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RESEARCHES ON THE POSITIVE SCIENCES AND THE DEVELOPMENT PROCESS OF THE HISTORY OF MEDICINE

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Researches On The Positive Sciences And The Development Process Of The History Of Medicine

Abstract

In the medieval Western world, when Europe was in economic and cultural stagnation for a long time, Arabic-speaking culture developed significantly. He has greatly contributed to the development of science, philosophy, literature and art, which includes the culture of many nations (Persians, Tajiks, Uzbeks, Turkmens, Syrians, Egyptians, Arabs and others). The formation of the Caliphate, a political power of Muslims, began in the 7th century and developed first with the establishment of a new religion under the banner of Islam and later with the Conquest of the Arabs. It didn't take long for the immense United Arab power to emerge from Central Asia and Iran in the east to the Pirinese Peninsula in the west. In the second half of the eighth century, two caliphate were established—the East centered on the West, first in Damascus, then in Baghdad and Cordoba. The economic and cultural community of the peoples that were part of the caliphate was preserved and continued to flourish for several centuries. The extensive trade of the Arabs contributed to the mutual enrichment of the cultures of many nations. Since the main language in the caliphate was Arabic, it was called "Latin of the East", the cultural and scientific legacy of the medieval East in bourgeois historiography is often referred to as "Arab" culture and science. In Soviet historiography it is rightly called Arabic. The ultimate goal of this study is to inform about the development process of positive sciences in a period called the "Golden Age" of Islam in the Middle Ages, that the scientific sciences reached their peak in the history of Islamic science in this period and shed light on other civilizations, especially the West, and their use in the course of time. to tell you that you have benefited from these sciences. The main purpose of this study is to give information about the activities of scientists working in the field of positive sciences and medical history in the Middle Ages and to convey their contributions to world civilization.

During the Middle Ages, when Europe was in a long economic and cultural recession, Arabic-speaking culture flourished. He combined the culture of many nations (Persians, Tajiks, Uzbeks, Turkmens, Syrians, Egyptians, Arabs and others), making a great contribution to the development of science, philosophy, literature and art. The caliphate, a Muslim feudal state, began to be established from the 7th century and was primarily conditioned by the unification of the Arabs under the banner of Islam. The great unified Arab state, stretching from Central Asia and Persia in the east to the Iberian Peninsula, did not last long. In the second half of the 8th century, two caliphate - the Eastern Caliphate - were established, first in Damascus, then in Baghdad and in the western part of Central Cordoba. The economic and cultural unity of the peoples of the caliphate has been preserved and developed for centuries. Extensive Arab trade led to the mutual enrichment of the cultures of many peoples. Since Arabic was the dominant language in the caliphate (it was called "Latin of the East"), bourgeois historiography often referred to the cultural and scientific heritage of the Middle East as "Arab culture" and science. In Soviet historiography it is rightly called Arabic History.

The Arabs established many science and education centers, especially in Damascus (7th century), Baghdad (8th-9th centuries) and Córdoba (10th century). In the heyday of the Kordovsky Caliphate there were 10 universities, while in Western Europe there were only two - the universities of Salern and Paris. Some Arab schools have special postal issues. Thus, in 1960, the 1100th anniversary of Saracen University in Fez, Morocco; In 1975, a series of postage stamps were registered in Egypt. An envelope and stamps were issued in Al-Azhar, commemorating the 1000th anniversary of the university's founding, and the stamps were sealed with a special stamp. Along with philosophy, mathematics, geography, history, natural sciences, and philology, medicine was part of the general education of scholars in the Arab caliphate. Representatives of many caliphate or economically and culturally connected nations have been prominent figures in medicine: since the 4th century Syrians, Khwarezmian, Persians, Armenians, Azeris, Egyptians, Jews, Moroccans, partly Indians, and have been the founders of great medical schools and hospitals. Leading doctors lived and worked in Bukhara, Khwarezm, Samarkand, Damascus, Baghdad, Cairo and Cordoba. They have played an important role in the preservation and further development of the ancient medical heritage. Caliphate physicians had a significant impact on the development of Western European medicine. Eastern medieval medicine enriched Renaissance medical science and became one of its valuable resources. The period of the highest development of medicine of the Eastern peoples of the caliphate

period is the X-XI centuries. This was later called the Eastern Renaissance. Representatives of Arabic Medicine The main purpose of this study is to contribute to world civilization by giving information about the activities of scientists working in the field of Positive Science and Medicine in the Middle Ages.

Keywords: History, Positive Sciences, Muslims, Middle Ages, Development Process.

