistry, obstetrics and gynecology.

The student should be able to:

- analyze the development of the clinical direction of medicine in the era of the New of time.

Study Plan

1. Analysis of themes on educational issues:

1.1. First methods and instruments for physical examination of patients.

1.2. The founders of therapy in Western Europe and Russia.
1.3. The formation of surgery.
1.4. The formation of dentistry
1.5. The development of obstetrics and gynecology in Western Europe and Russia.
1.6. The emergence of a pediatric school in Western Europe and Russia.

2. Hearing of essays.

3. Fastening material on control issues.

3.1. G. Burhaave is the founder of clinical teaching in Western Europe.
3.2. The first methods and instruments for clinical examination of patients.
3.3. Hospital school in Russia.
3.4. The contribution of M.V. Lomonosov in the development of medicine.
3.5. M. Mudrov – the founder of the therapeutic school in Russia.
3.6. Merit S. Botkin.
3.7. The founders of surgery in Western Europe.
3.8. Pirogov N. I. – the founder of surgery in Russia.
3.9. The founders of dentistry in Western Europe and Russia.
3.10. N. Filatov's contribution to the formation of pediatrics.
3.11. M. Maksimovich-Ambodik – the founder of obstetrics.

4. Distribution of themes of essays to class number 14.

4.1. The fight against epidemics in Russia, the contribution of D.Samoylovich.
4.2. The development of social medicine in Russia.
4.3. The founders of social medicine in Western Europe.
4.4. The formation and development of experimental hygiene.
4.5. M.V. Lomonosov – its role in the development of medicine.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
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The development of therapy in the period of the New time

Medical education in Western Europe in the New Age period is characterized by the emergence of clinical teaching (Greek **klinike** – care for bed patients), i.e. at the bedside Learning the art of healing at the bedside was characteristic of ancient Greek medicine and the medicine of the peoples of the ancient and medieval East.

A large role in the development and implementation of clinical teaching belonged to the University of Leiden (Holland). Under him, a clinic was organized, led by a doctor, chemist and teacher, Professor **Herman Burhaave (1668–1738).**

The first methods and instruments of physical examination

At the beginning of the 18th century, in the clinics of Europe, not a single diagnostic tool was used to examine the patient. When making a diagnosis, the doctor proceeded from the result of a survey-anamnesis (Latin anamnesis-recollection), probing the pulse and examining the patient and his discharge.

The first reliable alcohol (1709), and then the mercury (1714) thermometer with a scale from 0 to 600 ° was proposed by one of the eminent scientists of his time**, Daniel Gabriel Fahrenheit (1686–1736),** who worked in Holland.

An important role in the development of physical examination methods belongs to the Vienna physician **Leopold Auenbrugger,** the author of the percussion method. Being the son of an innkeeper, L. Auenbrugger often observed how his father determined the amount of wine, knocking their walls in barrels.

Rene Theophilus Hyacinth Laennec (1782–1826) – studied the disease of consumption, but listening to the ear had no effect, then he suggested a **stethoscope** (from the Greek. Stethos – chest, scopeo – look, explore) made of wood.

In Russia, the transformation of Peter I contributed to the development of the medical business. Before he came to power, there was not a single higher medical school in Russia.

Medical business in Russia

- **Preparation of healers** - the school of medicine was opened in 1654.
- **A hospital school was organized in 1707**.

- **A healthcare reform** was carried out in 1763 as there was a high incidence and mortality of the population.
- **A Medical College has been established** - the number of doctors in cities has been increased, schools have been opened for the preparation of midwives (midwives).
- **Received higher medical education at universities in Western Europe** (the need for doctors was enormous).

Hospital School of Russia:

- organized in 1707 in Moscow (for 50 students) at the General Hospital (the first director was NL Bidloo);
- foreigners taught;
- all theoretical, practical medical disciplines were included in the curriculum;
- pupils looked after patients, helped doctors, worked in pharmacy gardens;
- the training lasted 5–7 years, ended with a public exam and three operations on corpses.

The hospital school was opened in St. Petersburg in 1733. And in 1786 it was transformed into the Medical-Surgical Academy.

Formation of higher medical education in Russia is associated with the name of **Nikolai Lambertovich Bidloo (1670–1735)** – born in Amsterdam, invited by Peter I to Russia in 1702. In 1707, he headed the first hospital school in Moscow.

The opening of the Academy of Sciences and the activities of MV Lomonosov greatly influenced the development of medical education in Russia.

Medical education in Russia

The Academy of Sciences in St. Petersburg was established by decree of Peter I in 1724 and opened in 1725.

Mikhailo Vasilyevich Lomonosov (1711–1765) – the founder of the first university in Russia in 1755 (the medical faculty began work in 1765 – students were admitted once every three years).

The academy created a gymnasium, an academic university (which developed three areas: mathematical, physical, humanitarian), a library, the Kunstkamera (1728), an astronomical observatory, an anatomical theater, and a botanical garden. The first Russian by

nationality member of the St. Petersburg Academy of Sciences was **M.V. Lomonosov** – a brilliant Russian scientist, encyclopedist, and educator. He was born in the village of Denisovka, Kholmogory district (now the village Lomonosovo of the Arkhangelsk region) in the family of a fisherman. Of great importance on the development of medical education in Russia had the discoveries of MV Lomonosov. In a letter to Count Shuvalov (engaged in organizing a medical case) "On the reproduction and preservation of the Russian people, 1761," noted that in Russia there is a high mortality rate, an insufficient number of doctors. He drew attention to the inadequate and poor quality medical care for the care of children.

The largest representative of therapy in Russia in the first half of the nineteenth century. Was a graduate of Moscow University (1800), and later his professor (1809) and the dean of the medical faculty **Matvey Yakovlevich Mudrov (1776–1831).** His system of clinical examination and individual approach to patients ("to treat not the disease, but the patient") brought him fame as an outstanding therapist of the first quarter of the 19th century. Wrote the work "A word about the way to learn and learn practical medicine."

The second half of the XIX century. It became the flowering of Russian medical schools. In the field of therapy, a special place was occupied by two scientific clinical schools: the S.P. Botkin School, which marked the beginning of an experimental direction in national clinical medicine (at the Military Medical Academy), and the G.A. Zakharyin School, which personified the art of clinical practice (at Moscow University).

In the history of the medical faculty of Moscow University from 1863 to 1911. was the **"golden age".**

The outstanding therapist was **Sergey Petrovich Botkin (1832–1889)** created the largest Russian scientific therapeutic school and initiated the functional clinical and experimental direction in Russian medicine. S. P. Botkin's role is great in the development of social medicine: in organizing the fight against infectious diseases and high mortality rates in the construction of hospitals, the development of school hygiene, etc.

Zemsky medicine in Russia began to develop after the abolition of serfdom in 1861 and after the Zemsky reform of 1864, that is, the introduction of Zemsky economic self-government in 34 (out of 89) provinces of the country. Until 1864, there was practically no medical assistance to the rural population of Russia. Hospitals were only in provincial and district cities. The level of medical care in them was extremely low, and the mortality rate was very high.

Zemsky medicine (1864) was characterized by the fact that there was a traveling system (the local doctor lived in the county town and traveled around the villages on certain days), then became stationary (the counties divided into several medical stations, in the central hospital there were 15–20 beds with departments for women in labor and ambulatory), free maintenance (feldsherizm).

The development of surgery and dentistry in the new period

The development of surgery in Western Europe

- Development of a blood transfusion theory.
- In 1667, French scientists **J. Denis and Emmerets** successfully conducted a blood transfusion from an animal (lamb) to a person.
- Discovery of blood groups (K. Landsteiner in 1900 – Nobel Prize winner).

Founders of surgery in Western Europe:

Jean-Louis Petit (1674–1750) – the first director of the surgical academy, participated in military campaigns, is known for bone and joint surgery, injuries, amputations.

Dominic Jean Larrey (1766–1842) – the founder of military field surgery, created a "flying field hospital" (12 small two-wheeled and 4 large carts for transportation and assistance to the wounded).

The development of surgery in Russia by virtue of the established historical traditions until the middle of the XIX century. was closely associated with German surgery. Many German manuals and textbooks of surgery were translated into Russian. In the first half of the XIX century. St. Petersburg Medico-Surgical Academy was the leading center for the development of surgery in Russia.

Nikolai Ivanovich Pirogov (1810–1881) – an outstanding figure of Russian and world medicine, a surgeon, educator and social activist,

creator of topographic anatomy and experimental direction in surgery, one of the founders of field surgery.

Dentistry - the study of diseases of the oral cavity and maxillofacial area, methods of their diagnosis, treatment and prevention (from the Greek. Stoma, somatos – mouth and logos – teaching). In Western Europe, dentistry as an independent field of medicine emerged only in the late 18th and early 19th centuries. The founder is the French surgeon **Pierre Fauchard (1678–1761)** – described about 130 diseases of the teeth and diseases of the oral cavity;

The development of dentistry in Russia

- In 1710, the title "dentist" was introduced.
- For the first time, the right to practice dentistry was given to a French doctor, François Dubblel.
- Since 1838, dentists have been called dentists.
- The founders are: A.M. Sobolev – wrote a guide to dental treatment, F. I. Vazhinsky (1881) – opened a private dental school in St. Petersburg.

The formation of pediatrics, obstetrics and gynecology

Pediatrics (lat. Pediatria – child, treatment). The treatment of childhood diseases has long been associated with the practice of obstetric aid.

In the 17–18 centuries. The greatest contribution to the study of childhood diseases was made by an English doctor: **Thomas Sidengam (1624–1689)** – systematized children's diseases.

Special essays on children's diseases began to appear in the late 15th and early 16th centuries. In the XVI–XVII centuries. Many childhood diseases have been described and studied. In the 19th century Pediatrics began to form as an independent scientific discipline.

Hospital case

- The first hospital for children was opened in Paris in 1802, became the leading center of Europe.
- The second in Europe and the first in Russia 60-bed children's hospital was founded in St. Petersburg in 1834.

In the second half of the XIX – early XX century. Pediatrics has become an independent subject of teaching in medical faculties. The first department of childhood diseases was organized in the middle of

the XIX century. in Germany, which at the time was at the forefront of pediatrics.

Neil Fedorovich Filatov (1847–1902) – one of the founders of Russian pediatrics, the founder of a large scientific school – developed a clinical and physiological direction. Wrote the "Short textbook of childhood diseases";

Obstetrics – the doctrine of pregnancy, childbirth and the postpartum period (from French. Accoucher – to help with childbirth).

Gynecology – the study of women's diseases (from the Latin. Qynecoloqia – a woman and the teaching).

The formation of obstetrics as an independent clinical discipline began in France at the turn of the 17th – 18th centuries. To a large extent, this was facilitated by the organization of obstetric clinics. The first one was opened in Paris (XVII. Century).

The formation of obstetrics

- The first school of French obstetricians was opened in Paris (17th century).
- The first director of the school of French obstetricians was Francois Morisot.

Francois Morisso (1637–1709) – the founder of obstetrics, the author of a guide about the diseases of pregnant women.

The formation of obstetric education in Russia

- In 1757, "Babicha schools" were created in Moscow and St. Petersburg, which trained midwives.
- Opening of the first mid-term (maternity) departments in Russia for 20 beds at the Moscow (1764) and St. Petersburg (1771) Nursing Homes.

In 1784, **Nestor Maksimovich Maksimovich-Ambodik (1744–1812)** began teaching at the Petersburg Babichsky School. He was the first Russian professor in the field of the field of midwifery (1782), one of the founders of scientific obstetrics, pediatrics and pharmacognosy in Russia. He wrote the work "The Art of Pawing or the Science of Babies" - the first guide to obstetrics and pediatrics in 6 parts with an atlas.

Theme 14. MEDICINE OF THE NEW TIME: HYGIENE AND PUBLIC MEDICINE

Purpose of the theme

The student should know:

- features of the development of medicine, outstanding figures of medicine;
- the development of infectious diseases, epidemiology and hygiene, social medicine.

The student should be able to:

- analyze the development of the clinical direction of medicine in the era of the New of time.

Study Plan

1. **Analysis of themes on educational issues:**
   1.1. The fight against epidemics in Russia.
   1.2. The contribution of D. Samoylovich.
   1.3. The formation of public medicine in Western Europe.
   1.4. Formation of public medicine in Russia.
   1.5. The development of hygiene in Western Europe.
   1.6. The development of hygiene in Russia.
2. **Hearing of essays.**
3. **Fastening material on control issues.**
   3.1. D. Samoilovich's contribution to the creation of a system for the elimination of plague epidemics.
   3.2. Ramazzini – the founder of occupational pathology.
   3.3. The founders of social medicine in Western Europe.
   3.4. The founder of hygiene – M. Pettenkofer.
   3.5. The contribution of A. Dobroslavin and F. Erisman in the development of hygiene.
   3.6. Nobel Prize winners.
   3.7. Origin of Public Medicine in Russia (contribution of MV Lomonosov).
4. **Distribution of themes of essays to lesson number 15.**
   4.1. The history of military medicine.
   4.2. The first organizer of the Soviet health N.A. Semashko.
   4.3. Preventive orientation of the Soviet healthcare.
   4.4. The development of science of the Soviet period.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina. History of medicine. – Moscow, 2008. – 560 p.

Epidemiology (Greek. Epidemia – from epi – above, demos – people; logos – teaching) - the science of the causes and laws of the mass spread of infectious diseases, methods of their prevention and elimination.

Throughout the history of the New World, epidemics continued to rage around the globe – massive infectious diseases across the city, country, region, and pandemics (Greek: Pandemia – the entire people as a whole) – even unusually strong epidemics that span across several countries and continents. They hit a huge mass of the population.

A large role in eliminating the plague epidemic belongs **to Danil Samoilovich Samoilovich (1742–1805).** He gave a detailed description of the clinical picture of the plague, studied the conditions of its spread and the pathological anatomy of the plague. He proposed methods of protection against the plague (repeatedly putting on himself the "smoke fumigated clothing" removed from patients).

During the New Age period, a number of infectious agents were discovered, for which a number of scientists gained worldwide recognition by becoming Nobel Prize winners.

Nobel Prize Laureates:

- R. Ross (1902) for his work on malaria;
- A. Laveran (1907) – for his work on studying the role of the simplest as pathogens and the discovery of the causative agent of malaria;
- R. Koch (1905) – for research and discoveries in the field of tuberculosis;
- I.I. Mechnikov, P. Ehrlich (1908) – for the development of the theory of immunity.

The development of community medicine in Western Europe and Russia

Public (social) medicine (lat. Socialis – social, comradely) science about the preservation of public health. Developed in different

countries of the world at the same time. It originated in Russia in the first half of the 19th century, in Western Europe in the 16th century. (England, France, the Netherlands).

The first analysis of mortality tables in London for 1603 – 1653 made **John Graunt (1620–1674)** – haberdashery merchant and music teacher, who became one of the founders of demographic statistics (from the Greek. demos – people; grapho – write; lat. status – state, position). Made the first analysis of mortality tables in London for 1603–1653. He published the book Natural and Political Observations on the Records of the Dead, mainly in relation to governance, religion, profession, population growth, air, disease, etc. of the city of London.

Originally, demographic statistics were called political arithmetic. This term was introduced by **William Petty (1623–1687)** – an English doctor who tried to determine the dependence of the morbidity and mortality of employees on their professional activities.

The founder of occupational pathology and occupational health as a branch of medicine was the Italian doctor **Bernardino Ramazzini (1633–1714).** He summarized his long-term studies in the classic treatise "On the Diseases of Artisans" (1700), which was translated into many European languages.

In Russia, social and medical activities began in the first half of the nineteenth century.

Community Medicine in Russia

- A record was taken of the male population by decree of Peter 1 in 1722, which was associated with military conscription.
- M.V. Lomonosov – advocated the registration of newborns, noted an insufficient number of doctors and pharmacies.

The development of hygiene in Western Europe and Russia

Hygiene (from the Greek. Hygiis – healthy) science of the preservation and improvement of health.

In Western Europe, the founder of hygiene was the German doctor **Max Pettenkofer (1818–1901).** He introduced an experimental research method into hygiene. He graduated from the University of Munich, where he worked as a professor, led the Institute of Hygiene. Developed methods for hygienic assessment of air, soil, clothing.

Experimental hygiene has formed **in Russia**, the founder of which is **Alexei Petrovich Dobroslavin (1842–1889).** He graduated from the Medico-Surgical Academy in St. Petersburg. He made a great contribution to the development of public medicine in Russia. On his initiative in 1878, the Russian Society for the Conservation of National Health and the scientific and practical journal Zdorovie were founded, which he edited for 10 years (1874–1884). His research focuses on body metabolism, food hygiene and military hygiene. He investigated the chemical composition of bread, boiled meat, food digestibility.

Erisman Fedor Fedorovich (1842–1915) (real name Guldreykh Friedrich). Russian hygienist, ***one of the founders of scientific hygiene and public medicine in Russia***. Swiss by origin. He graduated from the University in Zurich, moved to Russia, worked in Petersburg as an oculist, improved his knowledge abroad in Zurich, Munich, then worked in Moscow, lived in Switzerland. The founder of school hygiene (developed a school desk) and home hygiene.

