



THE AZERBAIJAN ASSOCIATION OF
MEDICAL HISTORIANS (AAMH)

AZERBAIJAN

MEDIEVAL MANUSCRIPTS
HISTORY OF MEDICINE
MEDICINAL PLANTS

by FARID ALAKBARLI



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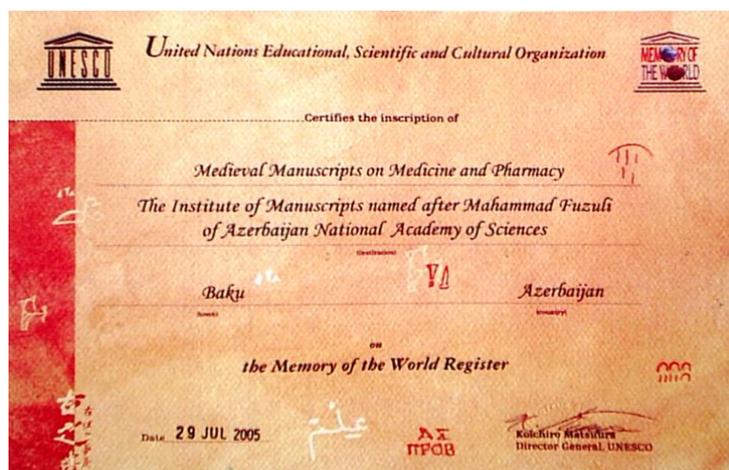
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INTRODUCTION

In 2005, several unique medieval medical manuscripts from Azerbaijan have been included in the "Memory of the World Register" of UNESCO. Despite this achievement, there is a huge deficiency of information concerning the history of medicine in our country. Until now, there has not been any book issued in English which is devoted to the medieval medical manuscripts of Azerbaijan. The present edition is the

first attempt to create a general work about this topic.

The Institute of Manuscripts of the Azerbaijan National Academy of Sciences has a collection of 390 early medical documents, which include 363 manuscripts dating from the 9th century. Most are written in Arabic - the literary script of the day. Of these, 70 are in the Arabic language, 71 in Turkic languages (Azeri, Ottoman Turkish, Tatar, Kumyk, Uzbek), and the remainder in Persian.



UNESCO certificate documenting the acceptance of medieval manuscripts of Azerbaijan into the Memory of the World Register. (July 29, 2005).



UNESCO Director-General Koichiro Matsuura and Mrs Mehriban Aliyeva, UNESCO Goodwill Ambassador in Azerbaijan, during the nomination ceremony of Mrs Mehriban Aliyeva on 9 September 2004 at UNESCO Headquarters.

The Manuscript Institute is fortunate to have some unique treasures in their collection. For example, we have one of the oldest copies of "Canon of Medicine" (1030) by Ibn Sina, who was known in the West as Avicenna (980-1037). The manuscript was copied in 1143 about a hun-

dred years after the physician's death. Avicenna, born in Bukhara (Uzbekistan), went on to do much of his medical observation in Azerbaijan and Iran. "Canon", an encyclopedic work in Arabic, is considered to be the single, most famous book in medical history - both in the East and in the West.

Each manuscript is unique. Usually, palace rulers commissioned such manuscripts, and a few copies were issued by hand. Therefore, manuscripts of many medieval works are very rare now. Those in the Azeri Turkic language tend to be encyclopedic, but at the same time, concrete and brief. They also tend to be more practical than theoretical and are drawn from a variety of sources including Indian, Chinese, Arabic and Greek schools of medicine.

Certainly one separate book is not capable of capturing the entire range of questions related to the theory and practice of medicine in ancient and medieval Azerbaijan. The goal of this work is different. I have tried to provide readers with basic and general information about the history of healing practices in Azerbaijan. This book is written in

popular style and intended not only for experts in the field of history of medicine, but for a wide range of readers.

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CHAPTER 1

HISTORY OF MEDICINE IN AZERBAIJAN

§ 1. HISTORICAL SURWAY



Azerbaijan is a country at the crossroads of numerous cultures, religions and civilizations. Therefore, ancient Azerbaijani medicine was influenced by various healing systems, such as Turkic, Iranian, Semitic and Greek medicine.

Ancient inhabitants of Azerbaijan had certain knowledge in the field of medicine. Archeological excavations at the Chalaghan-Tepe

site in Azerbaijan have revealed a human skull with traces of trepanning, which dates back to the 4th millennium BC. Similar skulls were found also in Ukraine and some other countries. The surgical operation was performed with a stone knife. This fact proves that early doctors from Azerbaijan attempted difficult surgical operations.



A human skull with traces of trepanning (Bronze Age)



The GUTI King from Azerbaijan (3rd millennium BC) Sumerian work (left). Saffron, a favorite medicinal plant of the Sumerians, is used in the traditional medicine of Azerbaijan (center).

This Sumerian tablet from the GUTI Era (more than 4000 years old) contains the world's oldest-known medical handbook (right).

During the 4th-1st millennia BC, healing practices in ancient Azerbaijani tribes of GUTI, Lullu (Lullubi) and Mannai were influenced by Sumerian, Acadian, Babylonian and Assyrian medicine. This process became even more intensive in 2200 BC, when the warlike GUTI tribe from Western Azerbaijan, conquered Mesopotamia and ruled it during a century.[39] As a result, Gutis became familiar with Acadian and Sumerian medicine.

Thousands of cuneiform

medical texts were collected in temples and palaces in ancient Mesopotamia. [28] Who were ancient Mesopotamians? Sumerians spoke a specific language, which slightly resembles the Caucasian and Ural-Altai languages, including modern Azeri. [19] It is an agglutinative language; in other words, morphemes (word-units) are added (usually as suffixes) to modify the meaning of words. The GUTI-Lullubi languages were very specific (non-Iranian and non-Semitic), too. [24]



King of Mannai, Image on an ancient bowl. Eastern Azerbaijan (Iran), 8th century BC.

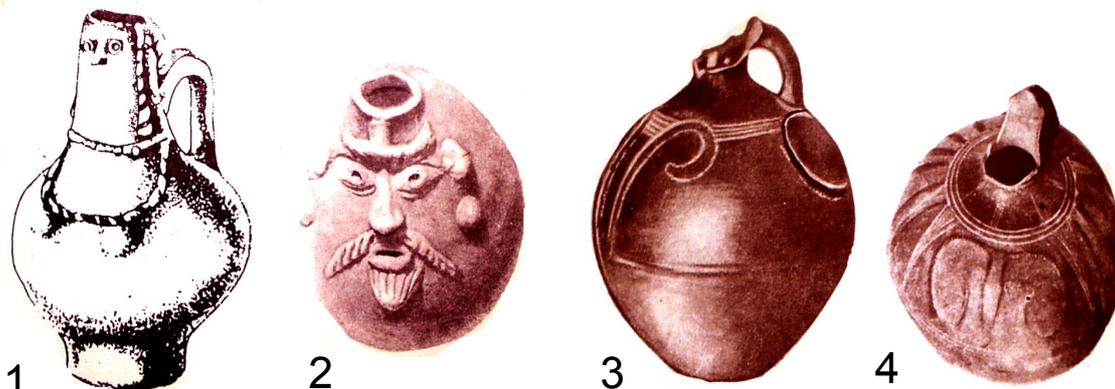
The Guti tribes from Azerbaijan widely used such medical and aromatic herbs which the Sumerians and Acadians had used such as lavender, laden, myrrh, sesame, dates, saffron, onion, garlic. Some massage and medical oils were imported by the Gutis from ancient Egypt, Syria and Pa-

lestine.