Orta Çağ Pozitif Bilimler ve Tıp Tarihinin Gelişim Sürecine Dair İncelemeler

Öz

Orta Çağ Batı dünyasında Avrupa'nın uzun bir süre ekonomik ve kültürel durgunluk içinde olduğu zaman, Arapça konuşan kültür önemli bir gelişme sağlamıştır. Birçok ulusun (Persler, Tacikler, Özbekler, Türkmenler, Suriyeliler, Mısırlılar, Araplar ve diğerleri) kültürünü içeren bilim, felsefe, edebiyat ve sanatın gelişimine büyük katkıda bulunmuştur. Doğudaki Orta Asya ve İran'dan Batı'daki Pirinese Yarımadası'na kadar ortaya çıkan muazzam Birleşik Arap gücü uzun sürmedi. VIII yüzyılın ikinci yarısında, iki hilafet kuruldu — önce Şam'da, daha sonra Bağdat'ta ve Cordoba' da merkezi olan Batı merkezli Doğu. Halifeliklerin bir parçası olan halkların ekonomik ve kültürel topluluğu korunmuş ve birkaç yüzyıl boyunca gelişmeye devam etmiştir. Arapların geniş ticareti, birçok ulusun kültürünün karşılıklı zenginleşmesine katkıda bulundu. Hilafetlerdeki ana dil Arapça olduğu için *"Doğu'nun Latincesi olarak adlandırıldı''*, Ortaçağ Doğu'nun burjuva tarih bilimindeki kültürel ve bilimsel mirası genellikle ''Arap'' kültürü ve bilimi olarak adlandırılır.

Avrupa'nın uzun bir ekonomik ve kültürel durgunluk içinde olduğu Orta Çağ boyunca, Arapça konuşan kültür gelişti. Birçok milletin (Farslar, Tacikler, Özbekler, Türkmenler, Suriyeliler, Mısırlılar, Araplar ve diğerleri) kültürünü birleştirerek bilim, felsefe, edebiyat ve sanatın gelişimine büyük katkı sağladı. Müslüman feodal bir devlet olan hilafetin 7. yüzyıldan itibaren kurulmaya başladı ve öncelikli olarak Arapların İslam bayrağı altında birleşmesiyle şartlandı. Orta Asya ve İran'dan doğuda İber Yarımadası'na uzanan büyük birleşik Arap devleti uzun sürmedi. VIII yüzyılın ikinci yarısında, önce Şam'da, ardından Bağdat'ta ve Orta Kurtuba' nın batı kesiminde iki halifelik- Doğu Hilafeti- kuruldu. Hilafet halklarının ekonomik ve kültürel birliği yüzyıllardır korunmakta ve geliştirilmektedir. Kapsamlı Arap ticareti, birçok halkın kültürünün karşılıklı olarak zenginleşmesine yol açmıştır. Hilafetlerde baskın dil Arapça olduğundan ("Doğu'nun Latincesi" olarak adlandırılıyordu), burjuva tarih bilimi genellikle Ortadoğu'nun kültürel ve bilimsel mirasına "Arap kültürü" ve bilimi olarak atıfta bulundu. Sovyet tarihçiliğinde buna haklı olarak Arapça Tarih denir.

Araplar, başta Şam (7. yy), Bağdat (8-9. yy) ve Córdoba (10. yy) başta olmak üzere birçok ilim ve eğitim merkezi kurmuşlardır. Hilafetin en parlak döneminde Kurtuba'da on üniversite vardı. Batı Avrupa'da ise sadece iki tane vardı: Salern ve Paris üniversiteleri. Bazı Arap okullarının özel posta sorunları vardır. Böylece 1960 yılında Fas'ın Fez kentindeki Saracen Üniversitesi'nin 1100. kuruluş yıldönümü; 1975'te Mısır'da bir dizi posta pulu kaydedildi. El-Ezher'de üniversitenin 1000. kuruluş yıldönümüne ithafen bir zarf ve pullar basıldı ve pullar özel bir pulla mühürlendi. Felsefe, matematik, coğrafya, tarih, doğa bilimleri ve filoloji ile birlikte tıp, Arap halifeliklerindeki bilginlerin genel eğitiminin bir parçasıydı. Birçok hilafet veya ekonomik ve kültürel olarak bağlantılı milletin temsilcileri tıpta önde gelen isimler olmuştur: 4. yüzyıldan beri Suriyeliler, Harezmliler, Persler, Ermeniler, Azeriler, Mısırlılar, Yahudiler, Faslılar, kısmen Hintliler ve büyük tıp okullarının ve hastanelerin kurucuları olmuştur. Buhara, Harezm, Semerkant, Şam, Bağdat, Kahire ve Kurtuba'da önde gelen doktorlar yaşadı ve çalıştı. Eski tıbbi mirasın korunmasında ve daha da geliştirilmesinde önemli bir rol oynamışlardır. Batı Avrupa tıbbının gelişmesinde hilafet hekimlerinin önemli bir etkisi oldu. Doğu Orta çağ tıbbı, Rönesans tıp bilimini zenginleştirdi ve değerli kaynaklarından biri haline geldi. Hilafet döneminin Doğu halklarının tıbbın en yüksek gelişme dönemi 10.-11. Yüzyıllar olduğu bilinmektedir. Bu dönem daha sonra Doğu'nun Rönesans dönemi olarak adlandırıldı. Arapça Tıbbın Temsilcileri Orta Çağ'da Pozitif İlim ve Tıp alanında çalışan bilim adamlarının faaliyetleri hakkında bilgi vererek dünya medeniyetine katkıda bulunmaktır. Bu çalışmanın nihai hedefi, Orta çağda İslam'ın ''Altın çağı'' olarak adlandırılan bir dönemde pozitif ilimlerin gelişim süreci hakkında bildi verdiğini, İslam bilim tarihinde fenni ilimlerin bu dönemde zirveye ulaşarak diğer medeniyetlere, özellikle Batı'ya ışık tutmasını ve zaman sürecinde onların bu ilimlerden faydalandığını anlatmaktır.