Theme 15. MEDICINE NEWEST TIME HISTORY (ORGANIZATION OF THE PUBLIC HEALTH SYSTEM)

Purpose of the theme

The student should know:

- features of the development of medicine in the early years of Soviet power;
- outstanding achievements of medicine.

The student should be able to:

- analyze the development of medicine in the era of modern times.

Study Plan

1. **Analysis of themes on educational issues:**
   1.1. Organization of the public health system (the role of N.A. Semashko and Z.P. Solovyov).
   1.2. Principles of Soviet healthcare.
   1.3. The first decrees to combat epidemics.
2. **Hearing of essays.**

3. Fastening material on control issues.

3.1. The first institutions of the public health system of the Soviet period.

3.2. The role of N.A. Semashko and Z.P. Solovyov in the organization of healthcare of the Soviet period.

3.3. The basic principles of Soviet healthcare.

3.4. The state character of the Soviet public health.

3.5. The first decrees on the prevention of infectious diseases in the first years of Soviet power.

3.6. Public participation in the work of the health authorities of the Soviet period.

3.7. Communication science and health practices.

4. Distribution of themes of essays to the lesson number 16.

4.1. Formation and development of transplantology in Russia.

4.2. The discovery of insulin.

4.3. History of the discovery of penicillin.

4.4. History of the discovery of sulfa drugs.

4.5. The experiences of the doctors themselves.

4.6. Nobel Prize in Physiology and Medicine.

4.7. International Red Cross: the history of formation and activity.

4.8. World Health Organization.

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina History of medicine. – Moscow, 2008. – 560 p.

Formation of Soviet medicine

In the early years of Soviet power, epidemics of typhus, cholera, typhoid fever and other infectious diseases raged in Russia. Everywhere there was a shortage of qualified medical personnel, medical institutions, and medicines. Civil war and military operations throughout the country exacerbated the devastation in industry and agriculture. The population of the country was starving. Not enough fuel.

Transport, water supply and cleaning systems of settlements remained in a neglected state, which created a dangerous epidemiological situation.

The medicine was dispersed, did not have sufficient funding, it was provided mainly from the budgets of the zemsky and the dedicated work of the leading rural doctors. However, it was necessary to focus efforts on combating epidemics and diseases, and for this it was necessary to create public hospitals and a public health system, which was formed in 1918. The following governing bodies were organized.

The organization of the public health system took place in several stages:

- On October 26 (November 8), 1917, the Medical-Sanitary Department (headed by M. Barsukov) is created to reorganize the medical and sanitary business in the country.
- January 24 (February 6) 1918 The Council of Medical Colleges was formed – "the highest medical body of the Workers 'and Peasants' Government of the RSFSR" headed by A.N. Vinokurov with 3 main tasks:

- The organization of health departments in the field;
- reorganization of military medicine;
- strengthening sanitation and combating epidemics.

People's Commissariat of Health of the RSFSR

- On July 11, 1918, the Decree "On the Establishment of the National Commissariat of Health" of the RSFSR i**s issued.**

Semashko Nikolai Alexandrovich (1874–1949)

- He headed the Narkomzdrav RSFSR until 1930.
- In 1922, he organized the Department of Social Hygiene at the Medical Faculty of Moscow State University, which he headed for 27 years (1949).

Zinovy Petrovich Solovyov (1876–1928), First Deputy, was a member of the Council of Medical Colleges, was elected Chairman of the Executive Committee of the Russian Red Cross Society, and in 1920 headed the Military Health Administration of the Workers 'and Peasants' Red Army.

The basic principles of Soviet health:

1. state character (centralization of management);
2. preventive direction;
3. public participation in healthcare;
4. unity of medical science and health practice.

The preventive direction is the principle of Soviet healthcare, which has been consistently implemented in the Russian Federation since 1918. Thus, the beginning of the unified state sanitary service, which for many decades has provided sanitary and epidemiological security of the country, was laid.

The preventive direction of the Soviet healthcare in the early years:

- Decree on measures to combat typhus (01/18/1919);
- Decree on measures to combat epidemics (04/10/1919);
- Decree on obligatory conciliation (04/10/1919);
- Decree on the provision of soap to the Red Army and civilians (December 30, 1919);
- Decree on the Sanatorium at the railway stations in Moscow (05/13/1920);
- Decree on providing the population with saunas (09/30/1920).

Public participation in measures to protect health is the principle of Soviet public health, born in the most difficult conditions of the first years of Soviet power, when the fight against epidemics, diseases and hunger was conducted with *an acute shortage of medical personnel*. In the conditions of a total shortage of medical personnel, the problem was solved by involving the workers themselves (workers, peasants, intellectuals) in the medical and sanitary work.

Public participation in healthcare:

- involvement of workers in the medical and sanitary work with a shortage of medical personnel;
- the creation of commissions for the improvement of labor and life;
- mass dramatization (sanitary theater);
- sporting events;
- sanitary courts;
- promotion of healthy lifestyles (posters “window growth”).

The unity of medical science and health practice is the principle of the scientific organization of healthcare, directly related to its state character. During the period of civil war and intervention, Russian science developed in extremely difficult conditions.

The unity of medical science and health practice

In August 1918 under the People's Commissariat of Health of the RSFSR, the Scientific Medical Council was established (chairman L.A. Tarasevich). In 1920 The State Institute of Public Health was created. It included 8 research institutes (vaccine and serum control, sanitary and hygienic, protozoal infections, microbiological, nutrition, biochemistry, tuberculosis and experimental biology). In the period from 1918 to 1927, 40 research institutes were organized in the country. Conducted training of qualified personnel.

Medicine during the Great Patriotic War

Successes and problems of domestic medicine in the postwar period

The Second World War (1939–1945), for the Soviet Union – the Great Patriotic War (1941–1945), more than 26 million people died on the battlefields during the battles. An outstanding role in the treatment of the wounded and sick, saving many lives belongs to the military and civilian physicians.

The main objectives of health during the war:

1. assistance to wounded and sick soldiers;
2. medical care for home front workers;
3. protecting the health of children and women;
4. widespread anti-epidemic measures.

Health Achievements during the War:

1. creation of a wide network of evacuation hospitals;
2. making the system of staged treatment of the wounded and sick;
3. the absence of epidemics in the Soviet troops during the war;
4. return to service 72.3% of injured and 90.6% of patients.

In 1944 the Academy of Medical Sciences of the USSR was established. First President of the USSR Academy of Medical Sciences – **Nikolay Nilovich Burdenko.**

Successes of domestic medicine:

1. intensive development of the sanitary-epidemiological service;
2. transformation of the Narkomzdrav into the Ministry of Health of the USSR;

3. expansion of specialized medical care;
4. elimination of malaria as a mass disease;
5. development of space medicine.

Theme 16. MEDICINE NEWEST TIME HISTORY (OUTSTANDING MEDICAL ACHIEVEMENTS AND INTERNATIONAL ORGANIZATIONS)

Purpose of the theme

The student should know:

- outstanding medical achievements, the role of international organizations.

The student should be able to:

- analyze the development of medicine in the era of modern times.

Study Plan

1. Analysis of themes on educational issues:

1.1. The outstanding achievements of medicine in the XX century.

1.2. Advances in surgery.

1.3. Advances in Therapy, Psychiatry

1.4. Nobel Prize winners.

1.5. International organizations.

2. Hearing of essays.

3. Fastening material on control issues.

3.1. The main achievements of medicine in the 20th century.

3.2. The discovery of antibiotics.

3.3. The discovery of sulfa drugs.

3.4. The discovery of insulin.

3.5. Leading surgeons of the Newest time and their merits.

3.6. Nobel Prize winners.

3.7. World Health Organization.

3.8. International Committee of the Red Cross.

4. Distribution of themes of essays to lesson number 17.

4.1. The history of the emergence of traditional medicine of the Kyrgyz.

4.2. The history of migratory medicine.

4.3. Organization of medical services in Kyrgyzstan in the early years of Soviet power.

4.4. Medicine of Kyrgyzstan during the Great Patriotic War.

4.5. Medicine of Kyrgyzstan in the years of peaceful construction (1947–1991).

4.6. The first laws of sovereign Kyrgyzstan on healthcare (1992).

Literature:

1. T.S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina History of medicine. – Moscow, 2008. – 560 p.

Under the influence of scientific and technological progress major events in the field of medicine and biology began to occur.

The main achievements of medicine of the 20th century

- J. Watson, F. Creek (genetic code of DNA and RNA – in (1953);
- G. Domagkom (1934–1935) – streptocide is discovered;
- A. Fleming (1929) – discovered penicillin;
- G. Florey and E. Chein (1941) – isolated penicillin in pure form;
- G. Krebs (1932–1934) – opened the synthesis of urea in the liver "Krebs cycle";
- A. Calmett, S. Guérin (1921) created the BCG vaccine;
- C. Andrews, R. Ledlow (1933) – they discovered the causative agent of influenza;
- F. Banint, Best, J. MacLeod (1922) – the pancreatic hormone is discovered – insulin.

Nobel laureates

- 1923 – G. Banting and D. MacLeod (United Kingdom) for the discovery of insulin.
- 1924 – V. Einthoven (Netherlands) for discovering the method of electrocardiography.
- 1930 – K. Landsteiner (Austria) for the discovery of blood groups.

- 1933 – T. Morgan (USA), the discovery of the role of chromosomes in heredity.
- 1939 – G. Domagk (Germany) for the discovery of sulfonamides.
- 1940–1942 – Nobel Prizes were not awarded.
- 1945 – A. Fleming (United Kingdom) for the discovery of penicillin.
- 1952 – Z. Waxman (USA) for the discovery of streptomycin.
- 1979 – A. Cormac (USA) and G. Hounsfield (United Kingdom) for the development of computed tomography.
- 2000 – A. Karlsson (Sweden) for discovering the role of dopamine and its influence in the development of Parkinson's disease.
- 2003 – P. Lather and P. Mensfield for research in the field of magnetic resonance imaging.
- 2007 – M. Evans, M. Kapeti and O. Smitis for discoveries in the field of embryonic stem cells.

The latest technology in the twentieth century. led to the development of almost all disciplines and sciences in medicine, especially in the diagnosis and treatment of diseases:

"In the twentieth century, the golden age of surgery began, it became one of the most dynamically developing branches" (MB Mirsky, history of medicine). Surgeons and transplantologists have made a great contribution to the development of this industry:

Leading surgeons of the Newest time and their merits

- **Bryukhovenko S.S.** created a cardiopulmonary bypass (in the 50s, the first operations on a person's open heart ("dry heart") were performed).
- **Demikhov V.P.** – created an artificial model of the heart, made in 1946 the first in the world transplant of a second (additional heart) into the chest cavity of a dog (lived 141 days).
- **Christian Bernard** in 1967 transplanted a human heart.
- **Burdenko N.N.** (neurosurgeon) – has developed operations for open head injuries.
- **Bakulev A.N.** – an outstanding cardiovascular surgeon, surgery for heart defects with acute myocardial infarction.

- **Petrovsky B.V.** – an outstanding surgeon, performed the first successful renal reassignment (from a living donor).
- **Shumakov V.I.** – an outstanding transplant surgeon, made the first heart transplant (1986).
- **Michael de Becky** – first used synthetic prostheses for cardiac surgery.

Distinguished Therapists

- **Konchalovsky M.P.** – studied pre-disease states ("from the diagnosis of the disease to the diagnosis of the patient);
- **Strazhesko D.** – Head of a large school of therapists, worked in the field of cardiology.
- **Myasnikov A.L.** – the founder of the largest cardiological school of the USSR;
- **Chazov E.I.** – developed methods of electron microscopy in ischemic heart disease.

Prominent psychiatrists

- **V.M. Bekhterev** – headed the institute of the brain
- **Hans Selye** – the author of the exercise "on stress and general adaptation syndrome", used the term "stress", the effect of stress on the human body.

Latest Microbiologists

- **Gamaley N.F.** – Creator of the Institute of Epidemiology, Microbiology.
- **Gromashevsky L.V.** – investigated the mechanism of transmission of infectious diseases (cholera, dysentery, hepatitis).

The most famous organizers of healthcare, scientists in the field of social medicine, most of them were leaders of international organizations.

M. Kandau – organized a campaign against malaria. **F. Muller** – organized a campaign to eradicate smallpox and the strategy "The health of the world's population in 2000". **Y.P. Lisitsyn** – the founder of public health and the organization of healthcare of the USSR, Russia.

International Organizations

All over the world, the unity of actions of doctors and organizations of all countries is necessary to achieve the goal of improving and preserving health.

International Committee of the Red Cross (ICRC).

Established in 1876 in Geneva, an independent, neutral body, the budget is made up of voluntary contributions from international organizations of governments and national societies of the Red Cross, can act as a neutral mediator in armed conflicts, assisting the wounded, sick, prisoners of war and civilians.

The Red Cross emblem was proposed in 1863 at a meeting of unofficial delegates from 16 countries.

The emblem is a red cross on a white background (the sign of protection of people, providing assistance to the wounded).

Later, in 1876, Turkey adopted the Red Crescent as the emblem of the movement, following the traditions of Islam.

The World Health Organization (WHO) is one of the largest specialized UN agencies. The First World Health Assembly was held in Geneva (WHO office).

April 7, 1948 is the day of ratification of the Health Organization Charter "Day of Health".

The goals of WHO are the attainment by all nations of the highest possible level of health.

The emergence of cooperation between different countries in the field of health is due to the need for international coordination of measures for the sanitary protection of the territory of states in connection with recurring epidemics.

ALFRED NOBEL'S COLLECTION

"All remaining realizable property must be distributed as follows: my executors must transfer capital into securities, creating a fund, the interest from which will be given as a premium to those who brought the greatest benefit to humanity during the previous year. These percentages should be divided into five equal parts, which are intended: the first part to the one who made the most important discovery or invention in the field of physics, the second to the one who made a major discovery or improvement in the field of chemistry, the third – to the one who achieved outstanding success in the field physiology or medicine, the fourth – to create the most significant literary work, reflecting human ideals, the fifth – to the one who will make a significant contribution to the rallying of peoples, the destruction of slavery, the decline in

numbers STI existing armies and promoting a peaceful agreement. Prizes in the field of physics and chemistry should be awarded by the Royal Swedish Academy of Sciences, in physiology and medicine by the Royal Karolinska Institute in Stockholm, in literature by the Swedish Academy in Stockholm, the Peace Prize by a committee of five elected by the Norwegian Storting. My particular wish is that the awarding of prizes should not be influenced by the candidate's nationality, that the most deserving people receive the prize, regardless of whether they are Scandinavian or not. "

Theme 17. THE HISTORY OF MEDICINE IN KYRGYZSTAN

Purpose of the theme

The student should know:

- features of the development of medicine in Kyrgyzstan before joining Russia, in the years of Tsarist Russia, Soviet power, pre-war, war years and years of peaceful development;
- development of a network of medical institutions.

The student should be able to:

- analyze the development of medicine in Kyrgyzstan.

Study Plan

1. Analysis of themes on educational issues:

1.1. Providing medical care in Kyrgyzstan before joining Russia

(representatives of traditional medicine).

1.2. The provision of medical care during the years of Tsarist Russia.

1.3. Migration medicine.

1.4. Medicine in the early years of Soviet power.

1.5. The organization of medical care in the period of the Autonomous Region and the Republic.

1.6. Healthcare in the pre-war, military, post-war and in the years of peaceful development.

1.7. Medicine of sovereign Kyrgyzstan.

2. **Listening essays.**
3. **Fastening material on control issues.**

3.1. Representatives of traditional Kyrgyz medicine, features of treatment.

3.2. The role of tabib in the provision of medical care.

3.3. The first medical institutions in the years of Tsarist Russia

3.4. Healthcare of Kyrgyzstan on the eve of the October Revolution.

3.5. The network of healthcare institutions in the early years of Soviet power.

3.6. Medical personnel in the prewar years.

3.7. Medical personnel and the network of healthcare institutions in the war and post-war years.

3.8. Medical personnel in the years of peaceful construction.

3.9. Basic first laws of sovereign Kyrgyzstan.

4. **Distribution of themes of essays to class number 18.**

4.1. Contribution to the development of medicine and healthcare of the first academician of Kyrgyzstan, IK Akhunbayev.

4.2. M.M. Mirrahimov – the founder of the domestic therapeutic service.

4.3. K.R. Ryskulov – the first woman academician.

4.4. Development of pediatric services in Kyrgyzstan.

4.5. The development of surgical services in Kyrgyzstan.

4.6. Public health and healthcare, the contribution of A.A. Aidaraliev, N.K. Kasiev, K.D. Abdullin.

Literature:

1. .S. Sorokina. History of medicine. – Moscow, 1994. – 381 p.
2. Y.P. Lisitsyn. History of medicine. – Moscow, 2003. – 391p.
3. T.S. Sorokina. History of medicine. – Moscow, 2008. – 560 p.