Later, Gutis and Lullubis created a number of little kingdoms in Eastern and Western Azerbaijan including Mannai, Andia, Uishdish, Gilzan, Allabria. [9, 22] Medicine in Mannai (9th-6th centuries BC) had common features with Assyrian medicine. According to Assyrian sources, fruits, cereals and medicinal herbs were sent to Nineveh from the mountains of Azerbaijan. Therefore, some Assyrian medicines were created on the basis of herbs, wine and oils, which were imported from Mannai and other small states of present-day Eastern Azerbaijan (Iran).



Mannai Silver Beaker (center) for taking drinks and medicines. An eagle's head (left) and bracelet made of gold were used in magic and magical therapy (7th century BC). Found in Hasanlu and Ziviyeh, Eastern Azerbaijan (Iran).



1, 2. Ceramic jugs with images of God and Goddess for storage of ritual drinks and liquid medicines (5th c. BC). Found in Khinisli and Karatepe archeological sites, Azerbaijan Republic.
 3, 4. It was believed that pictures of ram horn on vessels protect people from diseases (4th c. BC). Found in Mingachevir, Azerbaijan Republic.

Assyrian medicine had a great impact on the healing practices in this region. However, in the mountainous areas, Guti and Lullubey used their own folk treatment methods applying herbs, milk products and spices soaked in wine. Herbal wines were used against indigestion, diarrhea, weakness and other diseases.

During the 1st millennium BC, a number of Iranian tribes from Central Asia moved to Azerbaijan, settled here and gradually mixed with local population. [29] They introduced Arian traditions of healing. As a result, medicine in Azerbaijan was enri-

ched by new elements. Now, it was based not only on the Lullubi-Guti and Mesopotamian medical traditions, but also on Iranian healing practices. This syncretism in medicine dominated in the Median (Mede, Mada, Madai) state, which existed in Eastern Azerbaijan and Central Iran in the 7th-6th century BC.

During rule of the king Kiaksar, Medes created the Median Empire which included the entire Iran and Babylonia and bordered with Asia Minor in the West and Afghanistan in the East. It was the greatest state of that time. [20]

Therefore, Media and Medes are mentioned in the Bible. In this period, medical theory was based on the Zoroastrian conception of four holy elements (fire, water, earth and air).

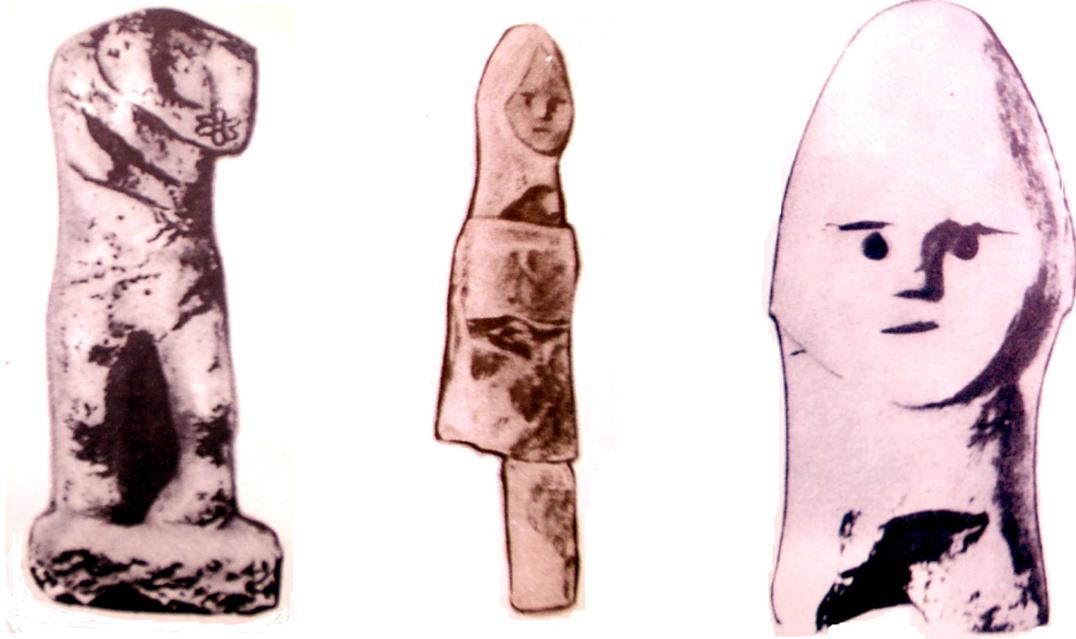
Thus, the teaching about the four Holy elements originated by the Zoroastrians deeply influenced the Greek philosophy. [25, 41]

In the period of 6th-5th centuries BC, these scholarly doctrines were adopted and developed by such great Greek scholars as Empedocles, Herac-

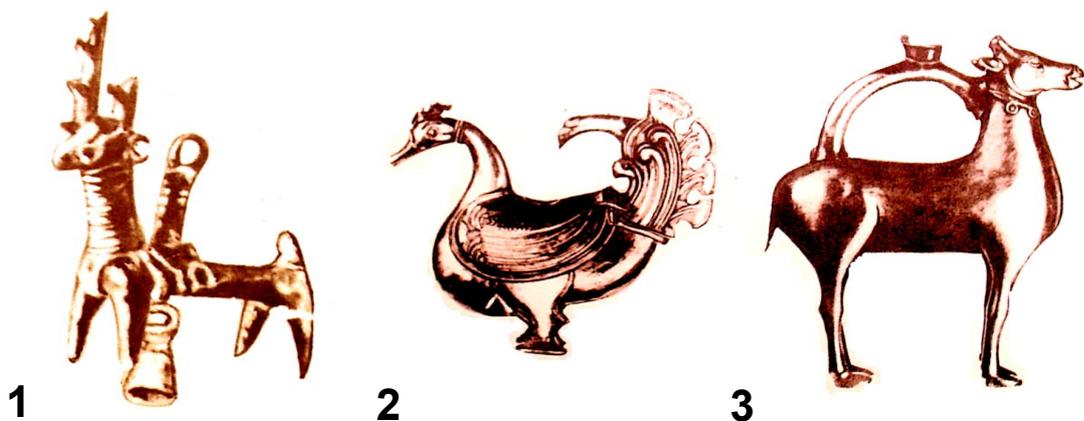
lites and Hippocrates. [16, 17, 18]

According to Mary Boyce: "Zoroastrianism is the oldest of the revealed world-religions, and it has probably had more influence on mankind, directly and indirectly, than any other single faith." [13]

Zoroastrianism was so influential in Azerbaijan that almost all medieval Arabian and Persian historians including Yakut al-Hamavi (1179-1229) and others considered Azerbaijan as the native land of Zoroaster. [42]



These statues of Goddesses of Fertility (1st c. BC - 2nd c. AD) were found in Khinisli and Garibli archeological sites (Azerbaijan Republic). It was believed that they are able to heal infertility and reproductive disorders.