Bu çalışmanın başlıca amacı Orta çağda Pozitif bilimler ve tıp tarihi alanında çalışma yapan bilim adamlarının faaliyetleri hakkında bilgi vererek dünya medeniyetine katkılarını aktarmaktır.
Anahtar Kelimeler: Tarih, Pozitif Bilimler, Müslümanlar, Orta Çağ, Gelişim Süreci.

Introduction

1.Achilles Bandaging Patroclus.

Red-Figured Kylix 6th Century One of the founders of medicine in Ancient Greece was Asclepius - Asclepius in ancient Greek and Roman mythologies, the god of medicine. According to the classical version of the myth, Coronida, pregnant with Asclepius, cheated on Apollo with the mortal Ischius, for which she was killed. On the funeral pyre, Apollo took Asclepius out of the womb of Coronida and handed him over to be raised by the centaur Chiron, who taught the boy the art of healing, in which he achieved unprecedented success. Asclepius learned not only to treat a wide variety of diseases, but also to resurrect the dead. According to one version of the myth, he did this not out of good intentions, but for a fee. Such actions angered the Olympian gods, who considered them a violation of the laws of the world order. Zeus struck Asclepius with lightning, but then revived and deified. The cult of Asclepius became very popular in Ancient Hellas and forced out other "divine doctors".Treatment took place in temples, of which there were more than 320. In the temple, healing took place through incubation: the sick, who prayed during the day, lay down in the temple and fell asleep; God appeared in a dream and announced his will. There were several medical schools in Greece that competed with each other and, trying to attract more students, began to teach medicine to secular people. The schools that were in Cyrene, the city of Croton (now Croton) and Rhodes were especially famous. All of them had already fallen into decay when two new ones arose: in Knida and on the island of Kos. The most remarkable was the last one- Hippocrates came out of it. These two schools differed significantly in direction. On Kos, the disease was considered a general pathology and was treated accordingly, and attention was paid to the physique and other features of the patient. The Knidos school saw a local pathological process in the disease, studied its paroxysms and acted on the local disorder. There were many famous doctors in this school. Among them, Eirifon enjoyed special fame. The school on Kos was at first less known than the Knidos one, but, with the advent of Hippocrates, it was significantly ahead of it. Besides temples, other sources of medical knowledge were philosophical schools. They studied natural science, and therefore diseases. Philosophers covered medicine from a different angle than practitioners — it was they who developed its scientific side. They, moreover, through their conversations, disseminated medical knowledge among the educated public. The third source of medicine was gymnastics. The people in charge of it expanded the range of their activities and treated the fractures and dislocations that were often observed in the palestras. Ikk of Tarentum paid special attention to nutrition, and this branch of knowledge then took on a special development. Herodicus from Selymvria applied gymnastics to the treatment of chronic diseases, and the success of his methods forced many patients to seek help not in churches, but in gymnasiums. Already in 770-476 in China there was a book "Nei-Ching" on medicine. The works of Hippocrates and other Greek scholars date from later periods (446-377 BC). Contrary to popular belief, the medicine of ancient China was not represented solely by unsupported facts, based only on religion and myths. In the 5th century BC e. in China, surgical operations were performed under anesthesia and asepsis. Hygiene was developed in the upper

strata of society. To prevent infection with helminths, well-known procedures in modern society were carried out, for example, washing hands before eating. During the Tang Dynasty (618-907 AD), infectious diseases (such as leprosy) were known to Chinese physicians. The patient and all those who had contact with him were isolated from other people. The first smallpox vaccinations were carried out in China as far back as a thousand years BC. The inoculation of the contents of smallpox pustules to healthy people in order to protect them from the acute form of the disease then spread to other countries (India, Japan, Turkey, Byzantium, the countries of Asia Minor and Europe). However, variolation was not always successful - there is evidence of the onset of an acute form of the disease and even death. Traditional Chinese medicine was widespread in all segments of the population. In the era of Omar, a group of Iranian mathematicians arrived in Medina. At the suggestion of Ali, the Caliph asked them to teach some Sahibilers algebra for a fee paid from the treasury, and first the Prophet. Charisma records that Ali studied algebra.[1] Charisms, Muhammad b. Moses (d.232/847) Mathematician, astronomer and geographer, considered the founder of the science of algebra in the Islamic world. [2] He ived in Baghdad and served in the library of Beytu al-Hikma, where he was also one of its important members during my reign. [3] In Japan, medicine was not so original and more often Japanese healers used Chinese medicine or some of its parts. Tibetan medicine has its roots in India. It was from there that all medical knowledge came to Tibet. True, they came down to us somewhat modified. The medicine of Tibet also learned a lot from other ancient civilizations. Knowledge about some medicines of natural origin, methods of their processing, some types of therapeutic massage, and acupuncture were borrowed from Chinese sources. All this knowledge was presented in the main medical treatise of Tibet "Chzhud-shi". Tibetan medicine did not use surgical methods. It was believed that a separate organ could not get sick. The whole body is sick, because it is indivisible. Tibetan doctors began treatment by balancing the human nervous system.