Providing medical care before joining Russia and in the years of Tsarist Russia

Before joining Russia (until 1863)

The health status of the population was unsatisfactory. The population suffered from smallpox, plague, cholera, trachoma and other diseases. There were no medical facilities. Medicine was popular and religious.

Traditional medicine: the population was treated by representatives of traditional medicine – tabibs. Tabibs for their time played a positive role, because enjoyed the accumulated experience of traditional medicine. Tabibs themselves prepared infusions, decoctions, powders, ointments. In the treatment of tabiba used the means of plant, animal and mineral origin, as well as physiotherapeutic and other methods of treatment. The wrap was applied to a patient with the skin only that of the killed animal, the intestinal contents of the animal.

Tabibs

1. Tamyrchy (pulsator) – the disease was divided into two types (intense pulse "hot disease", weak pulse "cold disease." Were treated with a diet, heavy drinking.
2. Synykchy (chiropractors).
3. Kanchy (bloodletting).
4. Darynchy (cautery wounds).
5. Bybyu (grandmother-midwife).
6. General profile.

Infectious diseases such as anthrax (burned with a hot iron) were known, and an old woman who had been ill with this disease was isolated to care for a patient with smallpox. They used bathing in the hot springs of Issyk-Ata, Dzhety-Oguz. In addition to traditional medicine was religious-mystical (healers, shamans). At this time, there are such elements of religion as totemism, fetishism, the cult of spirits and ancestors. Treated with conspiracies, rituals, etc.

Thus, medicine was popular and religious.

During the years of Tsarist Russia (from 1863–1917) becoming a scientific medicine. Appeared medical institutions:

- the military units of the tsarist army were organized (hospitals) in Pishpek, Osh, Karakol, Naryn – provided by honey. help to the local population.
- medical facilities for civilians appear:

-1885-1896 hospitals with an outpatient clinic were opened in Osh, Pishpek and Karakol.

- medical facilities were opened for migrants from Russia:

- first-aid post in 1908 (in the town of Pishpek);
- resettlement hospital in Pishpek in 1911 (with 12 beds).

There is a resettlement medicine (along the route the movement of immigrants and on the places of the new settlers' device were created ambulance stations, pharmacies.

The first doctors were: F. Poyarkov. V. Vyshpolsky, P. Bespalets, V. Kuleshovsky, N. Barsov, K Frunze, medical assistant M. Frunze, Pervakov and others.

The first years of Soviet power (1917–1923) are characterized by the fact that civil war and devastation contributed to the further spread of epidemics (cholera, typhus).

Organization of medical care

- Health authorities are created. The first people's commissar for healthcare in the Pishpek district was A. Ivanitsyn.
- Emergency commissions, sanitary commissions and sanitary police work to combat epidemics.
- Fight against social diseases (tuberculosis, venereal diseases).
- Provision of generally accessible, free, qualified medical and medicinal care.
- A large anti-epidemic and health education work was carried out.
- 7 infectious barracks (40 beds each) were organized for the treatment of infectious patients.
- In 1921, the Ordinance "On Mandatory Opeprivialisation" was adopted (in 1921, 9 doctors worked in Kyrgyzstan).

Autonomous Region (1924–1926)

In these years, honey. public assistance improved. Appeared specialized types of honey. help. By 1924, there were 5 resorts and sanatoriums functioning: Arashan, Jalal-Abad, Jety-Oguz, Ak-Suu, Koy-Sary.

In 1924 medical-caravan detachments were organized whose duties included acquaintance with the sanitary condition of settlements, hygienic skills were imparted to the population, treatment was carried out (63 % of the population suffered from scabies, 10 % syphilis, 37 % trachoma).

In 1925 in the city of Pishpek open:

- maternity hospital;
- children's consultation;

- dental offices;
- venereal ambulatory.

In 1926, the following facilities were opened in Frunze: the malarial station; tuberculosis dispensary; Pasteur vaccination point; point of obstetricians training.

During these years, 3 medical examination teams from the center of the country are created and operate. They were engaged in treatment, sanitary and educational work among the population. They found that the population suffers from skin (scabies), venereal (syphilis) and eye diseases (trachoma).

In 1926 Medical personnel and a network of hospitals.

- The number of doctors – 19
- Number of hospitals – 16, including city hospitals – 4; rural – 12
- Number of beds – 445, including urban – 195; rural – 250

Autonomous Republic (1927–1936) is characterized by the further development of healthcare.

- **In 1927**, the People's Commissariat of Health was formed (headed by S. Ibragimov).
- **In 1928,** an obstetric technical school was opened in Frunze.
- **In 1929,** in the city of Frunze, an electro-light medical clinic with X-ray rooms was opened in Osh, Jalal-Abad, Przhevalsk.
- Health facilities are organized at industrial enterprises (meat processing plant, leather plant, garment factory, printing house).

In 1935, Kyrgyzstan had sent an expedition of 23 doctors in the fight against sexually transmitted disease and trachoma.

The first cadres of doctors start to work: Gamembirdiev ZI, Malyshev MM, Shamiev M., Akhunbaev IK These years are significant in that smallpox was eradicated in 1936.

PUBLIC HEALTH OF KYRGYZSTAN IN PRE-WAR, POST-WAR AND YEARS OF PEACEFUL DEVELOPMENT

Federal Republic (1937–1991).

1. Pre-war years (1937–1941)

- In 1938:

- the scientific research institute of epidemiology, microbiology and hygiene was opened;

- the Republican Medical Journal is published;

- there is a mountain-climatic sanatorium in the village. Cholpon-Ata.

• **In 1939,** opened:

- Kyrgyz State Medical Institute (director Elbert);

- Republican psychiatric hospital in with. Chym-Korgon;

• Hospitals were opened in Chon-Alai, Toguz-Torouz, Ala-Buka, Chatkal districts;

• Medical schools were organized in Karakol, Jalal-Abad, Osh, Tokmok.

The number of medical personnel and the network of hospitals increased significantly: the number of doctors to 600, the average number of hospitals – 2552, the number of hospitals – 111, the number of beds – 3486.

2. Years of the Great Patriotic War (1941–1945).

• A number of important tasks were solved.
• Healthcare was restructured to reflect wartime conditions.
• Preserved sanitary well-being of the Republic.
• The production of medicines and disinfectants has been launched.
• Provided medical care to the evacuation population.
• Medical assistance is provided to the wounded.

The creation of military hospitals.

At the beginning of the war, students and faculty of Kharkov, Kiev and Moscow institutes joined KGMI.

Despite the difficulties of wartime, new sanitary-epidemiological stations were re-organized (control over the dignity and epidemiological situation).

Doctors – Kyrgyz provided honey. assistance to the wounded and sick on the fronts: **Aidaraliev A.A., Igemberdiev Z.I. etc.**

In 1945, medical personnel were: the number of doctors – 768, nurses – 2816, the number of hospitals – 124, the number of beds – 5541.

3. The post-war years (1945-1955).

Healthcare of this period has received significant development.

• Since 1947, the merger of polyclinics with a hospital begins, the precinct service principle is established;

- in 1955 specialized assistance is provided – dispensaries are opened in all oblasts and regional centers (tuberculosis, oncological, psychiatric;

During these years work: 6 regional hospitals; 28 city hospitals; 58 district; 90 rural precincts; maternity homes; 4 children's hospitals; 2 neuropsychiatric hospitals; 77 sanitary and epidemiological stations (SES).

4. Years of peaceful development (1956–1991)

- Deployed all kinds of specialized assistance in 35 specialties.
- A number of research institutes have been opened (maternal and child health, oncology, tuberculosis, nutrition, etc.).
- From 1980 to 1990, the improvement of the primary healthcare system.
- The organization of medical care to individual continents: disabled people, participants of the Second World War, villagers, children, students, and women was strengthened.
- For the first time in the USSR, a polyclinic for disabled war veterans was commissioned.
- **In 1990,** the Republican Diagnostic Center was opened in Bishkek.
- The number of doctors was 10600, paramedical personnel – 31500, the number of hospitals – 264.

During the years of sovereignty of the Kyrgyz Republic, the first laws on the protection of public health were adopted in 1992.

1. Law on public health
2. The law on sanitary and epidemiological well-being;
3. Health Insurance Act;
4. Law on the donation of blood and its components.

Health issues in the Constitution of the Kyrgyz Republic.

Citizens of the Kyrgyz Republic have the right to:

- healthcare, free use of the network of state and municipal healthcare institutions;
- environment friendly for life and health;
- social security at the expense of the state in old age, in case of illness and disability, loss of the breadwinner
- labor protection and social protection against unemployment.

Health care reform in the Kyrgyz Republic

- In 1996–2005 The Manas healthcare reform program was functioning in the republic.
- Since 2006, the new Manas-Taalimi healthcare reform program was adopted, which is a continuation of the Manas program.

Theme 18. HISTORY OF MEDICINE AND HEALTH CARE OF KYRGYZSTAN

Purpose of the theme

The student should know:

- outstanding figures of medicine of Kyrgyzstan;
- heroes of the Kyrgyz Republic – physicians;
- on the contribution of physicians to the development of science.

The student should be able to:

- analyze the development of medicine in Kyrgyzstan.

Study Plan

1. **Analysis of themes on educational issues:**
   1.1. Achievements of medicine of Kyrgyzstan.
   1.2. Outstanding medical workers of Kyrgyzstan.
   1.3. Academicians of the National Academy of Sciences in medical specialties.
2. **Listening essays.**
3. **Fastening material on control issues.**
   3.1. Outstanding surgeons of Kyrgyzstan
   3.2. Outstanding doctors of Kyrgyzstan (general practitioners, pediatricians, organizers of healthcare and medical science, etc.).
   3.3. Academicians of the National Academy of Sciences of the Kyrgyz Republic in the field of medicine.
   3.4. Doctors – Heroes of the Kyrgyz Republic

Literature:

1. M. Tentimishev Surgeon, Academician Kakish Ryskulova. – B.: Turar, 1997.

2. Kuzmin M.K. Scientists-physicians – Heroes of Socialist Labor. – Moscow, 1988.

3. Ashimov, IA, Bekturov, Zh. T., Sopuev, A.A. Baatyrdyn Baskan Zholu Jean Dunky. Bishkek, Uluttuk Borboru Surgery, 2007.

4. N.I. Akhunbaeva, M.G. Finger, M.I. Akhunbaev – Surgeon Akhunbaev, Kyrgyzstan, Frunze, 1983.

5. A.A. Aydaraliev – Healthcare Development in Soviet Kyrgyzstan, Kyrgyzstan, Frunze, 1970.

Outstanding surgeons of Kyrgyzstan

Isa Konoevich Akhunbayev (1908–1975) – Doctor of Medical Sciences, Professor, Corresponding Member of the USSR Academy of Medical Sciences, Academician of the Academy of Sciences of the Kyrgyz SSR, Honored Doctor of the Kyrgyz Republic, Honored Scientist of the Kyrgyz Republic. The first president of the Academy of Sciences of the Kyrgyz SSR (1954–1960). The author of the first open-heart surgery in Kyrgyzstan.

Academician I.K. Akhunbaev dealt with such important problems as surgical treatment of thyroid diseases, traumatic shock, and echinococcosis surgery.

I.K. Akhunbayev created the conditions for the development of new sections of surgery in Kyrgyzstan, such as surgery of the lungs, blood vessels and heart.

Kakish Ryskulovna Ryskulova (1918) – Doctor of Medical Sciences, Professor, Academician of the National Academy of Sciences of the Kyrgyz Republic, Honored Doctor of the Kyrgyz Republic, Honored Scientist of the Kyrgyz Republic. She is a specialist in blood physiology and physiology of natural adaptations, and is also known for her research in nerve and blood vessel surgery, new suturing techniques.

K.R. Ryskulov – author of more than 200 scientific works, including 13 monographs, 4 textbooks.

Outstanding doctors of Kyrgyzstan

Mirrahimov Mirsaid Mirkhamidovich (1927–2008) – Doctor of Medical Sciences, Professor, Academician of the National Academy of Sciences of the Kyrgyz Republic and the Russian Academy of Medical Sciences, “Honored Doctor of the Kyrgyz SSR”, “Honored Worker of Science and Technology of the Kirghiz SSR”. Winner of

the State Prize of the USSR (1980), the State Prize of the Kyrgyz SSR (1979), Hero of Socialist Labor of the USSR.

In 1978, on the initiative of M.M. Mirrahimov was founded by the National Center for Cardiology and Therapy, the permanent leader of which he remained until 2007.

M.M. Mirrahimov is a world renowned clinical scientist, clinical physiologist, founder of highland medicine and cardiology, the founder of a national school in this industry. He made a major contribution to the development of the biological and physiological basis of human adaptation to the conditions of high mountains. Author of about 700 scientific papers, including 32 monographs, about 500 scientific articles, 19 inventions. He has trained more than 100 doctors and candidates of science.

Kudayarov Duishe Kudayarovich (1939) – Doctor of Medical Sciences, Professor, Academician of the National Academy of Sciences of the Kyrgyz Republic, Honored Scientist of the USSR, Honored Scientist of the Kyrgyz Republic, Laureate of the State Prize of the Kyrgyz Republic in the field of science and technology, Head of the Department of Pediatrics of the KSMA and Honorary Director of the Kyrgyz National Center protection of motherhood and childhood.

His research focuses on the study of current issues in the field of scientific pediatrics, hematology, neonatology and pulmonology. Under his leadership, defended 6 doctoral and 34 master's theses. He has published more than 260 scientific papers, including 9 monographs, 34 guidelines and manuals. Author of 6 inventions.

Sanzharbek Bakirovich Daniyarov (1928–2012) – Doctor of Medical Sciences, Professor, Academician of the National Academy of Sciences of the Kyrgyz Republic, Honored Doctor of the Kyrgyz Republic, Honored Scientist of the Kyrgyz Republic, Laureate of the State Prize of the Kyrgyz Republic in the field of science and technology (1996), Head of the Normal Department physiology of the KSMA, rector of the KSMA (1971–1988).

His scientific research in the field of radiobiology was associated with the study of the combined effects of ionizing radiation and high mountains on the body and allowed the discovery of new approaches to the treatment of radiation sickness and prevention, as well as the

study of the fundamental physiological issues of mountain adaptation. Academic S.B. Daniyarov trained more than 30 candidates and doctors of science. He is the author of more than 260 scientific papers, including 7 monographs, tens of manuals.

Aidaraliev Akmatbek Aidaralievich (1916–1986) – a prominent social scientist, doctor of medical sciences, professor, honored doctor of the Kirghiz SSR, honored worker of science of the Kyrgyz SSR, director of KGMI (1952-1956), minister of health of the Kyrgyz SSR (1960-1963), Head of the Department of Social Hygiene and Health Organization of the KSMI (1956–1987).

He published a number of monographs, scientific articles on the history of medicine in Kyrgyzstan, guidelines and teaching aids.

Under his leadership, defended 2 doctoral and 26 master's theses.

Aydaraliev A.A. – participant of two wars: Finnish and Great Patriotic.

Abdullin Kashaf Dzhumaevich (1933–2010) – the first head of the department "Public Health and Healthcare" of the Faculty of Medicine of the KRSU, Honored Worker of Health of the Kyrgyz Republic, Ph.D., associate professor.

He is the author of more than 137 scientific works, 9 textbooks, many methodical recommendations, the supervisor of 3 PhD theses.

The main directions of his scientific activities are the public health issues of the Kyrgyz Republic, the history of medicine and public health of the Kyrgyz Republic and the history of world medicine, including the contribution of Russian scientists to the establishment and development of public health and higher medical education in Kyrgyzstan.

K.D. Abdullin – author of many medical scientific articles in the Encyclopedia of the Kyrgyz Republic (1998).

An important achievement Abdullina K.D. was the creation of the original museum of the history of medicine and health of the medical faculty of the KRSU.

Kasiev Naken Kasievich (1947) – Professor, Doctor of Medical Sciences, Honored Doctor of the Kyrgyz Republic, State Counselor of the Kyrgyz Republic, 2nd class, prominent state and public figure of the republic, Minister of Health (1991–1999).

For the period of activity of Professor N.K. Kasiev At the head of the department "Public Health and Healthcare" of the Faculty of Medicine of the KRSU, a scientific school was formed – "Public Health and Healthcare".

The largest scientific areas of the scientific school are:

- Studying the history and development of medicine and healthcare in Kyrgyzstan.
- Trends in the natural movement of the population of Kyrgyzstan.
- Socio-medical assessment of changes in the age structure of the population of the Kyrgyz Republic.
- Socio-medical assessment of the national composition of the population.
- Health care reform and compulsory health insurance.
- Medical and legal aspects of healthcare organizations.

The scientific results obtained were introduced into the National Programs "Manas" (1996–2005), "Manas Taalimi" (2006–2011), "Den Sooluk" (2012–2016), a number of resolutions of the Government of the Kyrgyz Republic, practical healthcare.