1. This Bronze Deer (1st century BC) was used in magical therapy as an amulet against malicious spirits (found in Mingachevir, Azerbaijan Republic).
 2, 3. Zoroastrian bronze incense burners for dezinfection of houses (4th-6th centuries AD). Caucasian Albania Kingdom (Northern Azerbaijan).

Median priests recommended cleanliness and ritual hygiene which played a great role in the prevention of diseases.

In the 6th century, Media was conquered by Persian Achaemenids but remained an important center of religion, science and medicine of the Achaemenid Empire. During this period, there were professional doctors in Azerbaijan. According to legends the first physician in the world was named Tritha. The

main treatment methods included surgery, medicinal herbs and magic ("word, herbs and knife" in Avesta). Payment often was made by natural products, not by money. Wealthy patients were obliged to pay more than poor people.

Greek medicine became famous during the Age of Hellenism. After the collapse of the Achaemenid Empire in 4th century BC, the territory of the present day Azerbaijan gained its sovereignty under the

name Adarbadegan or Adurbadegan (early version of the name "Azerbaijan"). The Greek name was *Atropatena*. [34] It was a Hellenistic state ruled by the local Zoroastrian dynasty of Atropatids. During this period, development of medicine in Azerbaijan was characterized by two trends. On the one hand, Greek physicians like Erasistrates repeatedly visited Media to collect medical information, and books by Hippocrates and Galen were wide-spread in this region. On the other hand, Atropatids and local Zoroastrian priests tried to limit dissemination of Greek medicine and culture in Azerbaijan.

During the rule of Persian Sasanids (2nd-6th centuries AD), the King's Temple of Zoroastrians (Azergushnasp Temple) was established in Shiz (Gazaka, Ganjak) city in present day Eastern Azerbaijan. Zoro-

astrians believed that physical health was related to spiritual and religious purity. "Good thought, good word and good deed!" is an expression from the Avesta, the ancient religious book of Zoroastrians [8].

Ancient Azerbaijanis were concerned not only with the health of human beings, but also with the "health" of Nature (air, water, soil, fire). Pollution of environment was strongly prohibited.



Glass bottles for medicines (1st century AD) found in Mingachevir (left) and Khinisli (right) archeological sites, Azerbaijan Republic.

In the north of Azerbaijan (Caucasian Albania or Arran) the ancient pagan cults and Zoroastrianism were replaced with Christianity in the 4th century AD, when teaching of Jesus Christ was declared

the state religion of the Caucasian Albania kingdom. As a result, the Byzantine medicine became known here. A famous historian of the Caucasian Albania, Moses of Kalankatuy wrote in his



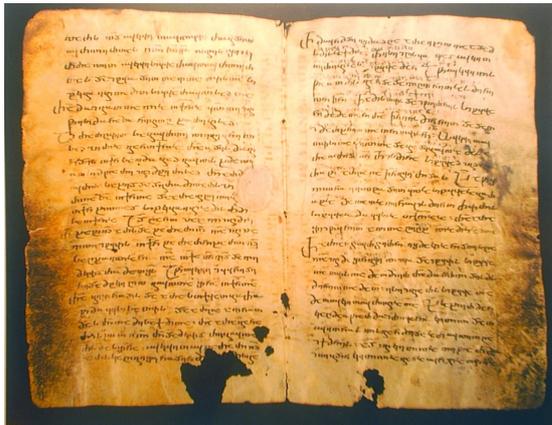
Ruins of the fortress gates of Gabala, the first capital of Caucasian Albania (1st century BC to 4th century AD), where a large pharmaceutical factory was situated.



A bronze incense burner for burning aromatic and medicinal herbs (7th century AD) discovered in Nakhchivan (Azerbaijan Republic). The image is of Javanshir (638-670 AD), king of Caucasian Albania.



Albanian jar graves (1st millennium BC) discovered in Mingachevir (northern part of Azerbaijan Republic). In some jars were found remains and seeds of medicinal herbs.



Manuscript from Caucasian Albania (9th century AD) containing the Albanian script which existed from the 4th century AD.

"History of Albania" (7th c. AD): "One can be wise if he earnestly learns various sciences, such as mathematics, agronomy and medicine..." [21]

During the first centuries of the Christian era, Turkic tribes such as Bulgars, Savirs, Khazars and Huns played an ever growing role in the cultural and political life of the region. After the 4th century AD, Turkic folk medicine - shamanism, treatment with magic and medicinal herbs - began to spread throughout

Azerbaijan. Healers were named "Gam" (shamans) or "Otachi" (herbalists), while medicines were called "Ota" (from "ot" - herb). Later, the Turkic impact on Azerbaijani traditional medicine became even stronger. That is why folk medicine in medieval Azerbaijan is often called "Turkachara" (*Türkəçarə* - Turkic healing).

During the 3rd-6th centuries, medical treatment



Turkic runic script (5th century AD).



Tarragon was used to treat indigestion and dyspepsia.



1. Early man believed that ritual dances could heal various diseases (10th millennium BC, Gobustan petroglyphs, Azerbaijan Republic).
2. Bottle for medicines and perfumes (1st-3rd century AD, Mingachevir, Azerbaijan Republic).
3. Goddess of fertility patronizing healing and physicians (1st century BC to 1st century AD, Molla-Isakli, Azerbaijan Republic).

related with Turkic shamanism was widespread among nomadic and semi-nomadic tribes of Azerbaijan such as Bulgar and Khazar. This was a healing method related to ritual dances and songs ("qam oyunu" in Azeri Turkic). Shamans (*qam*) used special ecstatic performances to expel malicious spirits from the diseased person's body. Such procedures could render a psychological or hypnotic effect and often really relaxed the patient, removed psychological tension and treated some nervous diseases. Musical accompaniment on tambourine and

gopuz (a stringed instrument), and, sometimes, narcotic plants like henbane and fly agaric were applied to enhance the psychological effect.

Turkic phytotherapy also was popular in Azerbaijan. According to ancient Turkic beliefs, all medicinal herbs were created by Tangry (*Tengri, Tanrı*) who was the Supreme God of the Blue Sky. The Goddess of Grasses and Trees, Oleng (*Öleng*), was his wife. She was also considered to be the patron of life, trees, herbs, physicians, children and pregnant women. [31]

After the 7th century, the cult of Oleng in Azerbaijan was replaced with the belief in Khidir Ilyas (*Xıdır İlyas* - Green Elias) - the patron saint of life, water, health and healing. A quotation from epic *Dada Gorgud* (*Dədə Qorqud* - Grandfather Gorgud) [23] says:

Boz atlı Xıdır mənə gəldi,
Üç kərə yaramı sığadı.
“Bu yaradan sənə ölüm
yoxdur” - dedi.

Khidir has approached me
on a grey horse. He has stroked
my wound three times. "You will
not die of this wound" he said.