2. Hippogrates – The Famous Ancient Greek Physician

The significance of Hippocrates lies in the fact that he managed to tie together all the disparate trends (temple medicine, its philosophical schools and medicine in gymnasiums), which is why he is sometimes called the "father of medicine." His writings have been the subject of special study. Explanations to them and their criticism constitute a special library. here were many epidemics until the Middle Ages. The "isolation" and "stigma" practices applied in the plague epidemic of the 14th century and later on leprosy patients brought the concept of "quarantine".[4]

According to the teachings of Hippocrates, according to the etiology, diseases are divided into external and internal. The first causes of origin include: Seasons, air temperature, water, terrain; to the second- individual, depending on nutrition and human activity. Depending on the seasons, certain diseases develop. This is where Hippocrates' doctrine of climate comes from. Age can be compared with the seasons- each age is characterized by a

[1] İbrahim Sarıçam, *İslam Medeniyeti Tarihi*, (Ankara: Türkiye Diyanet Vakfı, 2018), 211.
[2] Sarıçam, 211-212.
[3] Sarıçam, 212.
[4] Bynum W. *History of Medicine*. Translation: N. Gökçeoğlu, (Ankara: Kültür Library, Dost Publishing House, 2014), 144.

different state of warmth. Nutrition and movement can cause disorders of deficiency or excess, contributing to or hindering the consumption of unexpended forces of the body. The study of changes under the influence of diseases ancient medicine began with liquids, why the pathology of Hippocrates is called humoral. In his opinion, health depends on the correct mixing of fluids, or kraza. The disease comes from a disorder of the fluids. Connected with this is the doctrine of the so-called digestion (coction) of liquids: for example, with rhinitis, the liquid flowing from the nose is at first watery and caustic; as it recovers, it becomes yellow, viscous, thick, ceases to irritate. The ancients called this change in fluids the word "digestion" and believed that most diseases tend to digest juices. While the liquid is "raw", the disease is at its height; when the fluid has been digested and taken on a natural composition, the disease stops. To cure the disease, it is necessary to digest the juices. The removal of digested fluid was called a crisis. The latter occurs according to strictly defined laws, and therefore occurs on special critical days set for each disease, but somewhat fluctuating depending on various reasons. In a significantly modified form, these views are now used in the study of predicting the outcome of a disease. Prediction (forecast) for Hippocrates is the basis of all practical medicine. It complements what the patient did not want or could not tell. Turning to the present, the prediction explains the difference between health and disease and the dangers that await the patient; after that, the prediction shows what can be expected in the future. Treatment is also part of a system based everywhere on experience and observation. For the application of therapeutic agents, the appropriate time and condition of the disease are indicated. The signs of disease are developed to the utmost degree of perfection. It is advised to use all the senses in the study of the patient and objective signs of disorders are reported. Many of the techniques described by Hippocrates have only recently been used by modern medicine (for example, tapping and listening). Hippocrates has an exceptionally complete description of surgery. The operations of trepanation, removal of pus from the chest (Ukrainian) Russian, puncture of the abdomen and many others are well developed. Bleeding is the weak side of the Hippocratic school of surgery, due to the inability to stop them by tying the vessels. Therefore, amputations, excision of large tumors, in general, operations with a large loss of blood were not performed, and the corresponding patients were left to fend for themselves. Erasistratus is the founder of the medical school named after him. Painting by Jacques-Louis David "The Physician Erasistratus discovers the causes of Antioch's illness." (1774)