Academicians of the National Academy of Sciences of the Kyrgyz Republic in the field of medicine

1. **Aidaraliev Asylbek Akmatbekovich** (aerospace, alpine physiology and medicine).
2. **Dzhumabekov Sabyrbek Artisbekovich** (traumatology and orthopedics).
3. **Kudayarov Duishe Kudoyarovich** (pediatrics).
4. **Mamakeev Mambet Mamakeevich** (medicine, surgery).
5. **Mamytov Mitalip** (neurosurgery).
6. **Murzaliev Arstanbek Murzalievich** (medicine, neurology).
7. **Raimzhanov Abduhalim Raimzhanovich** (hematology).
8. **Ryskulova Kakish Ryskulovna** (surgery).

DOCTORS-HEROES OF THE KYRGYZ REPUBLIC

Akramov Ernst Khashimovich (1936) – Doctor of Medical Sciences, Professor, Honored Doctor of the Kyrgyz Republic, Honored Scientist of the Kyrgyz Republic, Laureate of the State Prize in Science

and Technology, Member of the International Academy of Natural and Social Sciences, Center for Reconstructive and Reconstructive Surgery Ministry of Health of the Kyrgyz Republic.

Renowned surgeon, specialist in vascular, gastrointestinal surgery, resuscitation, surgical gastroenterology, chest injuries, purulent surgery, reconstructive surgery of the urinary organs and operations on the pancreas. Prepared 2 doctors and several candidates of medical sciences. Author of more than 200 scientific papers, 7 monographs and 23 inventions.

Mamakeev Mambet Mamakeevich (1927) – MD, Professor, Kyrgyz surgeon and public figure, Honored Doctor of the Kyrgyz Republic, Honored Scientist of the Kyrgyz Republic, Laureate of the State Prize of the Kyrgyz Republic in the field of science and new technologies, Director of the National Surgical Center of the Kyrgyz Republic, Academician of the National Academy Sciences of the Kyrgyz Republic.

The scientific interests of MM Mamakeev throughout his work are mainly connected with the surgery of acute cholecystitis and cholelithiasis.

In 2004, M.M. Mamakeev was awarded the Highest Rank of the Kyrgyz Republic – Kyrgyz Republican Baatyr "Ak Shumkar".

Under the leadership of Mamakeev M.M., 11 doctors and 23 candidates of medical sciences were trained. During his more than fifty years of work, Mamakeev M.M. made more than 15 thousand surgical interventions, they were consulted and treated about 100 thousand of the most severe patients with various surgical pathologies, they developed and introduced a number of new and highly effective methods for the treatment of surgical patients in Kyrgyzstan. Mamakeev M.M. created a national surgical school in Kyrgyzstan. He stood at the origins of laparoscopic surgery for gallstone disease in the CIS (Community of Independent States) countries and was one of the first to prove the possibility of laparoscopic cholecystectomy in acute destructive cholecystitis.

Mamytov Mitalip Mamytovich – MD, Professor, full member of the New York Academy, Honored Doctor of the Kyrgyz Republic, Honored Scientist of the Kyrgyz Republic, Academician of the

National Academy of Sciences of the Kyrgyz Republic, Honorary Member of the Presidium of the Neurosurgeons Association of Russia, Head of the Department of Neurosurgery of the KSMA, Chief Neurosurgeon of the Ministry of Health of the Kyrgyz Republic.

His research focuses on the main problems of neurosurgery: brain tumors, traumatic brain injury, herniated discs, surgical aspects of inflammatory diseases of the brain, and neurogenic dystrophy of internal organs. During practical activities he performed more than five thousand of the most complicated operations on the brain and spinal cord. His work as a neurosurgeon is highly appreciated by the largest neurosurgeons of Russia, Japan, USA, Holland.

Under his leadership reserved 1 doctoral, 7 master's theses.

He is the author of more than 180 scientific papers, 9 textbooks, 3 monographs, 6 inventions and 26 rationalization proposals.

QUESTIONS TO THE MODULE

1. Definition of medicine.
2. Definition of the history of medicine.
3. The purpose and objectives of studying the history of medicine.
4. Sources of studying the history of medicine.
5. Periodization and principles of the history of medicine.
6. The rudiments of healing among the most ancient people.
7. Doctoring in the flowering of primitive society.
8. Doctoring in the period of the decomposition of the primitive society.
9. The role of women in the development of the healing process.
10. Definition of fetishism.
11. Definition of totemism.
12. Definition of animism and magic.
13. Cuneiform tables in Sumer.
14. The main directions of healing in Babylonia and Assyria.
15. Hammurabi's laws on the legal status of healers.
16. Features of healing in ancient Egypt.
17. The influence of the mythology of Egypt on the development of medicine.
18. Sources of study of medicine in Ancient Egypt and their content.
19. The development of healing in Ancient China.
20. The concepts of two principles (yang, yin) in Ancient China.
21. Ancient Chinese philosophy about primary elements.
22. Application of chen-jiu therapy in Ancient China.
23. The art of healing "Ayurveda".
24. The activities of the ancient Indian healer Sushruty.
25. Features of healing in Tibet.
26. The role of Talmudists in the treatment of diseases in Judea.
27. Stages of development of medicine in Ancient Greece.
28. Philosophy of the Kroton School of Medicine.
29. Knid medical school and its directions.
30. Basics of the Kos School of Medicine.
31. Sicilian School of Medicine, its philosophy.

32. Hippocrates - the ancestor of Ancient Greek medicine.

33. The role of Aristotle in the development of medicine.

34. The contribution of Erazistrata, Herophilus in the development of medicine.

35. Features of the development of medicine in ancient Rome, the royal period.

36. Features of the development of medicine in Rome period of the republic.

37. Medicine in Rome during the period of the empire.

38. The development of hygiene in Ancient Rome.

39. Galen – an outstanding doctor of Ancient Rome.

40. Major achievements of Oribas from Pergamum (Byzantium).

41. Organization of hospitals in Byzantium.

42. Medical education in Byzantium.

43. Sanitary facilities in Byzantium.

44. Features of the development of medicine in the Arab Caliphates.

45. Contribution to the development of medicine Ar Razi.

46. Organization of hospital affairs in the Arab Caliphates.

47. The merits of Avicenna and the main content of the "Canon of Medicine".

48. Contribution to the development of medicine by scientists of Armenia and Georgia.

49. The development of medicine in Kievan Rus.

50. Definition of scholasticism and galenism.

51. Merit M. Serveta in the formation of anatomy.

52. Merit A. Vesalius in the formation of anatomy.

53. Merit W. Garvey in the development of physiology.

54. The contribution of A. Pare in the development of surgery.

55. Higher medical schools in Western Europe.

56. Merit D. Frakastoro in the study of infectious diseases.

57. Definition: university, faculty, professor, dean, student.

58. The development of pharmacy in Western Europe.

59. Pharmaceutical order in Russia, its activities.

60. The emergence of pharmacies in Moscow State.

61. Preparation of Russian doctors, medical school.

62. Generalization of knowledge of traditional medicine of the Moscow State.

63. Methods of combating epidemics in Russia.

64. The great natural discoveries of the 18th and 19th centuries.

65. Charles Darwin – the founder of evolutionary theory.

66. The main merits of Frederick Ruysch in the development of anatomy.

67. Start anatomical studies in Russia.

68. Founders of the Russian anatomical school.

69. Marcello Malpighi, the founder of histology.

70. The founders of pathology in Western Europe.

71. The merits of Edward General in the eradication of smallpox.

72. The contribution of Zemmelweis and Lister to the development of asepsis and antisepsis.

73. Louis Pasteur's activity in the development of microbiology.

74. Robert Koch, his achievements in the development of microbiology.

75. I.I. Swordsmen, the main services.

76. Sechenov I.M. – the founder of physiology in Russia.

77. Pavlov I.P. – an outstanding physiologist of Russia.

78. Founder of clinical teaching in Western Europe (G. Burhaave).

79. The first methods and instruments of clinical examination of patients.

80. Hospital School in Russia.

81. The contribution of M.V. Lomonosov in the development of medicine.

82. The founder of the therapeutic school in Russia (M. Mudrov).

83. Merits S. Botkin.

84. Founders of surgery in Western Europe.

85. N.I. Pirogov – the founder of surgery in Russia.

86. Founders of dentistry in Western Europe and Russia.

87. N. Filatov's contribution to the formation of pediatrics.

88. M. Maksimovich-Ambodik – the founder of obstetrics.

89. D. Samoilovich's contribution to the elimination of plague epidemics.

90. Ramazzini – the founder of occupational pathology.

91. The founders of social medicine in Western Europe.

92. The contribution of A. Dobroslavin and F. Erisman to the development of hygiene.

93. The first institutions of the public health system of the Soviet period.

94. The role of N.A. Semashko and Z.P. Solovyov in the organization of healthcare of the Soviet period.

95. List the basic principles of Soviet health.

96. The national character of the Soviet health.

97. First decrees for the prevention of infectious diseases in the early years of Soviet power.

98. Public participation in the healthcare of the Soviet period.

99. The main achievements of medicine of the twentieth century.

100. Leading surgeons of the Newest time and their merits.

101. World Health Organization.

102. International Committee of the Red Cross.

103. Representatives of traditional Kyrgyz medicine.

104. Medical institutions of Kyrgyzstan, opened in the years of tsarist Russia.

105. Health care of Kyrgyzstan on the eve of the October Revolution.

106. The tasks of health care in Kyrgyzstan in the early years of Soviet power.

107. A network of hospitals during the years of the formation of the Kara-Kirghiz Autonomous Region within the RSFSR (1924–1926).

108. Health care during the existence of Kyrgyzstan as an autonomous republic within the RSFSR (1927–1936).

109. Kyrgyz health care before the war.

110. Healthcare of Kyrgyzstan during the Great Patriotic War.

111. Healthcare in Kyrgyzstan in the postwar years.

112. Kyrgyz health care during the years of peaceful development (1956–1991).

113. The first laws on healthcare in the years of the sovereignty of Kyrgyzstan.

114. Health issues in the Constitution of the Kyrgyz Republic.

115. Healthcare reform in the Kyrgyz Republic.

SPECIAL MEDICINE WORKERS

Ambodik-Maksimovich Nester Maksimovich (1744–1812)

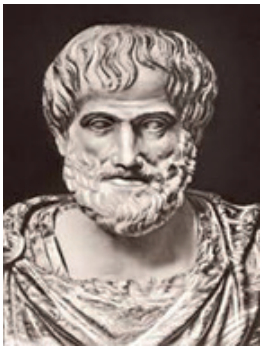
One of the founders of scientific obstetrics, pediatrics and pharmacology in Russia; scientist, encyclopedist and educator; one of the creators of Russian medical and botanical terminology.

He studied at the Theological Academy, University of Strasbourg. He worked as a professor at St. Petersburg Hospital Schools, in the school for midwives. He played a big role in the creation of the Russian cadre of doctors and midwives. He first began to teach obstetrics in Russian. For the first time in Russia, he introduced practical training in the maternity ward and on the phantom, began to apply complex obstetric interventions.

He published the major work "The Art of Povivaniya, or the science of the business of the babies." This is the first original Russian guide to obstetrics and pediatrics. He attached great importance to the healing properties of plants. The dictionaries compiled by him, which laid the foundation for the publication of Russian medical terminology, were a great contribution to science.

N.M. Ambodik-Maksimovich recognized the primacy of experience in cognition and stressed the need to link medicine with other branches of natural science. During treatment, he proceeded from the individual characteristics of the patient's body, opposed the stencil in treatment. The main task of medicine was to prevent disease.

Aristotle
(384–322 BC)



The greatest thinker of antiquity. Born in a Greek colony in Stagira (hence the middle name Aristotle – "Stagirit"). Initial education received under the guidance of his father, the court doctor of the Macedonian king. He lived in Athens, became a student of Plato. He was a tutor of Alexander of Macedon. He founded his own school "Likey". He died in Evbee, where he fled from persecution on charges of crimes against religion.

Aristotle lived in an era when social consciousness identified the world with the harmonious integrity of the Cosmos, which was understood as a perfectly organized body; and man is part of the Cosmos. Aristotle, as the fundamental principle of the definition of nature, accepts bodily plasticity, harmony.

The works of Aristotle ("The History of Animals", "On Parts of Animals", "On the Emergence of Animals", "On the Movement of Animals", etc.) have long served as the main source of information on zoology and served as the basis for the development of systematics, descriptive and comparative anatomy, embryology psychology.

Many works of Aristotle are devoted to medicine. He first introduced the terms "aorta", described the "big vein" - the pulmonary artery. The heart (in his opinion - a three-chamber), considered the most important organ of the body, which, because of its significance, cannot be seriously ill. Aristotle introduced the concept of decay into medicine. Much attention was paid to the environment, seasons, temperature drops as the causes of diseases.

The influence of Aristotle on the development of biology and medicine is determined not so much by his direct contribution to these areas of knowledge, but by the influence of the developed or theoretical principles. The study of biological feasibility, incl. and the interaction of organs and the development of organisms as a process of purposeful movement to form had a great influence on the views of Galen.

Auenbrugger Leopold
(1722–1809)

An Austrian doctor **who first proposed percussion as one of the methods of medical research.** He graduated from the University of Vienna. He received the degree of doctor in 1752. From 1751–1768. He was a full-time medic at a Spanish hospital.

In 1761, he published in Latin his book "A New Way to Detect the Diseases Hidden Inside the Breast with the help of percussion of the human chest". Auenbrugger method was not recognized by contemporaries. It was only in 1878 that the work was translated into French and published with commentaries by J. Corvizar (Leib-Medic Napoleon). Only after that the percussion method was universally recognized.

Bakulev Alexander Nikolaevich
(1890–1967)

Soviet surgeon, founder of cardiovascular surgery in the USSR, Academician of the USSR Academy of Sciences (1958) and the USSR Academy of Medical Sciences (1948), President of the USSR Academy of Medical Sciences (1953–1960) Honored Scientist of the RSFSR (1946). In 1911 he entered the medical faculty of the Saratov University. In 1915, from the 4th year he was drafted into the army and served as a junior doctor in an infantry regiment. In 1917, he continued his education at the university, which he graduated from in 1918. He served in the Red Army, and since 1922 – resident and assistant at the hospital surgical clinic of the Saratov University. In 1926 he was transferred to the clinic of the faculty surgery of the 2nd Moscow University. Engaged in the study of traumatic brain injury. In 1942–1943 – Head of the Department of General and Military Field Surgery of the 1st MMI, and in 1943 he headed the Department of Faculty Surgery of the 2nd MMI and led it until the end of life.

From the beginning of World War II, he was the chief surgeon of the Reserve Front, and then the chief surgeon of the evacuation hospital. In 1956, on his initiative, the Institute of Cardiovascular Surgery of the Academy of Medical Sciences of the USSR was created, was the first director (1956–1958), then supervisor, now the institute is named after A.I. Bakulev.

A.I. Bakulev made a great contribution to the development of surgery of the central and peripheral nervous system. He was the first in the USSR to develop and apply methods of encephalography, drainage

of arachnoid space. He owns the development of a method for the treatment of brain abscesses. He has made a huge contribution to the development of breast surgery. He successfully performed operations for heart defects with acute myocardial infarction. Created a surgical school, prepared 30 doctors of medical sciences.

Bekhterev Vladimir Mikhailovich
(1857–1927)

Soviet neurologist, psychiatrist and psychologist, morphologist and physiologist of the nervous system. He graduated from the St. Petersburg Medical-Surgical Academy, worked there, was on a business trip abroad, headed the Department of Psychiatry in Kazan, the Military Medical Academy in St. Petersburg, and worked at the Institute for the Study of the Brain and Mental Activity.

His research on the structure of the brain gave new facts of global importance. He discovered nuclei and pathways in the brain, created a teaching on the pathways of the spinal cord and the functional anatomy of the brain, established the basis of balance and orientation in space; centers of movement and secretion of internal organs are open in the cerebral cortex; discovered a series of normal and pathological reflexes. He describes the painful symptoms and syndromes. He made the first attempt to study the influence of the collective on the psyche and human behavior.

In the field of psychiatry, V.M. Bekhterev **was one of the first to study the question of psychopathies and circular psychosis**, the relationship between nervous and mental diseases, the clinic and

the pathogenesis of hallucinations; described a number of forms of obsessive states. In the treatment of the disease offered methods of distraction and re-education.

Bidloo Nikolai Lambertovich
(1670-1735)

The surgeon, anatomist, **with his name is connected with the formation of higher medical education in Russia.** Born in Amsterdam, he graduated from the University of Leiden, moved to Russia, was the "closest doctor" of Peter I, and was the first to receive the title of archiatrist. He created an anatomical theater in Moscow, where he conducted autopsies and conducted classes with doctors, was the chief doctor of the Moscow hospital and the head of the hospital school. He taught anatomy on corpses and surgery on his program at school, compiled several handwritten textbooks.

Marie François Xavier Bichat
(1771–1802)

French anatomist, physiologist and physician, **the creator of the first classification of body tissues.** He studied in Lyon and Paris. Lectured, worked as a doctor in the main hospital in Paris.