Mother's milk was considered the best remedy. One scene describing how medicinal herbs with mother's milk were used to heal a lad who had been wounded comes from the ancient Azerbaijani epic *Dada Gorgud*, a compilation of legends that were set down in

writing during the 11th century but contain stories that can be traced back to the 6th and 7th centuries:

Qırx incə qız yayıldı,
Dağ çiçəyi döşürdülər...
Dağ çiçəyi ilə südü qarışdırıb
Oğlanın yarasına urdular.
Oğlanı həkilmərə ısmarlayıb...

Forty shapely girls ran, gathered
flowers from the mountains,
mixed them with mother's milk,
rubbed this mixture on the wounds
of the youth and left him
with the healers.



A woman feeding her child
(Tabriz School of Miniature, 16th
century AD).

Some other pieces of ancient Azeri folklore were devoted to medicinal plants. For example, short folk verses named "bayati" contain information about healing properties of yarpiz (yarpız -water mint), uzerlik (üzərlük - harmel), zoghal (zoğal - cornel), yemishan (yemişan - hawthorn), etc.

Əzizinəm, yemişan,
Yemi şirin, yemi şan,
Sağalmışam, durmuşam,
Yaşa səni yemişan.

I am your friend, Hawthorn,
Sweet food, honorable food,
I have recovered, I have risen,
Live long Hawthorn.

Üzərliksən, havasan,
Min bir dərde davasan,
Balama göz dəyənin,
Gözlərini ovasan.

You are [necessary like] air, Harmel,
You cure 1001 diseases,
Prick out the eyes of the person,
Whose evil eye bewitched my child

Usually, wounds were treated by such herbs as spearmint (*nanə*), water mint (*yarpız*), chamomile (*çobanyastığı*), which are known to have antiseptic and healing properties. Bitter wormwood (*acıyoşan*) is a popular herb against indigestion, lack of appetite and worms. Turks in ancient Azerbaijan and Central Asia believed that the God of the Black



Bottle for medicines (1st-3rd century AD, Mingachevir, Azerbaijan).



Peppermint was widely used in the treatment of dyspepsia and colic.

Road (*Qara Yol Tanrısı*) treated wounds and fractures. A quotation from the early medieval "Irk Bitik" (Book of Fortunetelling) [15] treatise says:

Qara Yol Tanrısıyam,
Sınığını Birləşdirirəm,
Əzilmişlərini calaşdırıram.

I am the God of Black Road,
I treat fractures and I put together
the thorn off parts [of body].

Medical cauterization was used to disinfect wounds and stop bleeding. Usually, this procedure was performed with a burning piece of cloth. Early medieval Dada Gorgud epic [23] informs how a wounded Azeri hero Garajig Choban treats his wounds with cauterization:

Qaracıq çoban... çaxmaq çaxıb
od yaxdı, kəpənəyindən
qurumsu edib, yarasına basdı...

Qarajig Choban... lit a fire with flint,
made a compress from his shirt
and pressed upon his wound.

In ancient Azerbaijan, surgical disorders were cured by physicians named Sinigchi (*sınıqçı* - fracture healers). Healing ointments from animal fat, including the fat of wolf, fox, cow, sheep's tail (*quyruq yağı*) were used as compresses to heal bruises and dislocations. Fresh dough was applied on bruised places to remove tumors, pain and inflammation.

Compresses made of cow or horse manure were used against rheumatic pains, while urine was considered one of the best anti-septic remedies for infectious diseases of the skin.

Fractures were treated with a special diet, too. Very rich, thick and sticky soup from legs and heads of sheep or cow was named "bashayag" (*başayaq* - "heads-and-legs"), khash (*xaş*) or kallapacha (*kəlləpaça*). Sinigchi in Azerbaijan prescribed eating bashayag regularly for fractures of bones. Usually, bashayag was eaten with garlic, vinegar and yogurt.

Turkic tribes in Azerbaijan widely used various dairy products such as kumis (*qımız* - light alcoholic drink from sour milk), yogurt, ayran (yogurt mixed with water and salt) to treat various diseases. Kumis was recommended in treatment of tuberculosis, bronchitis and asthma. Yogurt was known as an excellent remedy against indigestion and diarrhea. Hot horse milk was used to treat cough and fever. Ayran was famous as the best remedy against diarrhea and thirst.

Gurud (*qurud* - dry salted quark) was used to promote digestion, while suzma (*süzmə* - squeezed yogurt) was used to treat persons suffering from diseases of liver.

Early laryngologists in Azerbaijan were named Chopchu (*çöpçü*). This word derives from the Azeri Turkic "chop" (*çöp*) - a mote. These healers were specialized in clearing the throat from remains of food and little bones. It was believed that little pieces of food which stuck in the throat could cause serious diseases in all parts of the body: heart, stomach, head, teeth, kidney, liver.

Turks attached great importance to a healthy life style and to physical training. They spent their life on horseback and constantly participated in horse racing (*cıdır*), fencing (*qılinc oynatmaq*), wrestling (*güleş*) and bow shooting (*ox atmaq*) competitions.

New era in medicine began after the invasion of Arabs and the spread of Islam in Azerbaijan. The development of various sciences, including medicine in Azerbaijan, occurred when Islam was introduced (7th century AD).

The great empire created by Arabs and named Khalifat rapidly merged various cultures of the Islamic domain. Since then, the Azeri, Turkish, Persian, Indian, Greek, Arabic, Turkish schools of medicine deeply influenced each other. Various scientific traditions located within the boundaries of this common empire led to an unprecedented era of mixing infusion in all branches of science. [40] Arabic, the language in which the Holy Koran had been written, gradually became the official language of culture and

science, including medicine. This facilitated understanding between Azerbaijani physicians and those from various eastern countries. By the 10th century, a single language linked peoples from Spain to India. Since then, the Arabic language became for Azerbaijan what Latin and Greek had been to the West - the language of literature, the arts and sciences, and the common tongue of the educated.



An image of a medical sieve from the pharmacological manuscript "Ikhniyarati-Badii" (Baku's Institute of Manuscripts, cop. 17th century AD)

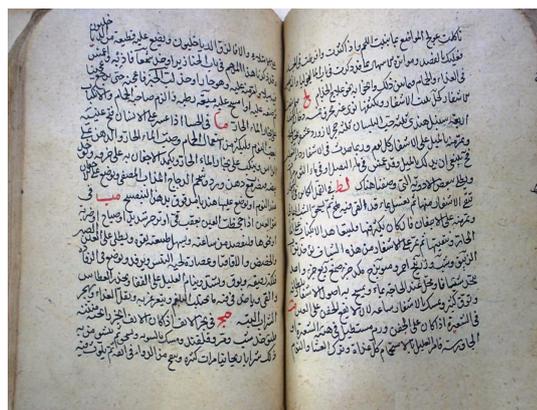
The blossoming of original thought in Azerbaijan science began as the tenth century drew towards an end. Many interesting scientific concepts concerning medicine we can find in "at-Tahsil" by the great Azerbaijan philosopher Bahmanyar al-Azerbaijani (died. 1065/6 AD). Medieval biographer Ali bin Zeyd al-Beyhaki wrote about him: "Philosopher Bahmanyar, a sage and student of Abu Ali (Avicenna), Zoroastrian, and native of Azerbaijan. He investigated the most involved questions of philosophy..." [7]

In his philosophic works, Bahmanyar touched upon some questions of biology and medicine. Like Ibn Sina, he was a follower of Aristotle in science.

