BEFORE DESCRIBING THE HISTORY OF MEDICINE IN AZERBAIJAN, IT MIGHT BE WORTH DEFINING THE HISTORICAL AND GEOGRAPHICAL BOUNDARIES OF THE REGION BEING DESCRIBED.

There is the Republic of Azerbaijan, which occupies the northern part of the historical region of Azerbaijan, as well as the Iranian and Southern Azerbaijan, which includes Iranian o斯塔ns (provinces) of Eastern Azerbaijan, Western Azerbaijan, Ardebil and Zanjan, and the o斯塔ns of Gilan, Qazvin, Hamedan and Merkezi. Several districts of the modern Republic of Armenia were also part of historical Azerbaijan in the past. The northern boundary of the historical and geographical region of Azerbaijan is the city of Derbent in Dagestan, in the south it is the town of Hamadan in Iran, in the east it is the Caspian Sea, while the western boundary is formed by the cities of Igdir and Kars in Turkey.

SUMER LEGACY. Medicine in Azerbaijan has an ancient history dating back millennia [1, 2]. This is evidenced by numerous historical and archaeological data. Among the findings discovered on the territory of Azerbaijan is a human skull with traces of trepanation dating back to the 6-5th millen-
Back in the 4th-3rd millennia BC, the inhabitants of ancient Azerbaijan established close contacts with ancient Sumer and Akkad. A powerful Gutian tribal alliance emerged during that period and established its dominion over all of Mesopotamia for a hundred years [21]. There was active cultural exchange between the tribes of ancient Azerbaijan and Mesopotamians over the hundred years. During this period, the Gutian aristocracy was introduced to Sumerian and Akkadian medical texts, while residents of Mesopotamia imported medicinal plants from alpine meadows of Azerbaijan.

Physicians of those days widely used pine and fir needles for poultices and compresses. It was believed that the compresses absorb the pus and heal the wounds. Also used in medicine were the tree-like aloe, pomegranate fruits and black henbane. A liquor of the skin, flowers and root bark of the pomegranate was known as a good remedy for diarrhea. In fact, pomegranate skin is still used in Azerbaijan with the same purpose. Extensive use of saffron in Azerbaijan's folk medicine also dates back to the medicine of ancient Sumer and Babylon. In the Middle Ages, saffron was used as a tonic improving the appetite [15].

The inhabitants of ancient Azerbaijan also imported sesame oil from Sumer. In fact, the modern scientific name of this plant, Sesamum, is derived from Sumerian shem-shem or sem-sem. Sesame was used as a laxative and styptic. Also imported were the fruits of date palms – their stones were used against worms. Vegetables of the onions family (garlic, onion and leek) were used in making ointments and compresses against infectious diseases of skin and soft tissue [16].

ZOROASTRIAN MEDICINE. Information about medicines and medical science in primordial Azerbaijan is contained in an ancient monument of literature of the peoples of Azerbaijan and Iran, the holy book of Zoroastrians Avesta (1st millennium BC). While assessing the role of Avesta in our culture, it must be remembered that Azerbaijan was one of the centers of Zoroastrian religion. In fact, the main fire worshipping temple, Ateghasp, a "Vatican" for the followers of Zoroaster around the world, was located in the town of Gazaka (Shiz) in Southern Azerbaijan. Almost all ancient and medieval sources describe Azerbaijan as the birthplace of Prophet Zarathustra [24].

The Avesta suggests that back in the 1st millennium BC ancient Azerbaijanis already had some knowledge of anatomy. The spine was considered the "pillar and source of life" where sperm was produced. Paramount
importance was attached to the bone marrow, which was considered the seat of life. Medicine in Avesta is defined as the art of keeping the body in good health. The main methods of treatment were psychotherapy, herbal medicines and surgery. The Avesta says, “Doctors have three weapons: the word, herbs and a knife.” The doctor treating people with the word was considered the best [5].

According to the Avesta, the first physician on Earth was Trita who invented first antidotes and drugs and developed basic methods of treatment, including surgery. According to a legend, omniscient God Ahura Mazda (Ohrmuzd) sent him from heaven 10,000 medicinal plants that used to grow around the tree of eternal life. Trita was also considered one of the first votaries of Haoma (ritual drink). Since Haoma was perceived as a source of life and health, its first votary was considered the first physician.

It was believed that the divine plant of Haoma (it is still not known for sure what particular herb was in question) grows only in Azerbaijan. Ninth century Central Asian scholar Abu Rayhan al-Biruni wrote, “Mags believe that this plant does not have a stalk. It grows in Azerbaijan in places no-one can access” [4]. “Mags” were a hereditary caste of Zoroastrian priests from the Median tribe of Mag who were also engaged in treatment. The word “magician” entered European languages from the Median language.