In his writings, the theory of the tissues of the human body and the fundamentals of pathology was further developed. According to

M. Bisha, tissues are the main structural and physiological units, carriers of all life processes, including and painful; each type of tissue has a peculiar function. M. Bisha described the pathological-anatomical changes in the organs of people who died from various diseases. He believed that the pathological process is localized not in the organ, but in the diseased tissue. He understood the disease as a process mainly of a local nature, covering only certain tissues, organs or cells. As a result of research, M. Bisha received further development of pathological anatomy.

Botkin Sergey Petrovich
(1832–1889)

A classic of Russian medicine, an outstanding therapist, **the founder of a fundamental direction in Russian clinical medicine, a talented teacher, organizer and public figure, founder of a large school of therapists.** He studied at a privately run guest house, Moscow University, worked at the Simferopol military hospital, was abroad in Germany, Switzerland, Paris to prepare for a professorship, and worked at the Medical-Surgical Academy of St. Petersburg.

S.P. For the first time in Russia, Botkin created a laboratory at the clinic: general clinical, chemical, bacteriological, physiological. Here we studied the pharmacological effect of new drugs, carried out experiments on animals in order to reproduce pathological processes. Multifaceted scientific activities of S.P. Botkin, pathologist, experimenter and clinician was largely determined by the direction of work. Especially it concerns the general understanding of the pathological process. Trying to find out the cause of the disease, its pathogenesis, features of the course of the disease, he paid particular attention to the state of the nervous system and psyche when examining a patient. Understanding the pathogenesis of the disease opens, according to SP. Botkin, the ability to anticipate its further course.

He enriched Russian clinical medicine with important discoveries. They are the first in the world literature to describe atherosclerosis. He is the creator of the neurogenic theory of pathogenesis of Graves'

disease. He drew attention to the diversity of clinical manifestations of gallstone disease. S.P. Botkin identified as an independent disease infectious hepatitis (Botkin's disease) S.P. Botkin – one of the founders of clinical pharmacology.

As a teacher S.P. Botkin developed scientific and philosophical thinking among the listeners and called for a critical assessment of the dominant doctrines. He was one of the founders of military field therapy, participated in the Russian-Turkish war (1877–1878). Significant social activities S.P. Botkina: Chairman of the Society of Russian Doctors in St. Petersburg, assisted in the opening of women's medical courses, Deputy Chairman of the Public Health Commission of the City Duma. At his suggestion, in St. Petersburg school-sanitary supervision was introduced, the chairman of the commission on the improvement of sanitary conditions in Russia.

Burdenko Nikolay Nilovich
(1876–1946)

Soviet surgeon, military field surgeon, **one of the founders of neurosurgery**. He graduated from Yuryevsky (Tartu) University, participated in the Russian-Japanese war (1904–1905), worked at Voronezh and Yuryevsky universities, Moscow State University, and chief surgeon of the Soviet Army.

His focus was on the provision of specialized surgical care to the wounded, anti-epidemic work in the army, military hygiene, etc.

His research in the field of wound shock and deep antiseptics were of great importance for the development of effective methods for treating the wounded. His works concern anatomy, physiology, biochemistry, histology, pathology. Scientific concepts N.N. Burdenko contributed to the successful development of the problems of prevention and treatment of shock, wounds and wound infections and others. The merits of N.N. Burdenko in the development of neurosurgery for the preparation of neurosurgeons. The most valuable contributions to the theory and practice of neurosurgery are the works of N.N. Burdenko in the field of oncology, central and autonomic nervous system. He was an outstanding clinician-teacher, created an original surgical school with a sharply outlined experimental direction of N.N. Burdenko was engaged in public and state activities.

Burhave (Burgav) Herman
(1668–1738)

Dutch doctor, botanist and chemist, **creator of a scientific clinical school**. He studied at Leiden University, worked there as the head of the department, the rector.

A brilliant doctor and teacher, conducted careful observation at the patient's bed in combination with the quest for anatomical and physiological substantiation of diagnosis and therapy. Under his leadership, Leiden University gained worldwide fame. His lectures and demonstrations of the patients were attended by major political figures, including Peter I.

G. Burhave introduced into practice an improved thermometer, used a magnifying glass for research. In the works he developed his teaching system, classified and described diseases and methods for their treatment. In the scientific substantiation of medicine, he attached great importance to chemistry, anatomy, physiology, and other natural sciences. Trudy G. Burhave long served as the main guide for the training of doctors in almost all European universities.

Buyalsky Ilya Vasilyevich
(1789–1866)

Russian anatomist, surgeon, founder of plastic anatomy in Russia. He graduated from the Medical-Surgical Academy in St. Petersburg. He worked there as head of the department, he taught anatomy at the Academy of Fine Arts, was the manager of a surgical instrumental factory.

His work "Anatomical and Surgical Tables" is the first in Russia original atlas of operative surgery, which has received world recognition. He did a lot to create and improve surgical instruments. He owns one of the first forensic medicine manuals in the Russian literature. He developed a number of surgeries: resection of the upper jaw, surgery for vascular aneurysms, etc.

Vesalius Andreas
(1514–1564)

The founder of modern anatomy. He studied at universities in Louvain, Monpalle. He worked in Paris, Padua. He made a pilgrimage to Palestine.

A. Vesalius applied the method of experimental study of the human body, marking the beginning of many physiological discoveries.

Published the famous treatise "On the structure of the human body" from 7 books: the first describes the bones of the skeleton and cartilage, in the second – ligaments and muscles, in the third – vessels, in the fourth – nerves, in the fifth – digestive organs and urinary system, in the sixth – heart and respiratory organs; in the seventh, brain and sensory organs. A. Vesalius linked the structure of human organs with their activities. He proved that there is no pore in the heart between the ventricles and thus prepared the ground for the opening of blood circulation circles. They first correctly described the human skeleton. Great achievements A. Vesalius in creating a new anatomical classification. He showed that Galen's views on the structure of the human body are in many ways not accurate and erroneous. A. Vesalius published "Anatomical Tables".

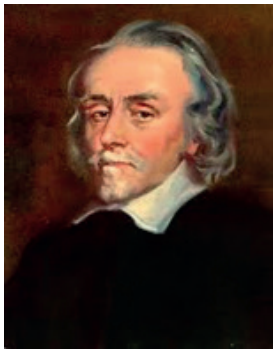
Virchow Rudolph
(1821–1902)

The German scientist is a pathologist and politician, ***one of the founders of scientific medicine, the creator of the scientific system of "cellular (cell) pathology."***

He graduated from the University of Berlin, worked in the hospital, head of departments at Berlin and Nuremberg universities, director of the Institute of Pathology, a member of the bourgeois-democratic revolution (1848–44).

The works of R. Virchow are devoted to the pathogenesis of pathological processes and the most important human diseases. He believed that the basis of a number of pathological processes are morphological changes in the cells of tissues, and not in the blood and lymph, as supporters of humoral pathology. He formed the theory of cellular pathology. Based on the provisions of this pathology, R. Virkhov gave a new characteristic of pathological processes, introduced a number of new terminological designations. His theory had a huge impact on the development of medicine. In medicine, he pursued the idea of unity and practice. R.Virkhov attached great importance to the humanism of the doctor. The author of works on general biology, anthropology, ethnography and archeology. He was an active supporter of social reform. The merits of R. Virkhov before world science received universal recognition.

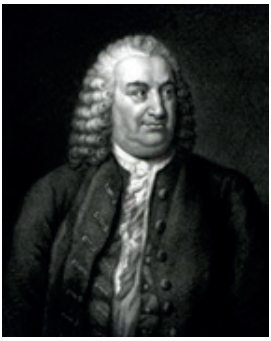
Harvey Harvey Hives
(1578–1657)



An English physician, physiologist and embryologist, one of the founders of scientific physiology and embryology, ***mathematically and experimentally substantiated the theory of blood circulation.*** He studied at universities in Cambridge and Padua. He worked as a professor at the University of Cambridge, the chief physician and surgeon of the hospital.

He discovered the basic laws of blood circulation. Proved that the mass of blood contained in the body, returns back to the heart, and is not absorbed without residue by the tissues of the body, as was assumed earlier. The closure of the circle of blood circulation U. Garvey explained the direct connection of the arteries and veins through the smallest tubules (capillaries were discovered by M. Malpighi after the death of U. Harvey). The discovery of blood circulation was greeted by official science and religion with hostility. W. Garvey is one of the founders of embryology. He refuted the idea of spontaneous spontaneous generation. He claimed that not only the egg-producing animals come from eggs, but also viviparous – mammals and humans. His research on mammalian embryology served as the largest impetus for the development of theoretical and practical obstetrics.

Galler Albrecht
(1708-1777)



The Swiss naturalist, doctor and poet, **one of the first to apply the methods of the physiological experiment**. He studied at the University of Gettigen and Leiden, improved in Paris and Cambridge. He worked as a doctor in Bern, taught at the University of Gettigen, in subsequent years he lived and worked in Berlin, where he was engaged in scientific and literary activities.

They established the properties of muscle fibers – elasticity, the ability to respond to a reduction in irritation. He argued that the characteristic feature of any stimulus is the ability to "force the body to move from rest to motion," noted the dependence of the reaction on the strength of the stimulus. A. Galler was one of the first to give a description of the functions of the whole organism, the relationship of the structure and functions of individual systems and organs. He found that the pulse of the arteries and capillaries corresponds to the contraction of the heart. He described the mechanism of external respiration, the role of bile in the emulsification of fats, for the first time expressed the idea about the automatism of the heart. The anatomical tables compiled by him have long been the best manual for the study of anatomy. He studied the development of chicken embryo. He developed a classification of plants.

Heraci Mkhitar
(XII century. – the beginning of the XIII century.)

Armenian doctor, ***classic of medieval medicine in Armenia.***

He knew medicine, philosophy and the natural sciences of his time well. He wrote several major essays in which he summarized the experience of his medical practice.

In his paper ***"Consolation in Fevers"*** he described the etiology and pathogenesis of acute infectious diseases. He linked the occurrence of diseases with the influence of external factors. Accurately described the clinical picture of individual diseases. His treatment system is an individual approach to patients, the use of medicines, hydrotherapy, massage, psychotherapy, diet therapy. M. Heraci was a supporter of preventive medicine.

In 1184 he wrote the famous treatise "Consolation in fevers" – the main work of his life, materials for which he patiently collected, studying the works of ancient and Arab doctors, wandering through Cilician Armenia. Possessing vigorous energy, he was not content with a quiet life. By nature he was a researcher and experimenter. Work at the bedside of the patient and in the study of the scientist was summarized in his writings. The works "On the structure and creation of the eye", "On inguinal-scrotal hernias and diseases of the testicles", "On precious stones and their healing properties", "Accurate, unmistakable and accurate indicator of thunder and earthquakes." According to what has been written, one can judge the breadth of the scientific interests of Mkhitar Heratsi, a doctor and a researcher. An

analysis of his main book, Consolation in Fever, shows a high level of Armenian medicine under Mkhitar Heraci.

The Mkhitar Medal is awarded for achievements in the development of healthcare in the Republic of Armenia, a high level of performance, as well as significant achievements in charitable activities. The Mkhitar Heratsi Medal is awarded to civilian and military doctors, junior and nursing staff, pharmacists, as well as philanthropists and other individuals. The Law "On the Mkhitar Heratsi Medal" has been in effect since July 26, 1993.

Galen Claudius
(129–200, 130–200, 131-201)

Roman physician and naturalist, ***classic of ancient medicine.***

He studied in Pergamum and Alexandria. Galen systematized the main provisions of ancient medicine in the field of anatomy, physiology, understanding of the disease, treatment and prevention

of diseases, created a system of medical views. For the first time in history, he introduced an experiment into medicine, found that the diaphragm and the pectoral muscles expand the chest, drawing air into the lungs. He described 7 pairs of cranial nerves, expressed the idea of separation of nerves into motor ones, sensitive and mixed.

Galen mistakenly believed that blood in the body is formed in the liver, enters the heart, from there irrevocably goes to the organs of the body and is completely consumed by them. In his opinion, there are four fluids in the body (blood, mucus, yellow and black bile) mixed in the right proportion. Their violation causes illness. Galen attached great importance to diet therapy and disease prevention.

Galen worked in the field of medicinal substances, some of them are still called “herbal preparations”.


GALENI
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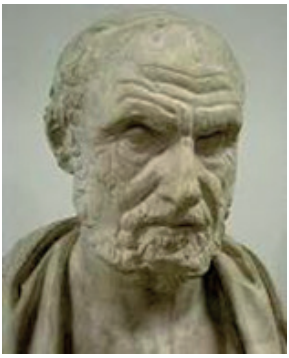
In his writings, idealistic ideas were added to materialistic positions. Up to the 15th – 16th centuries, Galenism, a one-sided distorted perception of the scholastics and churchmen of Galen, dominated medicine. The weaknesses of his views were declared dogmas, and this slowed down the development of medicine for almost one and a half thousand years.

Gamaleya Nikolai Fedorovich
(1859–1949)

Soviet microbiologist and epidemiologist, ***made a great contribution to the fight against rabies and cholera.*** He graduated from Odessa University and the Military Medical Academy. Specialized with L. Pasteur in Paris. He supervised the bacteriological institute in Odessa, the Small-scale Institute in Leningrad, the Institute of Epidemiology and Microbiology in Moscow.

In Odessa, together with I.I. Mechnikov founded the first bacteriological station in Russia and vaccinated people against rabies. Much of his work is devoted to the problems of rabies and cholera. They proposed an intensive method of vaccinations, stated the position of the existence of hidden forms of infections. He discovered a cholera-like avian vibrio, offered a cholera vaccine. His works are devoted to general pathology, inflammation, bacteriophagy. N.F. Gamaley identified the role of the ship rats in the spread of plague, developed a method for preparing a smallpox vaccine, and studied methods for making a typhoid vaccine. Developed issues of general immunology, virology, studied smallpox, influenza, treatment of tuberculosis, proposed a method of preventing influenza.

Hippocrates
(460–377 BC or 356 BC)



The great ancient Greek physician, ***reformer of ancient medicine.*** Born on about. Kos, he studied at the family medical school, lived in Athens, continued his education, got acquainted with the medicine of Egypt, Asia Minor, Libya, the Scythians, leading the life of a wandering doctor in these countries.

Hippocrates acted as a representative of materialism in medicine. He did not recognize abstract, speculative idealistic systems. The merit of Hippocrates was the liberation of medicine from the influence of priestly temple medicine. He considered observation at the bedside, the theory test, as the main method in medicine. In his works, almost all sections of modern clinical medicine are presented. Hippocrates approached the patient as a whole. The principle of individualization permeates the view of Hippocrates and human nature. Hippocrates proceeded from the determining influence of environmental factors on the formation of the physical and mental properties of man. He was the founder of medical geography. The merit of Hippocrates is the selection of the main types of human temperaments, each type is prone to certain diseases. He divided the causes of the disease into general or external (climate, season of the year, air, water, food, etc.) and individual (age, gender, heredity, lifestyle, etc.).

The merit of Hippocrates is the development of the etiology of diseases, from which he threw out ideas about their supernatural origin. He developed a study on the diagnosis and symptoms of

disease. Described many symptoms and syndromes. In the works of Hippocrates found the names of many diseases included in the modern nomenclature (pneumonia, epilepsy, etc.). The great merit of Hippocrates is the publication of the study on the prediction of diseases – "prognostics". The descriptions of the signs of a dying patient, "The Face of Hippocrates", became widely known. The principle of its treatment system: 1) to benefit and not to harm; 2) treat the opposite of the opposite; 3) to help nature; 4) be careful.

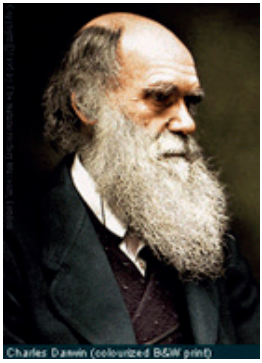
He is known as an outstanding surgeon. He owns the development of methods for applying dressings. His name is associated with the idea of high moral character and ethical behavior of a doctor, he is credited with the text of the medical oath – the Hippocratic Oath. Hippocrates is called the father of medicine. The influence of the personality and works of Hippocrates can be traced throughout the history of medicine.

Graunt John
(1620–1674)

English statistician, ***one of the founders of demographic statistics.*** In 1662, Graunt published the book Natural and Political Observations on the Records of the Dead, mainly in relation to management, religion, commerce, growth, air, diseases of the city of London, reprinted 5 times. The book was a development of church records about births and deaths in London from 1603–1653, on the basis of which the author derived some statistical patterns on the distribution of deaths by age, sex.

He proved that the population of London at that time was replenished by the influx from the outside, because the number of deaths in the city exceeded the number of births. Graunt's research was a great discovery, and on the recommendation of the king himself, he was elected a member of the Royal Society of London. J. Graunt believed that accurate knowledge of the population by sex, age, occupation and other features are necessary for the proper management of the country and the health of the people.

Darwin Charles
(1809–1882)



English naturalist, ***the founder of the materialistic theory of the evolution of the organic world – Darwinism.*** Charles Darwin in 1825 entered the medical faculty of Edinburgh University. However, without feeling a vocation for medical practice, two years later he transferred to the theological faculty of the University of Cambridge, which he graduated in 1831.