With the fall of ancient Greece, medical science fell into decay in it. Alexandria turned out to be quite a suitable place for sciences and arts. The Ptolemies allowed doctors to dissect corpses, and in order to remove from the anatomists the shameful name of executioners and criminals given to them by the mob, the kings themselves were engaged in autopsies. In Alexandria there was a museum in which samples of all the kingdoms of nature were collected. Well-known scientists lived here, receiving support from the state and freely engaged in science. Disputes took place here, at which scientific issues were discussed. Herophilus raised anatomy to a height unattainable before only because, while his predecessors opened up the corpses of animals, he studied human ones. He was the first to distinguish nerves from tendons and proved that the former conduct sensations. He also studied the cranial nerves, described the meninges (arachnoid, hard, soft), the fourth ventricle. Lymphatic vessels, liver, duodenum are described in the abdomen, genitourinary organs are examined. Erazistrat was not only an

anatomist, but also an experienced practitioner. He studied the convolutions and cavities of the brain, divided the nerves into sensory and motor, described the state of the lymphatic vessels during digestion, the spleen, heart and its valves. He tried to explain breathing by assuming the existence of a special gas that is introduced through the lungs into the body. In the liver, he assumed special bile ducts, which were discovered many centuries later, when they began to examine the liver under a microscope. During treatment, he suggested replacing bloodletting with other means. He prescribed warm baths, weak washings, massage, gymnastics and several medicines; he put the nutrition of the patient in the foreground. In surgery, Erazistrat held bold views for his time. Both famous representatives of the Alexandrian school belonged to the so-called dogmatic school. She, on the one hand, considered Hippocrates as her teacher, on the other hand, she tried to apply the then dominant philosophical teachings to medicine.[5]

3. Empirical School Edit

"Empirical School" redirects here. On this topic, you need to create a separate article. The followers of Herophilus and Erasistratus did not take advantage of the direction of the teachers. Their failures in the study and treatment of disease led to the emergence of the empirical school. The empiricists tried to derive the foundations for their teaching from direct observation. They believed that a conclusion should be drawn from a series of identical cases observed under identical conditions. At the same time, everything accidental should be excluded from observation and only constant, unchanging should be retained. That is why the attacks were divided into ordinary and random. Similar observations were kept in memory for comparison with the case to be investigated. Such a comparison was called a theorem, direct observation - an autopsy. Everyone has to observe by no means all the important cases, therefore one should resort to someone else's experience. To these sources of knowledge, later empiricists added epilogism, or the search for a connection between cause and effect. Analogy is the comparison of like with like. The empiricists deliberately rejected the scientific foundations of medicine, so they did not make any important discoveries. Their leaders - Owl Kossky (English) Russian, Serapion of Alexandria (English) Russian, Zeux of Tarentum (English) Russian, Menodotus of Nicomedia, Sextus Empiricus, Marcellus Empiricus and others opposed Hippocrates in their writings. One merit remains for the empiricists: following the trend of the century, they studied poisons and antidotes. The impetus for this kind of research came from the kings. Famous for their knowledge in this regard was Attalus III, but especially Mithridates Eupator.

A student of Asclepiades, Temison of Laodicea, was the founder of the school of methods most widespread among Roman physicians. Like the empiricists, the methods refused to know the hidden sides of phenomena. They set out to study that common thing in diseases that can be studied through external senses. They were looking for methods - whether there was a relaxation or narrowing of the parts. Narrowing is noticed - bloodletting, rubbing, sleeping pills should be prescribed. When weakened, the resolution of the disease was facilitated by more plentiful food and tonics. If this treatment did not help, they resorted to recorporation, or revival, which consisted in slowly changing habits. Temison was a very

[5] Bynum, 181.

talented doctor who described leprosy, rheumatism, and hydrophobia well. In his time, cold water treatment began to be used. In this way, the freedman Musa cured the emperor Augustus. Kharmis used a similar treatment. One of the best representatives of the methodical school was Aulus Cornelius Celsus, who, with his encyclopedic writings, contributed to the spread of medical knowledge. His descriptions of organs testify to his knowledge of anatomy. In treatment, he followed either Hippocrates or Temison. His surgical information is very extensive. His method of crushing bladder stones (lithotomy) was used for a long time in antiquity. They are given precise instructions about the trephine. In difficult childbirth, he suggested pulling out a living child by turning on its legs, which significantly narrowed the indications for embryotomy. He coined the term "cataract" and its removal by downward pressure or incision. The methodological school reached its highest degree of brilliance thanks to Soranus of Ephesus. He proposed many remedies for skin diseases, which were then very common. He was an opponent of carrying means, he did not recognize exclusively local diseases and argued that any local suffering responds to the whole organism. His adversary Moschion accurately described the signs of an impending miscarriage and gave very useful instructions on the education of newborns. The best interpreter of the methodical school was Caelius Aurelian. He very accurately described the recognition of diseases, so his writings during the Middle Ages were guiding in the treatment.