The well-known pharmacist Abu Abdullah Muhammad bin Namvar Tabrizi (1194-1245 AD) was born in Azerbaijan in the city of Tabriz. He is the

author of the famous book entitled "Adwar al-Hammiyat" (The Principal Medicines). The book by Abu Abdullah contains descriptions of more than 500 medicines arranged in alphabetical order. He widely used books by Abubakir Razi, Ibn Sina and other great physicians and scholars.

The books by Abubakir Razi, including "Al-Havi fit-Tibb" (Comprehensive Book on Medicine) and "Mansuri fi al-Tibb" (Winner in Medicine) were especially popular in medieval Azerbaijan.



Manuscript "Mansuri fi al-Tibb" by Abubakir Razi (Institute of Manuscripts, Baku, cop. 17th AD).



**Shamsaddin
Eldaniz
(1136-1174)**



**Jahan Pahlavan
(1174-1186)**

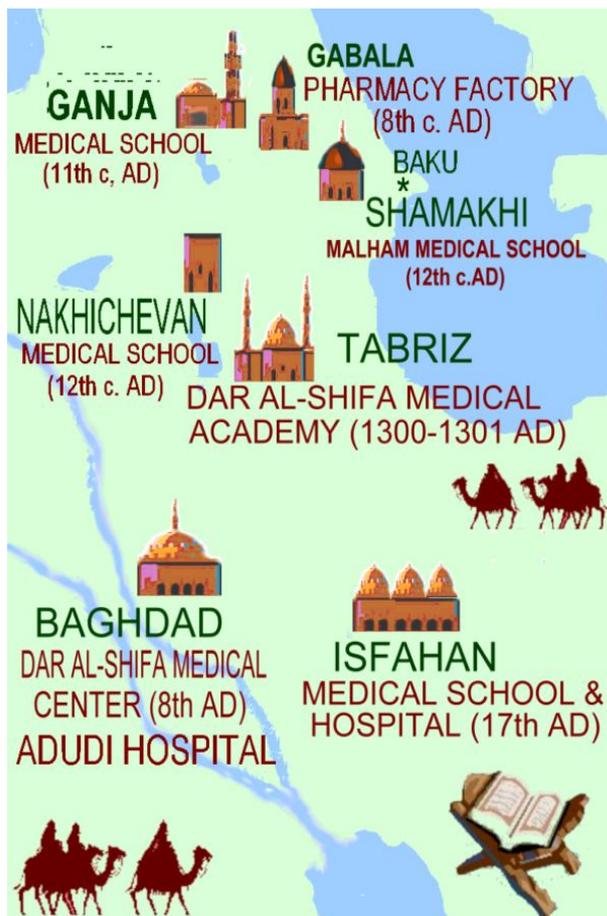


**Kizil Arslan
(1186-1191)**



**Abubakir
(1191-1210)**

Atabeys (Turkic kings) of Azerbaijan from Eldaniz (Ildenizid) Dynasty who substantially contributed to development of medicine by opening new apothecaries and hospitals in their capitals - Tabriz, Ganja and Nakhchivan - and in many other cities of Azerbaijan, Iran and Iraq, which were under the Eldaniz rule during 1136-1225 AD.



Large medical centers of medieval Azerbaijan and neighboring regions.

During the 8th-14th c. AD, a number of clinics were established in three large historical areas of Azerbaijan:

Major Dar al-Shifa medical center (13th-14th centuries) in Tabriz and about 67 large hospitals in various cities of Western Azerbaijan, Eastern Azerbaijan, Ardabil and Zanjan provinces of the present-day Iran.

Pharmacy factory in Gabala (8th c. AD) and numerous public hospitals and pharmacies in the cities of Ganja, Barda, Beylagan and other settlements of ARRAN (western part of the present-day Azerbaijan Republic)

Malham Medical Academy (12th century) in the city of

Shamakhi and a number of clinics in Darband, Shabran, Baku and other cities of SHIRVAN (Eastern part of the presentday Azerbaijan Republic).

Southern Azerbaijan and Arran were ruled by the Turkic atabeys (kings) of the Eldaniz (**Ildenizid, Eldiguzid**) dynasty, while Shirvan was ruled by Shirvanshahs of the local Kesrani dynasty from the 6th century.

Tabriz, the capital of atabeys was one of the largest cities in the Muslim world. Thus, in those times, the population of Tabriz was about 200,000. It must be noted that during this period, the population of the largest European towns such as Paris, London and Florence did not exceed 20,000 to 30,000 people.

Eldanizids were a Seljuk dynasty, which represented the Oguz brunch of Turkic family. Such Eldanizid rulers as Shams ad-Din Eldaniz (1136-1174 AD), Abu Jafar Muhammad Jahan Pahlavan (1174-1186 AD), Kizil Arslan

(1186-1191 AD), Atabey Abubakir (1191-1210 AD) and Atabey Ozbek (1210-1225 AD) promoted the development of medicine in Azerbaijan.

During the rule of Eldanizids, numerous hospitals and pharmacies appeared in Tabriz. These hospitals, or Dar al-Shifa (House of Healing), bore little resemblance to European clinics of those times. Thus, the Christian church in the Medieval Europe taught that soul is more important than body and, therefore, medical treatment was not valued much. On the contrary, medieval hospitals in Azerbaijan were places where the sick could be treated and cured by physicians.



Pharmacist mortar, Bronze, Seljuk, 13th century AD

Physicians who worked in various Dar al-Shifa tried to heal their patients by means of natural medicines and their mixtures. In addition, a number of medical schools and libraries were attached to the largest hospitals. [12, 38]

Azerbaijani scholars used to write medical books in Azeri Turkic, Arabic and Persian. Manuscripts were copied by calligraphers, bound with leather and decorated with colored drawings of medicinal herbs, animals and minerals.

Among the scientists and physicians who lived and worked in Southern Azerbaijan during 11th-12th centuries we should emphasize the names of Abu Said Tabrizi, Abdulla al-Urmavi and Safiaddin al-Urmavi. [37]

Medicine developed also in Shirvan (Northern Azerbaijan). One of the large hospitals was situated in the district of Malham nearby Shamakhi, the capi-

tal of Shirvan. The founder and chief of hospital, Kafiyaddin Omar was the uncle of the great Azerbaijani poet Khagani Shirvani (1120-1199 AD). Kafiyaddin also founded a special medical school where he taught students to treat various ailments with natural remedies [32].