Upon graduation, I decided to study the natural sciences. As a naturalist, Darwin took part in a world tour on the Beagle (1831–1836). During the voyage, Charles Darwin traveled around South America, New Zealand, Tasmania, and Africa – collected extensive collections on the fauna and flora. By the end of the voyage by ship, Charles Darwin finally concluded that the generally accepted opinion at that time about the variability of the animal and plant species created

by the creative act was untenable. The judgment that existing plants and animals occurred as a result of evolution from other previously living on earth species, C. Darwin expressed in the "Notebook" (1837–1838). After the trip, Darwin published a series of papers on geology and zoology. In 1858, Darwin continued to work on the preparation of a new version of a book devoted to evolutionary theory, in which he carefully documented and supported his views on the evolution of plants and animals with a large amount of factual material. In 1859 he published the book "The Origin of Species by Natural Selection."

Darwin radically changed the views on wildlife, explaining the harmony and expediency of phenomena in the organic world not from the point of view of idealistic expediency, but materialistic.

Jenner Edward
(1749–1823)

English doctor, ***the founder of Vaccination of smallpox serum.*** He studied in London, worked as a doctor in Gloucestershire.

Here his attention was attracted by the popular opinion among the population that people who had had smallpox in cows did not develop smallpox. His observations and the infection with smallpox of persons who had had cowpox in the past confirmed the correctness of this opinion.

On May 14, 1790, he instilled cowpox in an eight-year-old James Phips, taking for this purpose a discharge from the pustules on the hand of a milkmaid with cowpox. After 6 weeks, the boy was vaccinated with smallpox, but he did not get it. He performed 23 more such experiments, and published his data. Since then, smallpox has become spread throughout the world.

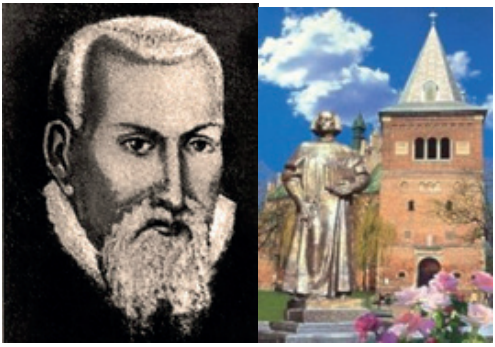
Dobroslavin Alexey Petrovich
(1842–1889)

Russian hygienist, ***one of the founders of experimental hygiene in Russia.*** He graduated from the Medical-Surgical Academy in St. Petersburg, worked in the clinic, in the laboratory of Würtz (Germany), as the head of the department of the Academy.

His research focuses on body metabolism, food hygiene and military hygiene. He investigated the chemical composition of

bread, boiled meat, food digestibility. He took part in the work of the St. Petersburg City Duma on the improvement, water supply and sewerage of the city, the installation of cemeteries, the organization of disinfection and the fight against epidemics, sanitary and food supervision, planning of hospitals and schools. A.P. Dobroslavin made a great contribution to the development of the Russian military hygiene, took part in organizing the fight against typhoid and dysentery in the army in force, developed sanitary requirements for barracks and food in the Russian army.

Drohobych George (Kobermak)
(1450–1494)



Doctor of Philosophy and Medicine. He studied at the University of Krakow, worked in Italy as a professor at the Faculty of Medicine of the University of Krakow.

He wrote 5 works, they mention contagious diseases, in particular the plague, and for the first time in the history of typography, Moscow, Vilna, Kaffa (Theodosia), Lviv and Drohobych are named, and Russia, Belarus, Lithuania, Armenia, and Novgorod are also named.

Zagorsky Peter Andreevich
(1764–1846)

Russian anatomist and physiologist, ***founder of the first Russian anatomical school.*** He graduated from the Medical-Surgical School in St. Petersburg. He worked in schools in Moscow and St. Petersburg, Medico-Surgical Academy.

He studied congenital deformities and their causes. Engaged in comparative anatomy and physiology. He opposed the vitalistic concept of "life force", was close to an evolutionary theory. One of the first to assert the connection between the structure and function of the organs of the body. He identified the main types of tissue, which laid the foundation for Russian histology. Wrote for students the first Russian textbook "Abbreviated Anatomy ...". He made a major contribution to the creation of Russian anatomical terminology. For the first time in Russia, he taught students on corpses.

Zakharyin Grigory Antonovich
(1829–1897)

The Russian therapist, ***the founder of a large clinical school, which had a great influence on the development of Russian medicine.*** He graduated from Moscow University, worked in the clinic, improved abroad, worked as a professor, director of the clinic of Moscow University.

He elaborated a method for studying the patient. The central place in the examination of the patient was the questioning of the patient about the conditions and lifestyle, about the condition and about the history of diseases. The questioning was aimed at clarifying the etiology of the disease, at identifying early functional disorders. He attached particular importance to physical methods (examination, palpation, percussion, auscultation), supplemented by laboratory tests. His method was firmly established in the Russian clinic and was highly appreciated abroad. He studied syphilis, pulmonary tuberculosis. Actively advocated the development of resorts in the country, developed indications for their treatment. G.A. Zakharyin contributed to the reform of higher medical education, the allocation of pediatrics and gynecology in independent disciplines.

Semmelweis Ignaz
(1818–1865)

Hungarian obstetrician, ***founder of the prophylaxis of puerperal fever (sepsis).*** He graduated from the University of Vienna, he worked in Vienna, Budapest.

At that time, up to 30% of pregnant women died from maternity fever (sepsis) in clinics. I. Semmelweis drew attention to the fact that higher mortality was observed in the department where students studied. He concluded that the factor causing the disease is introduced by contaminated hands of students who came to the clinic after working with corpses. Purely empirically long before the discoveries of L. Pasteur and

J. Lister, not knowing the nature of sepsis, I. Zemmelweis decided to fight the introduction of infection into the birth canal during an internal examination by thoroughly washing the hands, followed by disinfecting them with a solution of bleach. He achieved a reduction in the mortality of puerperal to 0.8%. In Budapest, he erected a monument with the inscription “Savior of Mothers”.

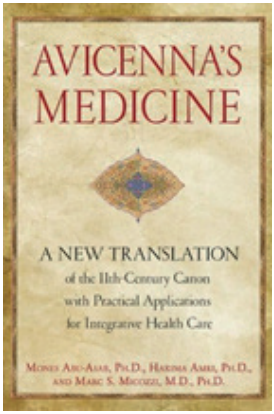
Zybelin Semyon Gerasimovich
(1735–1802)

Russian therapist, pediatrician and hygienist, ***the first Russian professor of the Medical Faculty of Moscow University.*** He studied at Moscow University, Academic University of Petersburg, Königsberg, and Leiden Universities. He worked as head of the department at Moscow University.

For the first time at Moscow University he began to give lectures in Russian, and not as was customary in Latin, and developed anatomical terms in Russian. At the lecture he introduced a demonstration of experiences. He developed ideas about protecting the health of the people, about combating epidemics and child mortality in the country, considered it necessary to study the influence of the environment on the human body. He attributed the causes of certain diseases and the premature death of people to various causes, including social factors. S.G. Zybelin described the smallpox clinic, its ways of transmission, treatment. In pediatrics described the care of newborns with asphyxia. His works reflect the ideas of disease prevention, education, hygienic skills and hardening of the body.

Ibn Sina, Abu Ali Hussein ibn Abdullah
(Latinized Avicenna)
(980-1037)

Physician, philosopher, naturalist, poet, ***author of the fundamental encyclopedia of medical knowledge of the era of the Eastern Middle Ages.*** Born near Bukhara, Sogdian origin. He studied in Bukhara, worked in Bukhara, Urgench was a court physician and a vizier (minister) under the ruler of Hamadan.



He wrote the main medical work "Canon of Medicine". This work outlines the theory of medicine, the study of medicinal substances, private pathology and therapy. It carries the idea of protecting the body from diseases. Issues of age hygiene and diets, housing and

food hygiene are described, stone-cutting operations, treatment of wounds and injuries, and bloodletting are described. When examining patients, Ibn-Sina recommended listening to the chest with an ear, while percussion of the abdomen, he distinguished sounds, almost a thousand years ahead of the methods of auscultation by R. Laennec and percussion L. Auenbrugger. "Canon" was reprinted 35 times and up to the XVII century was one of the guidelines for medicine in Europe. Ibn Sina was a famous doctor. He studied poetry, philosophy, mathematics, geology, astronomy, and natural science.

Korsakov Sergey Sergeevich
(1854–1900)

Russian psychiatrist and social activist, ***one of the founders of the nosological direction of Russian psychiatry***, doctor of medicine (1887). After graduating from Moscow University (1875), he worked as an intern at the neurological clinic for three years, and then at the St. Petersburg Psychiatric Hospital.

In 1887 he defended his thesis for the degree of doctor of medicine about alcohol paralysis. From 1888, he lectured at the medical faculty of Moscow University and was the head of a psychiatric clinic. He was one of the first to develop and implement a bed rest system for mental patients and home nursing. It was almost a mental health reform. He developed a system of attitude of medical personnel to the patient and substantiated specific ideas for the further development of psychiatry.

Korsakov published a textbook "Course of Psychiatry."

Robert Koch
(1843–1910)

German bacteriologist, ***one of the founders of microbiology***, professor (1885), Nobel laureate (1905). In 1886 he graduated from the university, and then engaged in private practice. Since 1872, the county sanitary doctor in Poznan. From 1885 he became a professor at the Institute of Hygiene, and from 1891–1904. Director of the Institute for Infectious Diseases in Berlin founded by him.

Koch began working on infectious diseases, in particular, anthrax in his small home laboratory. Under these conditions, he performed the first work on the etiology of anthrax (1876). Further works on the etiology of wound infections. In 1887, he described a method for growing bacterial cultures on solid nutrient media. This innovation in bacteriology was of great importance for the further development of microbiology.

In 1882, R. Koch discovered the causative agent of tuberculosis, formulated three famous requirements, the "Koch triad" (for identifying the causative agent of tuberculosis) for this discovery, he was awarded the title of Nobel Prize. In 1883 he published a paper on the causative agent of cholera in the study of cholera epidemics in Egypt and India. R. Koch introduced the use of paints for pathogen identification into microbiological practice. He is the creator of the world school of bacteriologists.

Laennec Rene
(1781–1826)

French doctor, ***one of the founders of clinical medicine and pathological anatomy.*** Medicine began to study at the age of

14 years old. Since 1801 studied and worked in Paris with J. Korvizar and M. Bish.

In 1802 he published his first work on peritonitis. From 1822 he was a professor and head of the department of clinical medicine.

R. Laennec is one of the founders of the clinical-anatomical method in medicine. Without a microscope, using a magnifying glass, he described the morphological picture of a number of lung diseases, liver cirrhosis, peritonitis, aortic aneurysm, and others. R. Laennec's historical merit is in his invention of the stethoscope (1816) and the development of auscultation method. He described the sound picture when listening to the lungs, characteristic of certain diseases of the respiratory system. Laennec proposed a classification of diseases of the lungs, bronchi and pleura. Proposed the term "tuberculosis"; established the specifics of the tuberculous process long before the discovery of the pathogen.

Antoni van Leeuwenhoek
(1632–1729)

Dutch naturalist, ***one of the founders of microscopy.***

A. Leeuwenhuk received a natural science education and was engaged in small-scale trade in manufactory and haberdashery.

He used his leisure to grind optical glasses and achieved high perfection in this. The lenses made by him gave a 150–300-fold increase. With these lenses, he made his observations. In 1674, he first saw microorganisms ("animals") in plaque. He first observed and painted red blood cells (1673), bacteria (1683), spermatozoa (1677), as well as protozoa, individual cells of plants and animals. Denied the possibility of spontaneous generation.

Leonardo da Vinci
(1452–1519)

"As a well-lived day gives a restful sleep, so with the use of life lived gives a calm death"

Leonardo da Vinci

Italian painter, sculptor, scholar and encyclopaedist, engineer and naturalist, one of the most prominent representatives of art and science of the Renaissance. ***He is a pioneer in the development of many scientific problems, the founder of many scientific disciplines.*** Born in Vinci (Italy); died in Clues (France).

The range of his interests is wide, including in the field of natural sciences: anatomy, physiology, zoology, botany. Leonardo da Vinci is one of the founders of embryology. His contribution to the development of problems is very significant. He described a number of bones of the skeleton and nerves, the first correctly determined the number of vertebrae in the human sacrum, opened the pneumatic sinuses of the skull. He described the location and appearance of some internal organs, eyes and optic nerves, pharynx, bronchial tree, heart, described vessels and nerve plexuses, genitals, fallopian tubes, fetus in the uterus, placenta, etc. A number of his works are devoted to comparative anatomy.

His anatomical drawings are realistic and accurate. In the drawings for the first time gave the image of the frontal, sphenoid and maxillary sinuses, the first to make an innovative proposal on the antagonism of muscles.

Jean-Baptiste Lamarck
(1744–1829)

French naturalist, zoologist, botanist, evolutionist. He studied medicine and natural sciences at the Higher Medical School in Paris (1772–1776). The author of works on meteorology. From 1793, Lamarck was a professor of natural history at the botanical garden, and from 1794 he headed the department of insects and worms at the National Museum of Natural History in Paris.

His contribution to zoology is great. He first divided animals into invertebrates and vertebrates, introduced the concept of "invertebrates." In 1881, he published The System of Invertebrate Animals. Of particular importance was his great work "The Natural History of Invertebrate Animals" (in 7 volumes), which had a great influence on the development of zoology. In the book "The Philosophy of Zoology" (in 2 volumes), the division of animals into 14 classes and 6 "degrees" was proposed.

A pupil and follower of French materialism, Lamarck tried to develop ideas in the context of Napoleonic reaction. In the final work of his "Analytical system of positive knowledge of man" (1820) outlined his system of philosophical views. He believed that the supreme creator created only matter and nature, all other inanimate and living objects emerged from matter under the influence of nature. He emphasized that all "living bodies" originate from one another. In the zoological works of Lamarck, along with many new facts and ideas, there were many inaccuracies and speculative constructions.

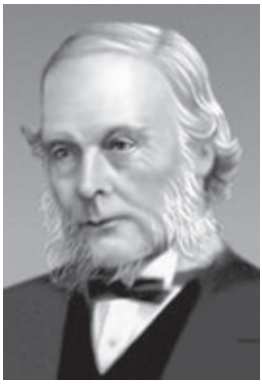
Carl Linnaeus
(1707-1778)

Swedish naturalist, botanist, doctor, pharmacologist, ***founder of the principles and methods of systematics of the organic world, scientist encyclopedist, organizer of science.*** He studied at the Lunus and Uppsala universities. In 1735 he was awarded the degree of doctor of medicine. In 1739 he headed the Marine Hospital in Stockholm, in 1746 – Professor of Botany and Natural Sciences, Uppsala University.

In 1735 he published the famous work "The System of Nature", which laid the foundations for the classification of the "three kingdoms of nature" – plants, animals and minerals. C. Linnae divided each of the kingdoms into classes, detachments, clans, and species. Animals were divided into 6 classes: mammals, birds, amphibians, fish, worms, insects. Man, he attributed to the class of mammals, to the order of primates. The principles of classification created by him marked the beginning of scientific systematics.

In the field of medicine, he achieved an autopsy, proposed a classification of types of diseases, studied methods of combating gonorrhea, studied the effect of drugs, published a book about the dangers of alcoholism. Published works: "Medicinal Plants" in 3 volumes, "Genera of Diseases", "Key to Medicine". The influence of C. Linnaeus on the world natural science is enormous.

Joseph Lister
(1827–1912)



English surgeon, the creator of the antiseptic trend in surgery. In 1852 he graduated from the University of London. He worked as an assistant at the University Hospital College, as a surgeon at a hospital in Edinburgh, and lectured at the University of Edinburgh. Since 1860, Professor of Surgery in Glasgow, since 1869 – in Edinburgh.

In the published works, he cited evidence that the wound infection is caused by a lively infectious origin, introduced into the wound from the outside. J. Lister gave scientific coverage and developed theoretically reasonable measures to combat surgical infection. The system proposed by him included elements of not only antiseptics, but also asepsis, since the use of a disinfectant substance was designed to destroy microbes not only in the wound itself, but also on objects that were in contact with it (surgeon's hands, surgical field, instruments, air in the operating room). etc.). J. Lister improved the resection of the wrist joint, introduced catgut as a material for sutures. He belongs to the work on anatomy, histology, microbiology.

Lomonosov Mikhail Vasilyevich
(1711-1765)

A brilliant Russian scientist, encyclopaedist and educator, poet and artist, material thinker, fighter for the development of Russian science. ***He plays an outstanding role in the natural science substantiation of materialistic views on nature, in the field of medicine, he assigned the predominant role to experience.***

Born in the village of Denisovka (now Lomonosovo) of the Arkhangelsk region in the family of a fisherman. From 1731 to 1741, he studied at the Moscow Slavic-Greek-Latin Academy, the University of St. Petersburg Academy of Sciences, abroad at the University of Marburg, at Freiberg. After returning to St. Petersburg, he works at the Academy, directs the geographical department, gymnasium, and university.