4. Dioscorides- Reformer of Ancient Medicine, "Father of Pharmacognosy

The study of poisons and antidotes became less active and there was a direction in medicine that was looking for improved treatment in new drugs. Many writings appeared in which new and old remedies were described, and they forgot to accurately determine the disease in which this medicine is useful - they only indicated that the remedy weakens one or another seizure. All such writings were processed and served as the basis for the work of Dioscorides, “the father of pharmacognosy”, “On Medicinal Substances” (lat. De materia medica). His work was considered a classic until the 17th century. He describes plants based on his own observations. In addition to plants, Dioscorides describes many other remedies. The wool fat he mentions has recently come into use under the name of lanolin. Another remarkable scientist was Pliny the Elder. In medical writings, he gives descriptions of medicines and indicates diseases in which these drugs are useful. Especially many remedies are given against skin diseases.[6]

5. School of Pneumatics Edit

"School of Pneumatics"[d] redirects here. On this topic, you need to create a separate article. Aretaeus of Cappadocia- an outstanding ancient Roman physician, best known as a talented observer and experimenter. The methodical school was replaced by the pneumatic school, which explained the disorders in the body by a discrepancy between mental properties. In addition to the spirit, the body is controlled, according to the teachings of pneumatics, by four elements (heat, dryness, cold, dampness). Heat and dryness cause hot illnesses, cold and dampness cause phlegmatic illnesses, cold and dryness cause melancholy. After death, everything dries up and becomes cold. Pneumatics developed the doctrine of the pulse,

[6] Ackerknecht EH. Rudolf Virchow: Doctor, Statesman, Anthropologist. (USA: University of Wisconsin Press, Madison, 1953), 78.

described many of its types, and on its basis made a prediction. The founder of this school was Athenaeus of Attalia (eng.) rus., who also developed a diet, described in detail the influence of air, housing and brought means to purify water. His disciple Agatin (English) Russian. evaded the opinions of his teacher and created an eclectic school. Of greater importance was the pupil of Agatin, Archigen (English) Russian, who lived in Rome at the time of Trajan. He described 18 types of pulse, gave signs of damage to the head, as well as many other diseases. He proposed many complex remedies, of which hiera was especially famous. Simultaneously with the previous ones, the famous scientist Areteus lived. After Hippocrates, this is the best observer of antiquity. Almost every disease he describes, he examined himself. Each complication is listed with an approximate frequency. Areteus well showed the influence of physique, atmosphere, climate on the disease. His description of the disease begins with an image of the structure of the corresponding organ. The treatment used by Areteus is simple and reasonable; simple means are preferred in small.

6. Medieval Medicine in Islamic Countries

With the collapse of the Roman Empire, Arabs and Germanic tribes began to play a key historical role in medicine. Ibn Sina- one of the most famous medieval doctors of the Islamic World. In the 7th century, enlightenment and science began to actively spread in Islamic countries, scientists of the Islamic world continue to develop the medical knowledge of ancient civilizations. Caliphs patronize sciences and scientists. Harun al-Rashid is setting up schools, hospitals and pharmacies in Baghdad. His son Al-Mamun founds the Academy in Baghdad, calls scientists from all countries to him. Schools are organized in many places: in Kufa, Basra, Bukhara, etc.[7]

In 873, under Ahmad ibn Tulun, the first large state hospital was introduced, designed exclusively for the poor. Upon admission to the hospital, clothes and money were deposited with the steward, and upon discharge from the hospital, the patient received one chicken and one bread as the last ration. The hospital also included a ward for the insane. The Muslim peoples during the golden age of Islam were in conditions that seemed to be especially conducive to the development of medicine, since Islam calls for the search for cures for diseases and extols those who heal people. Muslim medical scholars translated and studied the writings of ancient physicians. Ibn Zuhr (Avenzoar) is the first known doctor who performed anatomy and post-mortem autopsy.[8] The most famous of the Arab and Persian physicians: Aaron, Baktishva (several Nestorian doctors), Gonen, Ibn al-Wafid (English) Russian. (Abengefit), Ar-Razi, Ali ibn Sahl Rabban al-Tabari (Gali-Abbas), Ibn Sina (Avicenna), Albukasis, Ibn Rushd (Averroes), Abdul-Latif al-Baghdadi. During this period, the Caliphs paid great attention to medical science, as well as other sciences. Caliph Mansoor met with Iraqi doctors and trusted their advice. He appointed one of the famous doctors of India as his private doctor. Ibn Bukhtish (d. 213/828) at the time of Mu'tasim John b. Maseweich (d. 243/857) gained prominence. [9] Jabir b. Haiyan (d. 200/815), who became famous in chemical science during the time of the Abbasids. author of many books on chemistry, mines and rocks. Jabir scientifically

[7] Nahide Bozkurt, *Abbasiler*, (İstanbul: İslam Araştırmalar Merkezi, 2020), 214.
[8] Bozkurt, 215.
[9] Bozkurt, 215.

identified two basic principles of chemical science called calcination and reduction and developed methods. [10]