In this school, students learned Arabic, Persian, Greek and other foreign languages. Such hospitals were founded not only in Azerbaijan, but also in different

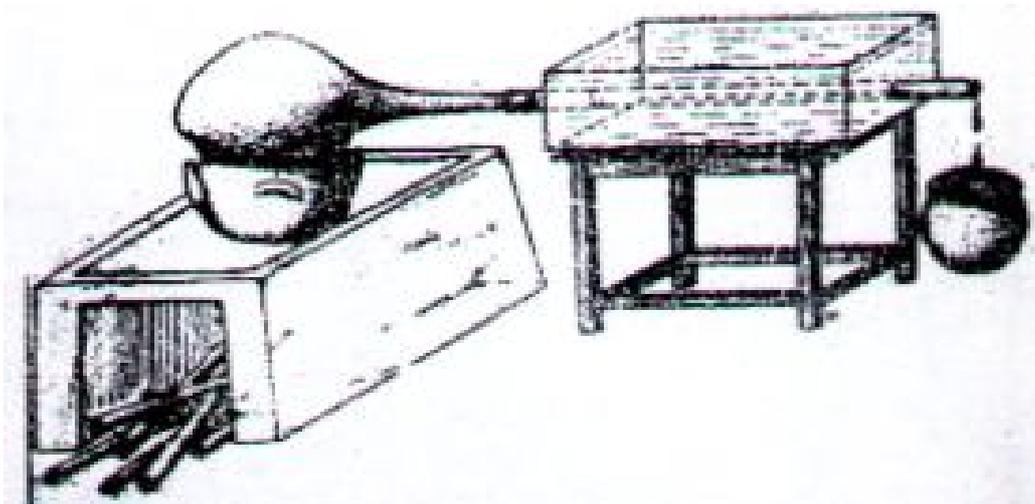


Medieval pharmacist. Miniature from "Ikhtiyarati-Badii" (Institute of Manuscripts, Baku, cop. 17th century AD).

countries of the Muslim East. The Ibn Tulun Hospital and Mansuri Hospital of Egypt, the Adudi Hospital of Baghdad, and the Nuri Hospital of Morocco were very famous. The shahs, khalifs and rulers paid special attention to their organization, regularly visited them, and personally inspected the state of affairs in them as well as inquired about the condition of patients.

A medieval pharmaceutical factory with nume-

rous technical appliances for producing medicines was found during archeological excavations in the Kabala Fortress, the former capital of the Caucasian Albania (southern-western part of the present day Azerbaijan Republic). This factory dated back to the 8th-9th century AD. Numerous jars and bottles for medicines and a special appliance for distillation of essential oils from medicinal plants were discovered.



Appliance for distillation of herbal essential oils, which was used in Caucasian Albania (northern-western Azerbaijan) in the 8th century AD.

In 1220 AD, Mongolian troops captured Azerbaijan. They destroyed a number of towns, villages, hospitals and libraries. All independent states in the south of Azerbaijan ceased to exist. Shirvan was also destroyed, but was able to preserve its statehood as a vassal of the Mongolians. Many scientists were killed during this war but the development of culture did not stop.

Among the scholars who lived and worked in this period we should name Yusif ibn Ismail Khoyi (also known as Ibn Kabir). For a long time, he was regarded as one of the most popular scientists and pharmacists of medieval Muslim World. Khoyi was born in the middle of the 13th century in the town of Khoy which belonged to the large economic and cultural centers of Azerbaijan. After the youth spent in his homeland he left for Baghdad

where he became the court physician of khalifs.

His major work entitled "Ma la Yasa' at-Tabib Jahlahu" (Necessary Things for a Doctor So as Not to Increase His Ignorance) often referred to by its shortened title "Jam al-Baghdadi" (Baghdad Collection) was written in Arabic in 1311. Several thousand medicinal plants are described in this comprehensive pharmacopoeia. Descriptions of all medicines are listed in alphabetical order and include names of plants, animals and minerals in Arabic, Persian, Azeri, Turkish, Greek, Hindu and other languages.

Many medieval authors held this book in high esteem. For example, Haji Zeynalabdin Attar (Ali Ansari) cites Ibn Kabir's work in his "Ikhtiyarati-Badii" book, which was very popular in Medieval Azerbaijan (see photos on the next page).



Pictures of medicinal plants and animals from "Ikhtiyarati-Badii" by Zeynalabdin Attar (Ali Ansari). Institute of Manuscripts, Baku, cop. 17th century AD.

Muhammad Mumin (died in 1697 AD), the court physician of Suleiman Shah Safavi wrote: "To compile the book on pharmacology, I have used the most informative and reliable books, such as "Jami al-Baghdadi" by Ibn Kabir". [27]

Yusif bin Ismail (Ibn Kabir) also used books written by his predecessors. In particular, he drew up information from the book entitled "Jam al-Adwiyya" (Collection of Medicines) by Ibn al-Beythar al-Malagi al-Andalusi (13th century), the famous Arabian physician from Andalusia. This book was valued as Islamic medicine's largest book on pharmacology. As distinct from the book by Ibn al-Beythar, the book of Ibn Kabir is more compact and convenient for practical use. That is why it was so popular in the medieval Muslim East. The handwritten translation of "Jam' al-Baghdadi" from

Arabic into Persian is kept in the Institute of Manuscripts of the Azerbaijan Academy of Sciences.

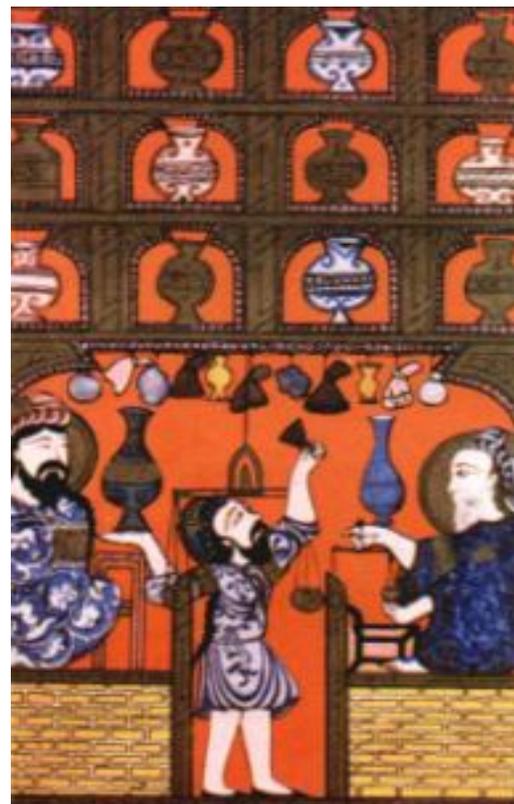
The famous Azeri physician Mahmud bin Ilyas (14th century) is the author of the work titled "Kitab al-Havi fi Ilm al-Madawi" (The Comprehensive Book about Medicine). This is a comprehensive, 1200-page book describing fundamental ideas about medicine, symptoms and causes of specific diseases, and treatments. Ilyas gained his experience while living in Tabriz (medieval capital of Azerbaijan) and Shiraz (south of Iran), and while traveling to various countries. He wrote "Elm al-Tibb" (About Science of Medicine), then he compiled the following books:

"Mukhtasar al-Tibb" (Abbreviated Book on Medicine), "Inayat fi al-Tibb" (Medical Service), "Ghiyasiyya" (Helpful [Book]).

At the beginning of the 14th century, a major medical, scientific and educational center named Dar as-Shifa (House of Healing) was established in Tabriz. It was a large complex of various hospitals, schools and scientific institutions, including observatory. Here, physicians from China, Egypt, India, Greece, Crete and other countries worked side by side with Azerbaijani scientists. Every year, 6,000 -7,000 students from various countries studied the medicine and other sciences at this university. However, it was not the only large hospital in our country. During the 13-14th centuries, there were 67 large hospitals and numerous apothecaries in the southern part of Azerbaijan.