In the works of M.V. Lomonosov contains many valuable statements on various issues of medicine - theoretical considerations, hygiene advice, the influence of climatic and other natural factors on the body, the importance of the occurrence of nutritional illness, etc.

In his work On the Preservation and Reproduction of the Russian People, he examines the reasons for the decrease in population growth, condemned the custom to baptize infants by immersion in cold water, showed the viciousness of gluttony and drunkenness during religious holidays. He sought to improve the working conditions of miners. Great attention.

M.V. Lomonosov devoted to the hygiene of young children, their care and obstetric care, insisted on the preparation of midwives. Noted the lack of medicines and pharmacies. Trudy M.V. Lomonosov had a great influence on the development of Russian medicine.

Marcello Malpighi
(1628–1694)

Italian physician, anatomist and naturalist, ***one of the creators of microscopic anatomy.*** He studied at the University of Bologna, worked as a professor in Bologna, Pisa, Messina, consisted of the physician-in-arms of Pope Innocent XII.

M. Malpighi – a pioneer in the field of histology, embryology, botany. He made a number of anatomical and histological discoveries: the connection of the arteries with the veins through the capillaries, urinary tubes in insects, the glomeruli of the kidneys. Opened blood cells, alveolar structure of the lungs. Founder of invertebrate anatomy. They were discovered the cellular structure of plants, he described the development of chicken in the egg.

Mendel Gregor
(1822–1884)

Czech naturalist, ***founder of genetics.***

In 1843 he graduated from the philosophical classes and in the same year became a novice of the Augustinian monastery in Brno. However, he was relieved of his duties as a priest, i.e. always sought to natural science, which he taught in high school (1849–1868). From 1851 to 1853

G. Mendel is studying physics, mathematics, chemistry, zoology, botany, physiology at the University of Vienna.

After returning from Vienna, he began his famous experiments on the crossing of pea varieties, setting the goal of establishing a universal law for the formation and development of hybrids. Over 10 years of hard work, he analyzed 27,225 plants. The results of the work were reported in 1865 in the society of natural scientists of Brno.

In his work "Experiments on plant hybrids", the basic principles of the theory of heredity were formulated, were of great importance, but were not understood by biologists before 1900 (Chermak and Correll confirmed his work by their experiments).

Mechnikov Ilya Ilyich
(1845–1916)

An outstanding Russian biologist, pathologist, immunologist and bacteriologist. ***The founder of evolutionary embryology, the creator of the comparative pathology of inflammation and phagocytic theory of immunity.*** Winner of the Nobel Prize (1908). He graduated from the natural department of the Faculty of Physics and Mathematics of the Kharkov University (1864), specialized in parasitology of worms and insect embryology in Germany.

From 1865 he conducted research in Italy on the comparative embryology of invertebrates. He defended his master's (1867) and doctoral (1868) dissertations at St. Petersburg University, received a docenture at Odessa and St. Petersburg universities. Since 1886, I.I. Mechnikov headed the first Pasteur station in Russia to fight rabies in Odessa. At the invitation of L. Pasteur, he headed the laboratory at the Pasteur Institute in 1888. He worked in Paris for about 30 years.

Mechnikov worked on the study of intracellular digestion of lower animals (sponges). These observations formed the basis of the research that led to the discovery of phagocytosis, the protective functions of the body. Phagocytic theory, he reported in 1883 on

7 congress of Russian naturalists and doctors in Odessa. Further research (1883–1892) allowed him not only to fundamentally substantiate the theory, but also to trace the evolution of the animal world. The result of these studies was the Lectures on Comparative Pathology of Inflammation, which he read at the Pasteur Institute in 1892.

The further main activity of Mechnikov was the development of the phagocytic theory of immunity and the struggle for its existence. For the study of immunity in 1908, I. Mechnikov and P. Erlich received the Nobel Prize.

The next stage of Mechnikov's scientific activity is connected with the development of the problems of old age and death. These provisions are reflected in the writings of "Etudes about Human Nature" (1903). In addition, Mechnikov dealt with the epidemiology of cholera, plague, typhoid fever, tuberculosis, and syphilis.

Thomas H. Morgan
(1866–1945)

American biologist, ***one of the founders of genetics, president of the National Academy of Sciences of the USA (1927–1931).*** He graduated from the University of Kentucky in 1886.

T. Morgan's early works are devoted to experimental embryology of marine invertebrates, the study of regeneration phenomena and the mechanisms for determining the formation of sex in animals. From 1910 he began to widely use a biological object - the fruit fly Drosophila for the quantitative study of the inheritance of individual characters. Experimentally substantiated ideas about the units of heredity and variability, which are in the genes located in the chromosomes. For the discovery of the role of chromosomes in the transmission of hereditary traits, T. Morgan was awarded the Nobel Prize (1933).

Giovanni Battista Morgagni
(1682-1771)

Italian doctor and anatomist, ***one of the founders of pathological anatomy***, the creator of the first classification of diseases and causes of death. At age 19 (1701), Morgagni received the title of doctor of medicine and philosophy. He headed the department of anatomy in Bologna and pathoanatomy at the Padua University.

Author of several works on anatomy and medical history (work on Celsus). He wrote a 6-volume study "On the location and causes of diseases discovered through dissection." Its main advantage is the principle of the pathoanatomical localization of disease processes in systems and organs. Morgagni brought together anatomy with clinical medicine.

Mudrov Matvey Yakovlevich
(1776–1831)

Domestic doctor, ***one of the founders of Russian internal medicine, the founder of military hygiene***. He graduated from the Medical Faculty of Moscow University in 1800 and worked as an intern at the maritime hospital in St. Petersburg. From 1802, he was sent abroad for improvement, where he studied therapy, surgery, obstetrics, and eye diseases in hospitals in Berlin, Vienna, and Paris. In 1808, after returning to Moscow, he read a course of military hygiene, then he became head of the department of pathology and therapy, which he headed for more than 20 years. Then he became dean of the medical faculty, took an active part in its restoration after the Patriotic War in 1812.

During the cholera epidemic in 1830–1831, he selflessly worked to eliminate it in the Volga region, St. Petersburg. Drafted instructions for prevention and treatment. Infected with cholera, from which he died. In his work "The Word about the way to learn and learn practical medicine" outlined the main provisions of his clinical teaching. He taught the doctor to proceed not from the theoretical, abstract principle of treating a disease by its name, but from the principle of "treating not the illness, but the patient" based on all the features of the illness.

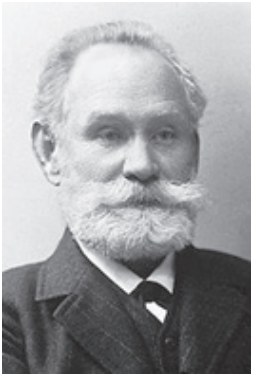
Oribasiy
(325–403)

One of the most outstanding doctors of Byzantium and the early Middle Ages.

A Greek by birth, he studied medicine in Alexandria, lived and worked in Constantinople (Byzantium), was a physician to Emperor Julian the Apostate.

He compiled the encyclopedic work "Medical Meeting" in 72 books. In it, he summarized and systematized the medical heritage from Hippocrates to Galen, including the works of many ancient authors. On the many writings of ancient authors, we know only what Oribasii managed to communicate. He compiled an abbreviated version of his work "Synapsis" (Greek – review) in 9 books, which became a tool for studying medical science. A brief extract from "Synapsis" was called "Publicly available medication". It was intended for people involved in the preparation of drugs at home. For his scientific views and commitment to the ancient traditions, he was expelled from Constantinople.

Pavlov Ivan Petrovich
(1849–1936)



The great Russian scientist-physiologist, Nobel laureate, ***creator of the materialistic theory of higher nervous activity of man.*** He studied at the seminary of Ryazan, St. Petersburg University, Military Medical Academy. He worked in the laboratories of St. Petersburg and abroad, Professor of the Department of Physiology of the Military Medical Academy, headed the department of the Institute of Experimental Medicine.

Trudy I.V. Pavlova received international recognition. He is one of the most prominent representatives of modern natural science, the creator of the materialistic theory of higher nervous activity of humans and animals, the founder of the largest physiological school and new approaches and methods of research in physiology. For scientific creativity I.P. Pavlov's principle is characterized by the principle of nervism, in accordance with which his research was permeated with the idea of the decisive role of the nervous system in regulating the functional state and activity of all organs and systems of the body.

I.P. Pavlov studied the physiology of the cardiovascular system. He found that the principles of reflex self-regulation are universal principles of the cardiovascular and other body systems. I.P. Pavlov investigated the physiology of digestion. For the first time they were shown the leading role of the nervous system in the regulation of the digestive process. A major scientific event was its discovery in the

mucous membrane of the duodenum enterokinase, which activates the enzyme trypsin, splitting proteins. For work in the field of digestion he was awarded the Nobel Prize.

The largest discoveries were made by I.P. Pavlov as a result of years of research on the physiology and pathology of the brain. He discovered the conditioned reflex, which arises, forms and stabilizes under certain conditions, differs from the unconditioned reflex, which is innate. With the discovery of the conditioned reflex, an approach was found to unravel the secrets of the work of the large brain. Brain research was the basis for creating a theory of higher nervous activity. I.P. Pavlov believed that the concept of "higher nervous activity" is equivalent to the concept of "behavior" or "mental activity." Teaching I.P. Pavlova on higher nervous activity is the greatest achievement of natural science. Scientific work I.P. Pavlova is a whole era in the development of natural science.

Paracelsus
(1493-1540)

A doctor and a chemist, ***one of the prominent representatives of the culture of the early Renaissance, one of the founders of iatrochemistry.*** Born in Switzerland, studied in Italy, worked in Basel as a doctor and university professor, traveled a lot, including in Poland and Lithuania.

He was an innovator in teaching that "the doctor creates knowledge of the things and forces of nature." Getting acquainted with local traditional medicine, insisted on using it. He exposed the traditions of

scholasticism, the cult of Galen and the doctors of the scholastics. He put forward experience as the basis of knowledge. From the doctor's scientist demanded work in the laboratory. Paracelsus believed that the processes taking place in the human body are chemical and that chemistry is destined to play a huge role in medicine. In surgery, he required wounds to be "protected from external enemies" by clean bandages. Paracelsus described the harmfulness of the labor of foundry workers, miners. In the field of pharmacology, he believed that only the dose made the substance poisonous or medicine. Paracelsus had inconsistencies in worldviews. Along with the materialistic view of medicine, he developed the doctrine of a higher spiritual principle that regulates the life of the organism.

Ambroise Paré
(1509 or 1510–1590)

French surgeon and obstetrician, transducer surgery. Medical education is not received, he studied the surgical craft in Paris. He served in the army as a barber-surgeon, worked in Paris as an obstetrician surgeon.

The greatest scientific merit is his contribution to the treatment of gunshot wounds. He refused to use in medieval medicine cauterization with a hot iron or pouring boiling solution and for the first time applied a clean bandage for this. Improved amputation technique, applied vascular ligation instead of twisting or cauterization, created a number of new instruments, complex orthopedic devices, as well as artificial

joints. His work "Regulations for the care of the wounded" served as the main medical guide on military surgery. In obstetrics, A. Pare applied a turn to the leg, as well as a caesarean section at the death of the woman in labor.

The activities of A. Pare played an exceptional role in the development of surgery as a scientific discipline and the transformation of a surgeon-artisan into a full-fledged specialist doctor.

Louis Pasteur
(1822–1895)

Great French naturalist, ***founder of scientific microbiology and immunology.*** He graduated from the highest normal school in Paris, worked as a professor at a number of universities, and director of the Pasteur Institute. He proved the microbiological nature of fermentation, that each type of fermentation is caused by microorganisms of a special kind and found a way to combat this fermentation – pasteurization.

He proved that any matter cannot spawn itself, came to the conclusion that microorganisms play a large role in the circulation of substances in nature. He showed that the process of decay is also caused by microorganisms, and the main role in this belongs to the oxygen of the air. L. Pasteur was convinced that microorganisms are also the cause of infectious diseases of higher animals and humans. L. Pasteur made the most important generalizing conclusion about the possibility of preventing infectious diseases by inoculating a weakened pathogen, and thus laid the foundation for ideas about

artificial immunity. Received anthrax, rabies vaccine. In Paris, an institute was organized for rabies vaccination, which was headed by L. Pasteur and the Pasteur Institute named after him. The discovery of the fundamental laws of nature made a major contribution to the solution of fundamental methodological issues and put L. Pasteur among the most prominent natural scientists of the world.

Petrovsky Boris Vasilyevich
(1908–2004)

Soviet scientist – surgeon, public figure, academician.

Graduated from Moscow University. He worked in Podolsk, Moscow, Budapest, head of departments, director of the All-Union Scientific Center of Surgery, Minister of Health of the USSR, a participant in the Second World War.

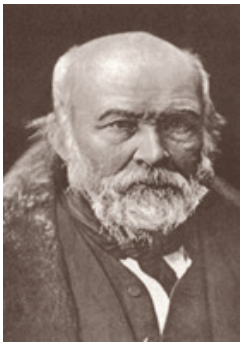
B.V. Petrovsky carried out basic research on surgery of the esophagus, proposed original methods of surgery for cancer of the esophagus, cardiospasm, etc. He developed the problem of surgical treatment of heart defects, diseases of large vessels. For the first time in the USSR, he successfully performed a kidney transplant to a human, and participated in the development of the problem of hyperbaric oxygenation. They developed access to intrathoracic goiter and made a number of plastic operations on the bronchi and trachea. B.V. Petrovsky created a large surgical school.

Pettenkofer Max
(1818–1901)

German doctor, ***one of the founders of experimental hygiene.*** He graduated from the University of Munich, where he worked as a professor, led the Institute of Hygiene.

M. Pettenkofer introduced into medicine an experimental method for studying environmental factors, developed methods of hygienic assessment of air, soil, clothing, hygienic requirements for building materials of residential buildings, hygienic norms of nutrition, paid attention to soil hygiene (humidity, soil water level, urban soil cleaning, removal of sewage). He proved the importance of draining the soil and removing sewage to prevent intestinal diseases, including cholera. The hygienic measures taken to improve populated areas on the basis of his teaching led to a significant decrease in the incidence of intestinal infections in several cities in Germany.

Pirogov Nikolai Ivanovich
(1810–1881)



The great Russian doctor and scientist, teacher and public figure**, one of the founders of surgical anatomy, military field surgery.**

He studied at the Moscow University, Derpsky Professorial Institute, in the clinics of Germany. He worked as a professor at the University of Derp, headed a number of surgical clinics, was a trustee of educational districts of Russia, and took part in hostilities as a doctor.

The classic works of N.I. Pirogov was the foundation of topographic anatomy and operative surgery. Sawing frozen corpses ("ice anatomy") made it possible to determine the interposition of organs and tissues. He was the first among Russian scientists to come up with the idea of plastic surgery. The exclusive role of N.I. Pirogov in the development of the problem of anesthesia, one of the first in Russia carried out the operation under ether anesthesia. Activities N.I. Pirogov played a significant role in the history of asepsis and antisepsis. Even before Pasteur and Lister, he expressed a brilliant conjecture that the suppuration of wounds depends on live pathogens. Pirogov was the founder of the preventive direction in medicine. He wrote: "the future belongs to preventive medicine". Military medicine owes N.I. Pirogov created the scientific foundations of the Russian military field surgery and the organization and tactics of the medical service, in which he attached great importance to medical sorting of the wounded, ensuring the interconnectedness of treatment and evacuation, and attracting women ("nurses") to caring for the wounded

at the front. N.I. Pirogov – a teacher distinguished the search for new methods of teaching, conducting clinical rounds. The Pirogov Society functions in his honor in Russia.

Jean-Louis Petit
(1674-1750)

The French surgeon and anatomist ***made a great contribution to the establishment and development of surgery.*** Worked in Paris, director of the Surgical Academy. He participated in several military campaigns. J. Petit was one of the most popular surgeons of his time. Known for numerous works on surgery (bones and joints, wounds, breast cancer, hernias, methods of amputation), as well as in the field of anatomy. Name

J. Petit wears a lumbar triangle and a hernia of this localization.

Razi, Abu Bakr Muhammad
(Latinized Razes, around 865–925)

One of the most prominent thinkers of the Middle Ages in the East, a doctor and encyclopedist. He studied in Baghdad. In addition to medicine, he was engaged in mathematics, astronomy, chemistry, philosophy.

He owns over 200 essays, many of which are devoted to medicine. The largest work, the encyclopedic work of Al-Xavi in 30 volumes, covers all the practical medicine of that time. It sets out local diseases, then "common diseases", poisons, medicines. Another major work, The Medical Book of Al-Manzor, in 10 volumes, provides an overview of the entire medicine of that time. One of the books ("Pathology") has long served as a guide for classes at European universities. He described a tool for extracting foreign bodies from the pharynx, used cotton wool for bandaging, wrote about plague and other infectious diseases. In "About smallpox and measles" described the symptoms and treatment of these diseases.