Famous in the Middle Ages, a Jewish doctor, rabbi, scientist, codifier of the laws of the Torah Moshe ben Maimon, in the Russian tradition Moses Maimonides, in the Jewish tradition the acronym Rambam (Rav Moshe ben Maimon), being at the same time the personal physician of Salah ad-Din, in addition to the well-known alakhic works within the framework of Judaism, philosophical and wrote dozens of works on medicine in Arabic, insisting on the prevention of diseases, on limiting excesses, on a careful selection of therapeutic agents, had a rational approach to medicine and believed that what can be cured by diet should be treated by diet and not seek the help of drugs. Rambam attached great importance to the influence of the physical state on the mental and spiritual, offering ways to treat anxiety and sadness. In his views he relied on Galen. Rambam's recommendations on disease prevention, nutrition, drinking regimen, proper sleep have been preserved within the Jewish religious tradition to our time. An outstanding surgeon of his time, Albucasis raised surgery to the rank of an independent science, his treatise "Tashrif" is the first illustrated work on surgery. He began to use antiseptics in the treatment of wounds and skin lesions, invented threads for surgical sutures and about 200 surgical instruments, which were subsequently used by surgeons in both the Muslim and Christian worlds. Al-Razi compiled instructions on the construction of hospitals and the choice of a place for them, wrote works on the importance of the specialization of doctors “One doctor cannot treat all diseases”, on medical care and self-help for the poor population “Medicine for those who do not have a doctor " and others. His "Treasure of Optics" in 7 books was translated into Latin, and his discoveries were the impetus for the creation of further magnifying instruments, in particular, a telescope and a microscope. Al-Haytham was the original commentator on Aristotle and Galen. His book "On the Influence of Music on Man and Animals" is interesting. At the end of the 11th century, the school providing medical education in Salerno (Italy) was followed by new universities established in different cities of Europe. 8.-15. Between the centuries there is Arab dominance in science. The important principles of the medical tradition in the Islamic world were inspired by the ancient Greek medical knowledge and developed very new views and methods. Avicenna and Averroes translated the medical books of Hippocrates, Galenos and Dioscurides from Arabic to Latin, adding their own experiences, and presented them to the Western world. These works have been used as textbooks in the institutions of the Western world that provide "Medical Education" for years and have been effective in laying the foundations of modern medicine. The dominance of the Hippocratic school and the principles of Galenos18. It lasted until the century.[11]

Ap-Razi Abu-Bakr Muhammad Ibn-Zakaria (Latinized Razes, 850-923) was an encyclopedic scientist, physician, and musician. He studied medicine in his native city of Rey (Persia), then led the hospital there. He continued his medical activities in Baghdad, where he founded a large hospital and a school attached to it. [12]In addition to medicine, he studied philosophy, astronomy, mathematics, chemistry, and physics. He wrote about 200 books. His

[10] Bozkurt, 216.

[11] Porter, R. The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present, (London: Harper-Collins, 1999), 78.

[12] Allen SH. *Finding the Walls of Troy*, (London: University of California Press, Berkeley-Los Angeles, 1999), 89.

largest medical work "The Comprehensive Book"[13] in 25 volumes includes a large historical overview of the development of medicine in the ancient world and the early Middle Ages. Another major work - "Medical book dedicated to Mansur" in 10 volumes served as a guide to the treatment of diseases. He also wrote the 30-volume "Receptacle of Medicine". In his books, Ar-Razi insisted on the need for a thorough clinical examination and observation of patients. Of great importance for the development of the doctrine of infectious patients was his work "On smallpox and measles", in which the author gave a classic description of these diseases, noting immunity to re-infection. He covered in detail the methods of caring for a sick child. This work shows that he used inoculation (variolation).[14] Ap-Razi was the first to describe a tool for extracting a foreign body from the larynx, one of the first to use cotton wool for dressings and threads from the intestines of a sheep for suturing wounds. They compiled instructions for the construction of hospitals and the choice of a place for their construction. He spoke about the need for specialization of doctors, about medical care for the poor. His views were based on the principles of Hippocratic medicine and the anatomical and physiological ideas of Galen. Ar-Razi's books served for a long time as textbooks in the medical faculties of medieval universities in Western Europe.[15] Farabi (Al-Farabi), Abu Nasr Muhammad ibn Tarkhan (875-950)-philosopher, encyclopedic scientist, one of the main representatives of Eastern Aristotelianism. Born in Otrar on the territory of the current Chimkent region of Kazakhstan.[16] For research that contributed to familiarization with the achievements of science and culture" (stamp, artistic marked envelope, special postmark, which stamps were extinguished on September 11-13 in Alma-Ata.[17]

7. Medicine in Medieval Western Europe Edit

Engraving depicting doctors and patients of the Salerno School of Medicine, 11th-12th century In medieval Western Europe, in comparison with antiquity, empirical science was in decline, theology and scholasticism had priority. Science was concentrated in universities. In universities in the territory of modern Germany, England and France, starting from the 9th century, medicine was taught, among other things. Monks and secular people were engaged in treatment. The most famous of the medical schools in Europe in the Middle Ages was Salerno. The compositions of this school were accepted as exemplary in other schools. Especially famous was the hygienic poem “Lat. Regimen Sanitatis. Doctors of spiritual and secular rank, as well as women, belonged to the Salerno school. They ran hospitals, accompanied armies on campaigns, and served with kings and princes. Only in the 13th century did a few representatives of medicine notice a turn and a desire to study nature through observations and experiments. These are Arnold of Villanova (“Salerno Code of Health”) and R. Bacon. In the 15th century, the development of anatomy begins on the basis of autopsies and M. de Luzzi (English) Russian. (1275-1326) publishes an essay containing accurate images of organs. Until the 15th century, the Arabs dominated European medicine, so that even the writings of Galen were distributed in

[13] Kitab al-Zavi.