PREVENTION OF DISEASE. At a time when mankind knew nothing about germs, the ancestors of Azerbaijanis had a very basic idea of the invisible causal agents. It was believed that the small disease-causing particles are created and distributed by the god of evil Angra Mainyu (Ahriman) who created 99,999 illnesses. Therefore, everyone was obliged to fight disease, sanitation and other evils. Zoroastrians attached great importance to personal hygiene. In the 4th century BC, pollution of water sources, wells, rivers and soil was considered a felony punishable by death in Atropathena (Southern Azerbaijan). Government officials closely monitored the state of the environment. To improve the microclimate and fight against “unhealthy air”, incenses such as myrrh and frankincense were burned and aromatic compounds of roses, violets and other plants sprinkled in rooms [3].

Any corpse was considered unclean and it was forbidden to touch it. Dead bodies were isolated in special burial structures called Towers of Silence, where only priests wearing special gloves and masks could enter. This limited the spread of pathogens and substantially reduced the scale of epidemic [6].

SYNTHESIS OF EASTERN AND GREEK MEDICINE. Medicine of ancient Azerbaijan affected the development of science in ancient Greece. The teaching of Hippocrates (4th century BC) that the world consists of four elements (fire, air, land and water) was borrowed from ancient Azerbaijanis and Iranians [7, 8, 9, 13, 22]. Similarly, the Greeks borrowed from the peoples of the East the idea that the human body consists of four elements: mucus, bile, black bile and blood. Later, this doctrine became known as Galen’s theory of humorism. Well-known German Orientalist Gustave E. von Grunebaum pointed to the role of Zoroastrianism in the development of ancient Greek civilization, saying that Eastern wisdom perceived by the Greeks and Byzantines “was based on universal human accord and was first proclaimed by Zoroaster to the Medians, Persians and other peoples of..."
Asia. It affirms the supremacy of the intellect and the development of sciences”[22].

Ancient Greeks also borrowed many medicines from the ancestors of Azerbaijanis. In the Hellenistic period, many Greek doctors worked on the territory of the Media (ancient Azerbaijan). These included Erasistrat (4th century BC), a Greek physician from the Egyptian city of Alexandria who frequently visited Ecbatana, the capital of Great Media, to study Eastern medicine. It was at Alexandria Academy that ancient Greek medicine was enriched with elements borrowed from the medical practices of the East [3].

ANCIENT TURKIC MEDICINE. The ancestors of Azerbaijanis, the Oguz Turks, used many wild plants for medicinal purposes. In Turkic drugs were called “ota” (from the word “ot”, i.e. herb). Traditional healers, who were considered custodians of medical knowledge and tradition, were called “Otachi”, i.e. herbalists. Turkic epic “The Book of Dada Gorgud” describes a scene when a wounded soldier was treated with herbs. “A mountain flower and mother’s milk will heal your wound,” Gorgud said. “As soon as he said these words, 40 slender maidens ran towards the mountain and plucked flowers... The flowers were mixed with milk and applied to the young man’s wound ...”[12].

Although the epic was first recorded in the Middle Ages, it dwells upon pre-Islamic times and the pagan past of the Azerbaijani people. Azerbaijani Turks revered and deified plants and commonly worshiped the goddess of water, grass and trees Oleng, who was considered the wife of sky god Tengri or a goddess equal to him. Oleng was believed to be the patroness of doctors, mothers and young children. In early spring, Turks staged lavish celebrations to honor the goddess, during which they burnt wormwood and other herbs. Ever since ancient times Turks believed that the soul of a child was born in a plant or flower, and only then it entered the mother’s womb. This is how the main character of epic legends, shaman and healer Gorgud, describes his birth in one of the myths: “I came out of the flower, got into my mother’s womb and was born from a gray-eyed div (a supernatural being from fairytales)”[18].

MIDDLE AGES – GOLDEN AGE OF AZERBAIJANI MEDICINE. Medical science in Azerbaijan experienced its heyday in the Islamic period, i.e. after the 8th century. Numerous medical manuscripts created in Azerbaijan in this period have survived to the present day. The Institute of Manuscripts of the Azerbaijan National Academy of Sciences (ANAS) is a true treasury where centuries-old cultural heritage of our people has been carefully preserved. The Institute has one of the world’s richest collections of medieval manuscripts. About 400 ancient tracts pertaining to the medical field are stored there in Azeri, Arabic, Farsi and other languages. All these invaluable manuscripts were re-written in hand by medieval calligraphers between the 9th and 13th centuries [3].

IBN SINA AND AZERBAIJAN. Some of the most valuable medical manuscripts of our institute include the “Canon of Medicine” by Ibn Sina. Written in 1030, it is rightfully considered to be the encyclopedia of medical knowledge and the most famous book in the history of medicine. Ibn Sina has visited Azerbaijan several times and written most of this fundamental research in the city of Hamadan located near the borders of Southern (Iranian) Azerbaijan and populated mostly by Azerbaijani Turks. Long before our era Hamadan (Hagmatana in Median and Ecbatana in ancient Greek) was the capital of Great Media, a state that played a huge role in the history of Iran and Azerbaijan. Ibn Sina conducted his research in different parts of Azerbaijan. In “Canon”, he notes that he was sent by the ruler of Hamadan to the town of Saburhast in Southern Azerbaijan to check the quality of water there [11].