Ramazzini Bernardino
(1633–1714)

Italian doctor, founder of occupational health and occupational pathology. He studied at Mozena and Parma, practiced medicine, worked at the Mozen and Padua Universities.

B. Ramazzini studied the health of artisans and workers of various professions. He described the diseases inherent in workers in more than 60 occupations, with an indication of the causes, measures for prevention and treatment. B. Ramazzini also studied the problems of longevity, health and diseases of certain groups of the population.

Rokitansky Karl
(1804-1878)

Austrian pathologist, Czech by nationality, ***founder of descriptive pathology, supporter of humoral pathology.*** He studied at Prague

and Vienna Universities, worked at the University of Vienna, was President of the Vienna Academy of Sciences.

He organized the first in Europe Department of Pathanatomy at the University of Vienna, created the largest pathoanatomical museum. He laid the foundation for descriptive pathology, closely related to clinical practice, and gave a pathological rationale for the manifestation of a number of diseases. K. Rokitansky believed that the task of pathology is to study pathological changes not only on the corpse, but also during the life of the patient, as well as in the experiment. He paid great attention to the relationship of pathology with chemistry and physiology. K. Rokitansky adhered to the concept of humoral pathology, believed that the basis of all diseases were changes in the chemical composition of blood plasma.

Ruysch Frederick
(1638–1731)

Dutch doctor and anatomist, ***the first creator of the anatomical museum***. He studied in Leiden, worked in Amsterdam, read lectures on anatomy, obstetrics, forensic medicine, botany.

He invented a method of embalming, created a rich anatomical museum. Part of the museum's collection (about 400 preparations) was bought by Peter I. The collection is still kept in the Museum of Anthropology and Ethnography in St. Petersburg. He published a number of works in the field of anatomy and pathology.

Samoilovich (Sushchinsky) Danilo Samoilovich (1744–1805)

Russian doctor, obstetrician, **one of the founders of epidemiology.**

Educated at the Kiev Theological Academy, then at the school at the St. Petersburg Admiralty Hospital, where in 1767 he received the title of doctor.

As a regimental doctor, he participated in the Russian-Turkish (1768–1774) war. He took an active part in the fight against the plague epidemic in Moscow, in 1771 was introduced to the commission for protection and healing from a "pestilence". In 1775 he entered Strasbourg and then Leiden University, where he studied obstetrics. In 1780 he defended his doctoral dissertation in Leiden. Scientific and practical activities of D.S. Samoylovich was associated primarily with the fight against the plague epidemic. They studied the pathological anatomy of the plague and the conditions of its spread. In the experiments on themselves, the efficacy of some disinfectants was tested, immunity to infection of persons who had the disease was described, a vaccine against plague was proposed for medical personnel and persons caring for the sick.

Semashko Nikolai Aleksandrovich
(1874–1949)

A prominent party and state leader, ***the first people's commissar of health of the RSFSR, an outstanding theoretician and organizer of the Soviet public health***. He graduated from Kazan University, served as a doctor in the Oryol and Samara provinces.

He was engaged in active revolutionary activities, emigrated to Switzerland. In Paris, he actively worked with V.I. Lenin. He worked as a doctor in Serbia, Bulgaria. Returning to Moscow, he took an active part in the October Revolution, was appointed People's Commissar of Health of the RSFSR, and headed the Department of Social Hygiene of the Medical Faculty of Moscow State University. He participated in the creation of the USSR Academy of Medical Sciences, is the first chairman of the High Council for Physical Culture and Sports. On his initiative, the institutes of physical education in Leningrad and Moscow were created, was the initiator of the first edition of the Big Medical Encyclopedia and its editor-in-chief. His works are devoted to theoretical and organizational health issues. With his participation, fundamental questions of Soviet medicine and public health were developed.

Servet Miguel
(1509 or 1511–1553)

Spanish thinker and doctor, ***the author of the greatest discovery*** – ***the small circle of blood circulation.*** He studied law, geography and geology, first in Sargos, then at the University of Toulouse.

After graduating from the university in 1529, M. Servet moved to Germany, where he met the leader of the German Reformation, Martin Luther. This acquaintance prompted him to analyze the basics of the Protestant doctrine, comparing it with Catholicism. In the book The Fallacy of Trinity, published in 1531, he argued that it was necessary to abandon the dogma of the trinity of deity as the basis of Christianity. For these views, Servetus was attacked and persecuted in Germany, and his book was set on fire as a heretical. Having migrated in 1535 to France,

M. Servet published "Geography", "Bible", providing them with his own comments. From 1536–1538 studied medicine at the University of Paris School of Medicine and began practicing medicine. In 1553 M. Servet anonymously published his main work "The Restoration of Christianity", in which he presented a complete picture of the world. He identified God with the universal nature of things. Human nature was considered by him as the highest and most significant divine creation, in which there is a merging of the highest principle of God with the lowest level of being – nature. Solved the question of the origin of the "living spirit" of man.

At the same time, M. Servet also solved anatomical and physiological problems. He owns the greatest discovery – he proved the existence of a small circle of blood circulation. He denied the opinion of K. Galen on the leakage of blood from the left half of the heart to the right through small holes, allegedly present in the triangle between the atria. For the first time he gave the correct definition of the ways of blood movement along the branches of the pulmonary artery. Investigating the problems of the universe, Servet includes elements of scientific, physiological knowledge into theology, which undermined the foundations of scholasticism. For this, he was burned on October 27, 1553 in Geneva, along with his book.

Sechenov Ivan Mikhailovich
(1829–1905)

The great Russian scientist, ***the founder of the Russian school of physiology and materialistic psychology in Russia.*** In 1848, he graduated from the Main Engineering School in St. Petersburg and was sent to serve in the sapper battalion near Kiev. In 1851, he resigned and entered the medical faculty of Moscow University. After graduating from university in 1856, he was sent abroad to prepare for a professorship, worked in the laboratories of major scientists in Western Europe. In 1860 he defended his doctoral thesis "Materials for the future physiology of alcohol intoxication", was elected professor of the Department of Physiology of the St. Petersburg

Medical-Surgical Academy. From 1870 he became a professor in the Department of Physiology at the University of Novorossiysk, and from 1876 he worked at St. Petersburg University, then at Moscow University (1889). In 1901, he refused to supervise the department in order to "clear the way for young forces" in his words. High role Sechenov in the formation of the materialist worldview.

His name is associated with the development of many issues in various areas of physiology (respiration, gas exchange, energy exchange, alcohol poisoning, ts.ns, neuromuscular physiology). He is the creator of new trends in physiology. Of particular importance are the works of Sechenov in the field of neurophysiology. In subsequent years, IM Sechenov worked on the study of patterns and physiological characteristics of human labor, the foundations of work and rest.

Sechenov is the founder of materialistic physiology and psychology. For the first time, he began with scientific methods the study of complex phenomena in the activity of the brain, spoke out against the existing idealistic views on the processes of mental activity.

Sklifosovsky Nikolay Vasilyevich
(1836–1904)

An outstanding surgeon, ***one of the founders of Russian clinical medicine.*** He graduated from Moscow University, worked in Odessa, universities of St. Petersburg, Moscow, participated in military operations.

With the name of N.V. Sklifosovsky is associated with an entire era in the development of Russian medicine and, above all, surgery. He actively promoted the introduction of the principles of antisepsis and asepsis into Russian surgery; was the pioneer of abdominal surgery; he developed methods for treating cerebral hernia. N.V. Sklifosovsky made a major contribution to the development of military field surgery, proposed an original method of connecting bones – the Russian castle, or Sklifosovsky castle. Many operations bear his name: removal of stones from the bladder, surgery in the treatment of hemorrhoids, in case of prolapse of the rectum, and others. N.V. Sklifosovsky was a prominent figure, one of the founders of the Pirogov Congresses.

Skorina George
(dated 1490–1541)

One of the first Russian doctors of medicine, Belarusian pioneer printer and educator. Primary education in Polon, and in 1504 he entered the Faculty of Philosophy of the University of Krakow. Subsequently, he continued his studies at the medical faculty. He received the degree of doctor of medicine and philosophy in 1512 at the University of Padua (Italy).

In Prague, G. Skorina published 23 books called The Russian Rus Bible. Later in Vilna, he founded the first Russian printing house.

G. Skorina constantly emphasized in his publications that he was a doctor, he called himself “a doctor in medicine”, “a teacher in science

and medicine". The purpose of its publishing activity is to educate the people. He had a great influence on the development of the literary Belarusian language. The activities of G. Skorina played a large role in the struggle against the oppression of Polish and Lithuanian feudal lords.

Soloviev Zinovy Petrovich
(1876–1928)

A Soviet party and state leader, ***one of the largest organizers and theorists of the Soviet civil and military healthcare.*** He graduated from Kazan University, worked as a doctor in Simbirsk and Saratov provinces.

For revolutionary activities, he was exiled to the Vologda province. Before the revolution, he worked in Moscow in various organizational positions. After the revolution, he worked in the People's Commissar of Internal Affairs, Deputy People's Commissariat of Health of the RSFSR, Chairman of the Red Cross Executive Committee of the RSFSR, Head of the Main Military Health Administration of the Red Army, and headed the Department of Social Hygiene at the Medical Faculty of Moscow State University.

Z.P. Solovyov devoted all his experience and energy to the construction of Soviet healthcare. He develops a number of problems relating to the fundamental principles of Soviet public health, of which he is rightly considered one of the theorists. He paid much attention to the preventive direction of Soviet medicine, the importance of close

communication of doctors with the masses of workers. Z.P. Soloviev made a great contribution to the development of Soviet military medicine, paid attention to military-medical education. He gave a lot of strength and energy to the sanitary and sanitary-chemical defense of the country.

Filatov Nil Fedorovich
(1847–1902)

An outstanding Russian pediatrician, ***one of the founders of pediatrics in Russia.*** He graduated from Moscow University, worked in the Penza province, trained abroad (Vienna, Prague), worked as a professor and director of a children's clinic at Moscow University.

N.F. Filatov made a significant contribution to the development of world pediatrics. His works have been translated into a number of European languages. According to his monographs and manuals, many generations of pediatricians studied. He described the infectious disease he called scarlet fever, rubella – Filatov-Duke disease. N.F. Filatov described the initial sign of measles – the appearance of a dot grayish-white rash on the mucous membrane of the lips and cheeks. Established that scarlatina diphtheria – a necrosis of the mucous membrane of the pharynx, caused by the causative agent of scarlet fever. He created a large school of Russian pediatricians.

Pierre Fauchard
(1678–1761)

French surgeon and dentist, ***author of one of the first classifications of dental disease, the founder of orthodontics***. Worked as a barber, after training became a surgeon. He dedicated himself to dentistry and became widely known as a dentist.

He described the etiology, pathogenesis and clinic of about 130 dental diseases. His capital work dedicated to the treatment of dental diseases, was the first guide, in which scientific and practical knowledge of dentistry was systematized. He is the founder of the section of orthopedic dentistry – orthodontics, dealing with the methods of correcting abnormally growing teeth and jaws.

Girolamo Fracastoro
(1478–1553)

Italian scientist, doctor, writer, ***one of the representatives of the Italian Renaissance***. He studied in Padua. His early works are devoted to geology, optics, astronomy, philosophy.

He systematized and summarized the provision on the specific and multiplying infectious beginning – "contagion" and gave direction to the further study of infectious diseases. In his largest work, On Contagia, Contagious Diseases and Treatment, he first attempted to create a general theory of epidemic diseases and described a number of individual diseases – smallpox, measles, plague, consumption, rabies, leprosy, etc. The work consists of three books. The first is devoted to theoretical principles, the second to the description of individual infectious diseases, the third to treatment. By definition of J. Fracastor, "contagion is a defeat that passes from one to another; the defeat takes place in the smallest particles and begins with them. " He established three types of distribution: direct contact, through objects and at a distance.

Celsus Avl
(25-30 BC - 50 AD)

Roman scholar and lexicographer. He had a versatile education: he studied medicine, but it was not established whether he was a doctor by profession. In his encyclopedia "Art" there is information on agronomy, law, philosophy, rhetoric, military affairs and medicine. He stressed the importance of a rational approach to the issues of symptomatology, diagnosis, treatment and prognosis of diseases. He paid much attention to hygiene and diet, described in detail the symptoms of individual diseases, their treatment. In surgery, he describes ways to stop bleeding, heal wounds, abscesses, ulcers, fractures, dislocations. Celsus described four signs of inflammation (pain, fever, redness, swelling), cataract surgeries, rotation of the fetus on the leg during childbirth.

Schwann Theodor
(1810–1882)

German anatomist, histologist and physiologist, MD (1834), ***creator of cell theory.*** From 1829 he studied natural sciences and medicine in Bonn, Berlin. In 1832 he graduated from the Faculty of Medicine of the University of Bonn. From 1839 he moved to Belgium, where he was mainly engaged in teaching activities. From 1839–1848 Professor of Anatomy at Louvain.

Schwann received a doctorate in medicine for his work on the effect of air on the development of bird eggs (1834). Investigating the processes of digestion, Schwann refuted the then accepted opinion on the digestive value of gastric mucus and discovered the digestive enzyme – pepsin. Known work Schwann on the fine structure of blood vessels, smooth muscles and nerves. In 1937, together with M. Schleiden, he reviewed the histological material accumulated by that time and established similarities in the structure of animal and plant cells. On this basis, he came to the conclusion that there is a single cellular principle in the structure and development of plant and animal organisms. In 1839, Schwann published three reports on this issue, and in 1839 he published the book Microscopic Research on Conformity in the Structure and Growth of Animals and Plants, in which he formulated the main tenets of cell theory.

Schleiden Matthias
(1804-1881)

German biologist, a member of the St. Petersburg Academy of Sciences (1850). ***For the first time described the nucleoli of plant cells.*** In 1827 he graduated from the Law Faculty of the University of Heidelberg, improved in the natural sciences and medicine. In 1839–1862 a professor of botany in Jena, and in 1863–1864 a professor of anthropology and plant chemistry at the University of Dorpat.

In 1838, M. Schleiden published the theory of phytogenesis, linking the neoplasm of cells with the transformation of the cell contents. He owns a number of manuals on botany and medical pharmacognosy, a monograph on the basics of botany, as well as several works on geography and history.

Schepin Konstantin Ivanovich
(1728–1770)

Russian doctor, surgeon, anatomist, nerd and pharmacist.

He studied at the Kiev Theological Academy (1742–1748), then at the universities of Poland, Italy, and Greece. He began to get acquainted with medicine in 1748 at the University of Bologna. Upon returning to Russia in 1751, he studied botany at the St. Petersburg Academy of Sciences. In 1753 he was sent to the University of Leiden to study botany and medicine. In 1758 he defended his thesis in

Leiden. After protection, he studied obstetrics and surgery in France. In 1762, Shchepin became the first Russian professor at the Hospital School at the Moscow Land Hospital. He taught anatomy, surgery, clinical medicine and pharmacy.

He was the first in Russia to give lectures on anatomy using microscopic preparations. Introduced the teaching of compounding in practice. K.I. Schepin proposed to create at the hospital a group of pharmacist students, i.e. first pharmaceutical school. In 1764, for the first time in Russia, he began to read lectures on anatomy and surgery in Russian at the St. Petersburg Hospital School.

Erazistrat
(3 in. BC)

"In a society in which there is no health, there will be neither science nor art, and even wealth becomes completely meaningless."
Erazistrat

Ancient Greek physician, one of the founders of human descriptive anatomy. He studied medicine at the Knid school, worked in Alexandria.

He was one of the first Greek doctors to uncover human corpses, studied the structure of the brain, described the brain gyruses, the membranes of the brain, and the nerve trunks divided into sensory and motor ones. For the first time described the lymphatic vessels of the mesentery, investigated the structure of the heart and its valves, introduced the term "parenchyma". Having concluded that the arteries and veins are interconnected by small vessels, he came close to the idea of blood circulation, scientifically proven by W. Harvey. Believed that the body consists of many solid indivisible particles (atoms) that move through the channels of the body. The disease is a consequence of the disturbance of these movements due to indigestion and stagnation of blood in the veins. Erazistrata is credited with the invention of the catheter.

Erisman Fedor Fedorovich
(real name Gouldreich Friedrich, 1842–1915)

Russian hygienist, ***one of the founders of scientific hygiene and public medicine in Russia. Swiss by origin.*** He graduated from the University in Zurich, moved to Russia, worked in Petersburg as an oculist, improved his knowledge abroad in Zurich, Munich, then worked in Moscow, lived in Switzerland.

F.F. Erisman made a fundamental contribution to the development of the main branches of hygiene. Based on an examination of the pupils of Petersburg grammar schools, they concluded that the school equipment had an effect on the occurrence of myopia. For 7 years he took part in the San inspection of industrial enterprises of the Moscow province. Were obtained information about the working and living conditions of workers, their nutrition, data of anthropological surveys, etc. He was involved in the creation of sanitary organizations in the zemsky. Under his leadership, the Hygienic Institute was opened. F.F. Erisman developed a series of sanitary issues for the construction of water supply, sewage and irrigation fields and school hygiene problems.

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