[14] Pormann P, Savage-Smith E. Medieval Islamic Medicine, (London: Edinburhg University Press, Edinburgh, 2007), 67.

[15] Harl KW. Great Ancient Civilizations of Asia Minor. The Great Courses No.363, Tulane University, Chantilly, VA, 2001, 34-35.

[16] Lawrence IC, Neve M, Nutton V, Porter R, Wear A. The Western Medical Tradition (800-1800). Cambridge University Press, Cambridge, 1995, 11.

[17] Allen SH. Finding the Walls of Troy. (London: University of California Press, Berkeley-Los Angeles-London, 1999), 45.

Europe in translation from Arabic. In anatomy and physiology, this period left a significant mark. One of the most important acquisitions of physiology was the discovery of blood circulation by W. Harvey. He presented his theory in lectures as early as 1613, but published a book on the subject in 1628. Only after 25 years of controversy did Harvey's doctrine finally triumph. The phenomena of respiration were studied in detail by J. A. Borelli and A. von Haller and, in addition, they elucidated the role of the lungs. Lymphatic vessels were described by G. Azelli, W. Rudbeck, P. Mascagni. They also proved or established the connection between the lymphatic system and the circulatory system.[18] To clarify digestion and nutrition, J. B. Van Helmont made many experiments, and N. Stensen and T. Warton presented anatomical data. A. Van Leeuwenhoek- the founder of scientific microscopy.

Histology was formed in the 17th century. M. Malpighi, using a microscope, studies the development of a chicken, blood circulation in the capillaries, the structure of the tongue, glands, liver, kidneys, and skin. F. Ruysch, a close acquaintance of Peter I, was known for the technology of filling (injecting) vessels, which made it possible to see vessels where their localization was not previously expected. A. van Leeuwenhoek over the course of 50 years found a lot of new facts in the study of all tissues and parts of the human body: he discovered erythrocytes, lens fibers, flakes of the epidermis of the skin, sketched spermatozoa, muscle fibers. Many autopsies have provided rich material for pathological anatomy. For the first time, such observations were collected by C. Bonnet, but the real creator of pathological anatomy as a science was J. B. Morgagni- " the father of pathological anatomy." Y. B. Helmont- the most prominent representative of iatrochemistry, a branch of chemical science that sought to put chemistry at the service of medicine.

Medicine during this period experienced profound changes. Opposite concepts were often created. Mysticism coexisted closely with the scientific, empirical worldview. For example, one of its representatives, J. B. van Helmont, in some respects close to Paracelsus, but was higher than the latter in depth of thought and erudition. His system was a mixture of mysticism, vitalism, chemism.

Result

According to his teachings, special vital principles, archaea, control the body through enzymes; each part of the body has its own archaea, and these small archaea depend on the main one; above the archaean is the sensuous soul; small archaea act through special weightless fluids- blas, feeling, moving and changing. While the archaea is in its natural state, a part of the body or the whole organism is healthy, but if the archaea is frightened, disease is detected. To cure the disease, according to Y. B. Helmont, one should calm the archaea, strengthen it by prescribing various drugs: mercury, antimony, opium, wine; carry-on are given with caution; bloodletting is not used, as they weaken the patient. F. Silvius, an anatomist and chemist, was also a representative of the school of iatrochemists. He accepts the teachings of J. B. Helmont about archaea and enzymes, but changes it somewhat in order to make it more understandable: the functions are caused by chemicals- alkalis and acids, although they are controlled by spirits. The alkaline or acidic properties of fluids are the causes of disorders that may develop in the

[18] *Journal of History and Future,* (August 2017), 67-68.

dense parts, fluids, spirits, or soul. Medicines by F. Silvius were prescribed to change the acidic or alkaline characteristics of liquids. This teaching quickly spread throughout Europe, especially in Great Britain and Germany. A somewhat different form was given to iatrochemistry by T. Willis (English) Russian, known by the eponym "Circle of Willis". According to his teaching, the body consists of spirits, water, sulfur, salt and earth; spirits serve as sources of movement and life; life is caused and sustained by fermentation, all the functions of this fermentation and in all organs there are special enzymes. Diseases, according to T. Willis, occur with improper fermentation; disorders are found mainly in spirits and in the blood, into which harmful “wanderers” enter from the outside or from the tissues; it is necessary to purify the body and spirits, reduce the "volatile properties" of blood, increase the sulfur content in the latter; bloodletting is useful because it moderates the wrong fermentation.

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