In the 14th-16th centuries, Azerbaijan rid itself of the Mongolian yoke. Du-

ring this period the country was ruled by the following Turkic Azeri dynasties: Karakoyunlu (1406-1467 AD), Akkoyunlu (1467 -1502 AD) and Safavi (1502-1722). These rulers contributed a great deal to the foundation of hospitals and development of medicine in Azerbaijan.



Picture of an apothecary in medieval medical manuscript.



Sultan Yakub Akkoyunlu (1478-1490), founder of a hospital for 1000 patients in Tabriz.

Thus, Sultan Yakub Akkoyunlu (1478-1490 AD) built a large hospital nearby his "Yeddi Jannat" (Seven Heavens) palace in Tabriz. About 1,000 patients could be treated in this hospital at any given time. He also established an apothecary where patients could buy different medicines, including exotic plants brought from India and China.

Among the valuable books written during this period, we should point out "Siraj at-Tibb" (Light of Medicine) by Hasan bin Riza

Shirvani. This book was written in Shirvan and devoted to pharmacology. The author described a number of medicines with complex composition (murakkabat).

Another famous physician, Murtuza Gulu Khan Shamlu, was the ruler (amir) of the city of Ardabil, which was a large cultural center and the former capital of Azerbaijan. He wrote the book titled "Khirga" (Clothes of Dervish) in 1678 AD which was devoted to sexology and gynecology.

A famous book on pharmacology was written in the 18th century by Haji Suleyman bin Salman Qajar Iravani. This scholar was born in the town of Iravan (modern Yerevan), the center of Chukhur-Saad province of Safavid state. This town populated mainly by Azerbaijanis was known as a large center of culture and science. Two manuscripts of "Favaid al-Hikmat" (Benefit of Wis-



"Favaid al-Hukmat" by Haji Suleyman Iravani (Institute of Manuscripts, Baku, cop.18th century).

dom) by Haji Suleyman Iravani are kept in the Institute of Manuscripts in Baku. In addition, handwritten copies of this book are treasured in various foreign countries, including Iran.

"Favaid al-Hikmat" by Haji Suleyman Iravani is devoted to description of simple medicines (mufradat). The book contains two parts: the first part describes simple medicines that are arranged in alphabetical order. The second part con-

tains terminological glossary on pharmacology.

"Favaid al-Hikmat" was well-known as a serious and informative book on pharmacy and medicine.

The universal medical book named "Mualijat-i Munfarida" (Exceptional Treatment, 1775/6 AD) was written by Abu al-Hasan al-Maragi. This author was born in the town of Maraga in the Southern Azerbaijan. The observatory and scientific center founded in Maraga in the 13th century were well known throughout the whole Muslim East.



"Mualijati-Munfarida" (1775-1776 AD) by Abu al-Hasan al-Maragi (Institute of Manuscripts, Baku).

During the 17-18th centuries, a number of medical books in Azeri Turkic were written. Among them are such books as the anonymous "Tibbname" (Book of Medicine, 17th AD), "Nuskhajat" (Recipes,

18th AD), "Tibbi-Jalinus" (Medicine of Galen, 18th AD). Tibbname was copied and supplied with commentaries by the physician Muhammad Yusif Shirvani in 1711-1712.

§ 2. FAMOUS PHYSICIANS OF MEDIEVAL AND POST-MEDIEVAL AZERBAIJAN

BAHMANYAR AL-AZERBAIJANI (died in 1065/1066 AD). A follower of Aristotle in science and a student of Abu Ali Ibn Sina. He was the author of "Al-Tahsil" (Knowledge) and other important works in which he touched upon some problems of medicine.

ISA AL-RAGI TIFLISI (11th AD). Author of commentaries and explanations to Canon by Ibn Sina.

KAFIADDIN OMAR IBN OSMAN (11th-12th AD). Founder and chief of the Malham Medical Univ-

ersity in Shamakhi. Kafiaddin was born approximately in 1080. He was uncle of the famous poet Khagani Shirvani (1120-1199 AD).

ABU ABDULLAH MUHAMMAD BIN NAMVAR TABRIZI (1194-1245 AD). Author of many medical and pharmacological treatises, including "Adwar al-Hammiyat" (The Principal Medicines).

ABDUL-MAJID TABIB (13th AD). Author by "Kitab al-Mudavat" ("Book About Medicines", approximately 1275-1280.

NAJMADDIN AHMAD NAKHCHIVANI. (died in 1253). Author of numerous commentaries to works by Abu Ali Ibn Sina.

MAHMUD IBN ILYAS (13th-14th AD). Worked in Tabriz and Shiraz. Author of the works entitled "Giyasiyya" (Comparison), "Elm at-Tibb" (About Science of Medicine), "Mukhtasar at-Tibb" (Shortened Book on Medicine), "Inayat fi at-Tibb" (Medical Service), "Kitab al-Havi fi Ilm al-Madawi" (The Comprehensive Book About Medicine).

YUSIF IBN ISMAYIL KHOYI (13th - 14th AD). His major work titled "Ma la Yasa' at-Tabib Jahlahu" (The Necessary Thing for a Doctor So as Not to Increase His Ignorance) often referred to by its shortened title "Jam al-Baghdadi" (Baghdad Collection) was written in Ara-

bic in 1311.

MAHMUD IBN MUHAMMAD DILSHAD SHIRVANI (15th AD). This physician from Shamakhi was the author of such works as "Kamalname" (Book of Perfection) and "Mukhtasar Tibb" (Abbreviated medicine, 1437-1438).

MIRZA MUHAMMAD TABRIZI (15th AD). This famous Azerbaijani physician was nicknamed "Fakh-rul-Attiba" (Pride of Physicians) in Tabriz. His son Ala'addin was a physician of Shah Ismail Safavi.

ABULFATH HAKIM TABRIZI (16th AD). Court physician of Ismail Mirza Safavi (died in 1557). He was famous for being an extremely skilful doctor. Abulfath was a small person and people nicknamed him "Kichik Hakim" (Small Doctor).

After the death of Ismail Mirza, he worked as a doctor in the court of Amir khan, governor of Tabriz.

ALAADDIN HAKIM TABRIZI (15th-16th AD). He was one of physicians of Shah Ismail Safavi and the author of the glossary of medical terms entitled "Kamili-Alai".

IMADADDIN MAHMUD (16th AD). The court physician of Abdulla khan Ustajlu, the Beylerbey (governor) of Shirvan in 1549.

SHUKRULLAH SHIRVANI (SHIRVANZADE SHUKRI - 16th AD). This physician from Shamakhi, Azerbaijan, studied medicine in Cairo and worked in Turkey. He treated poor people for free and was famous as the "Poor people's physician".

YUSIF IBN MUHAMMADJAN KARABAGHI (died in 1591). He was born in

Karabakh, Azerbaijan, but emigrated to Samarkand (present day Uzbekistan) during the Safavid-Ottoman wars. Karabaghi was the author of commentaries to Ibn Sina's works on medicine and philosophy.

ABU TALIB TABRIZI (died in 1606). He was the head of a large hospital in Qazvin. He worked in Tabriz, Qazvin and Istanbul.