Picture of a pharmacist collecting fruit from the Balm Tree. Miniature from the manuscript of “Iktiyarati-Bad’i” by Ali Ibn Huseyn Ansari (Zeynalabdin Attar). Collection of the Institute of Manuscripts of ANAS.
The manuscript of “Canon” stored in Baku was re-written in 1143, slightly over 100 years after the book was written. It is one of the oldest extant manuscript of Avicenna, therefore it is considered the most accurate and reliable [3].

MEDICAL ENCYCLOPEDIA OF SHIRVAN. Shirvan was one of Azerbaijan’s northern provinces the major cities which were Shamakhi, Baku and Derbent. In the 18th century, Hasan ibn Riza Shirvani released an encyclopedia on pharmacology called Siraj at-Tibb (Light of Medicine). The book contains recipes of hundreds of potions, powders and pills used for various diseases [19]. The medieval manuscript called Tibbname (Medical Book), also written in Shirvan, is a truly priceless reservoir of knowledge on Azerbaijani traditional medicine. In 1711 or 1712, the book was re-written in hand by Muhammad Yusif Shirvani, who was a physician for well-known Shirvan magnate Lutfali bey. The concise medical encyclopedia provides information on the treatment of virtually all diseases known at the time. The book is written in a simple and understandable Turkic (Azerbaijani) language. Here are several recipes from this interesting manuscript: “To eat fresh leaves of balm, inhale their fragrance or drink a decoction is very good for tachycardia ... If you regularly eat leaves of jasmine shredded with sugar, this will invigorate your heart... Adding saffron to your food strengthens the heart, aids digestion, removes the veil from the eyes and improves vision. But don’t abuse it either... If your joints are sore, you should boil some turnip and rub it into the sore spot. If you chew several leaves of blackberry, it will remove all sores in the mouth...” [20].

MEDICINE IN SOUTHERN AZERBAIJAN. Other famous medieval doctors include the outstanding scholar, a native of the town of Hoi in Southern (Iranian) Azerbaijan, Yusif ibn Ismail Hoyi, also known under the pseudonym of Ibn Kabir. In 1311, he wrote a book called “Jam al-Baghdadi” (The Baghdad Collection). The book was considered to be the best source of knowledge on pharmacology and was known throughout the Muslim world from Morocco to India. Other renowned physicians of Southern Azerbaijan were Muhammad ibn Namvar Tabrizi (12th century), Mahmud ibn Ilyas (14th), Murtuza Gulu Shamlu (17th), Abulhasan Maragayi (18th), etc. Murtuza Gulu Shamlu wrote a book called “Hirqa” (Sufi rags), which describes ways of treating sexual diseases. Murtuza Gulu himself came from a noble Turkic family and was not only a scientist but also a statesman. In 1678, he was the ruler of Ardabil in Southern Azerbaijan [3].

Abulhasan Maragayi, born in Maraga in Southern Azerbaijan, was a talented physician of the late 18th century. This extant fundamental research “Mualijati-munfarid” dwells upon the treatment of almost all diseases known at the time and describes hundreds of medicinal plants [14].

DOCTOR FROM ERIVAN. Another famous 18th century Azerbaijani physician was Haji Suleyman Qajar Iravani, a native of Erivan (Yerevan at present). At the time, Erivan became the capital of the Erivan Khanate. The city, populated mostly by Azerbaijani Turks at the time, produced a number of scientists and artists, among them Haji Suleyman Qajar Iravani, author of a medical research called “Favaid al-Hikmat” (Benefits of Wisdom). Haji Suleyman belonged to an ancient Turkic family of Qajar, whose representatives occupied the Iranian throne and ruled many Azerbaijani khanates between the late 18th and early 20th centuries. His numerous manuscripts are stored not only in Baku but also in Iran and Egypt [10].

KARABAKH HEALERS. Azerbaijan’s most prominent 16th century doctor was Yousif Karabagi, who was referred to by his contemporaries as the “Great Teacher”. Yousif Karabagi was born in Karabakh, but conducted most of his scientific research in Central Asia where he was a teacher at a Samarkand medrese. Yousif Karabagi has written many medical tracts, as well as the “Explanation and interpretation of Ibn Sina’s Canon of Medicine”[3].

By the early 19th century, the capital of the Karabakh khanate, the city of Shusha, became one of Azerbaijan’s major cultural centers. A well-known doctor from Shusha, Akhund Mirza Sadig Latif oglu Latifov (died 1901), studied medicine from renowned healer Abulhasan Hekimbashi in Tabriz (Southern Azerbaijan). After returning to Shusha, Mirza Sadig became one of the best-known doc-
tors in the whole of Azerbaijan [17]. Well-known Azerbaijani doctor and scientist Mammadgulu Karabagi Gai-bov (1818-1879) also came from Shusha, the capital of the Karabakh khanate. Mirza Mammadgulu Karabagi was the personal physician of the Karabakh ruler, poetess Khurshud Banu Natavan. He had a collection of over 150 books of medieval manuscripts on medicine [17].

Ancient Eastern medicine was widely practiced in Azerbaijan up until the establishment of Soviet rule. Despite the fact that elements of western (European) medicine began to enter Azerbaijan in the early 19th century, the vast majority of people continued to use the services of local doctors.

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