HEYDAR HAKIM (16th - 17th AD). A physician from Azerbaijan, who worked at the court of Sultan Akbar the Great in Agra (India). He also wrote verses in Azeri Turkic.

IBRAHIM ZEYNAL-ABDIN OGLU NAKHCHIVANI (died in 1649 AD). This doctor from Nakhchivan city (southern-western part of the present-day Azerbaijan Republic) lived and worked in Damask (Syria) as a head physician of this city.

MUHAMMAD TAGI TUFARGANLI (died in 1682). He was the author of several books on medicine and philosophy including "Hashiyat al-Idda" (Commentary to the book named Idda) and "Kashkul" (The Dervish Bag).

MUHAMMAD HAKIM ARDABILI (17th AD). This famous physician from Ardabil and is mentioned in many old chronicles.

RUKNADDIN MASUD MASIHI (1579 -1655). The famous physician, scholar and author of poems in Azeri Turkic. Masihi's father was a doctor from Tabriz, Azerbaijan. Ruknaddin was a court physician of Shah Abbas Safavi in Isfahan. Then, they quarreled and Ruknaddin moved to Agra (India), where he spent 20 years as the court physician of Sultan Akbar the Great and Sultan

Jahangir from the dynasty of Great Mugals. He is the author of the book "Zabitat al-Alaj" (Treatment Rules).

MURTUZA GULU SHAMLU (17th - 18th AD). Murtuza Gulu Khan Shamlu was the ruler (amir) of the town of Ardabil, which was a large cultural center and the former capital of Azerbaijan. He wrote the book titled "Khirga" (Mantle of Dervish, 1678 AD) devoted to sexology and gynecology.

HAJI SULEYMAN IBN SALMAN QAJAR IRAVANI (18th AD). The author of "Fawaid al-Hikmat" which was well-known as a serious and informative book on pharmacology.

HASAN IBN RIZA SHIRVANI (18th AD). Author of "Siraj at-Tibb" ("Light of Medicine"). The book was written in Shirvan and devoted to pharmacology.

MIRZA HASAN SHIRVANI (18th AD). Famous physician and head of clinic in Shamakhi.

MUHAMMAD YUSIF SHIRVANI (17th -18th AD). The court physician in Shirvan. In 1712, he copied "Tibbname" (Book of Medicine) manuscript supplying it with his own commentaries.

ABU AL-HASAN AL-MARAGI (18th AD). The author of the universal medical book named "Mualijat-i Munfarida" (Exceptional Tre-

atment, 1775-1776 AD).

AGHA SEYID ALI TABIB TABRIZI (1787-1898). The author of "Qanun al-Alaj" (Canon of Treatment), "Zad al-Musafirin" (Supplies for Travelers), "Risaley-i Jizri" (Treatise About Medicines), "Jami al-Ilal" (Collection of Diseases).

MIRZA MUHAMMAD-GULUKARABAGHI (1818-1878). Physician of former khans (princes) of Karabakh from Javanshir dynasty.



Books in Azeri and Russian languages about medieval medical texts of Azerbaijan.

CHAPTER 2

MEDICAL MANUSCRIPTS

§ 1. BAKU'S INSTITUTE OF MANUSCRIPTS



The Institute of Manuscripts of the Azerbaijan Academy of Sciences is a center for collecting, systematizing, storing and publishing medieval manuscripts. It currently includes about 12 000 medieval handwritten books in lan-

guages that include Azeri, Turkish, Uzbek, Persian, Arabic, Georgian, Russian, Hebrew, Armenian and Aramaic. These texts help us understand what scholars from the Middle Ages thought about medicine, astronomy, mathematics, poetry, philosophy, law, history and geography [6].

The basis for the Institute was laid in 1924, when the first all-Azerbaijan Regional Congress was held in Baku. The Congress decided to organize a scientific library with a special department dedicated to ancient manuscripts and rare books. At first, this library was



Researching medieval medical texts at the Institute of Manuscripts of the Azerbaijan National Academy of Sciences

part of the Investigation Society of Azerbaijan; then it became attached to the Nizami Institute of Literature. In 1950 the Manuscript Department of the Institute Of Literature became the Manuscript Fund, the independent center of scientific research. In 1986, its name was changed to the Institute of Manuscripts.

Many of the ancient

manuscripts found at the Institute came from the private collections of Azerbaijan's most prominent 19th- and early 20th-century thinkers, including Abbasgulu agha Bakikhanov, Mirza Fatali Akhundzade, Abdulgani Afandi Khalisagarizade, Husein Afandi Gaibov, Bahman Mirza Qajar and Mir Mohsun Navvab.

It continues to collect manuscripts, rare books and historical documents from all over Azerbaijan. The Institute is located in the former Muslim Female Boarding School, which was built by Haji Zeynalabdin Taghiyev between 1898 and 1901. This was the first secular girl's school in the Muslim East. In 1918, when Azerbaijan became independent, Taghiyev gave the building to the government of Azerbaijan to be used for ministers' offices. In the

Soviet period , it housed the Presidium of the Supreme Soviet of the Azerbaijan Soviet Socialist Republic (the governing body of Parliament). Since 1978, the building has housed what is now called the Institute of Manuscripts.

§ 2. MEMORY OF THE WORLD PROGRAM OF UNESCO

In 29 July 2005, UNESCO officially included three medieval medical manuscripts from the Institute of Manuscripts of the Azerbaijan National Academy of Sciences into the register of the Memory of the World Program, which includes the most unique and irreplaceable written monuments of the humankind. The Certificate confirming this decision was presented

to the Institute of Manuscripts by Dr. K. Matsuura, the head of UNESCO.

The Memory of the World Program is carried out by UNESCO to discover and protect the most important, rare and unique written documents which are crucial and irreplaceable not only for separate regions, states or nations, but for the humankind in the whole. Now several medieval manuscripts from Azerbaijan have been added to this list.

CANON BY IBN SINA

The Manuscript Institute is fortunate to have some real treasures in their collection. For example, it preserves one of the oldest copies of the second volume of "Canon of Medicine" (1030) by Ibn Sina,



known in the West as Avicenna (980-1037). It was copied in 1143 about a hundred years after his death. Avicenna's manuscript is considered to be the most reliable in the world.

Avicenna, born in the town of Afshana nearby Bukhara (Uzbekistan), did much of his medical observation later on in Persia and Azerbaijan. "Canon," an encyclopedic work in Arabic, is considered to be the single, most famous book in medical history - both in the East and in the West.

In the 12th century, the Canon was translated from Arabic to Latin by Gerard of Cremona (1140-1187) and used as a medical

textbook in European universities. The book was held in such reverence that Michelangelo was recorded as saying: "It is better to be mistaken following Avicenna than to be true following others." [11]

"ZAKHIRAI-NIZAMSHAHI" BY RUSTAM JURJANI

This book was written in the 13th century and imitates the famous medical book by Zeynaddin Jurjani. Rustam Jurjani's manuscript is unique, because it is the only manuscript of this book in the world.



AL-MAQALATUN
SALASUN (THIRTIETH
TREATISE) BY ABULKA-
SIM ZAKHRAVI



The Institute of Manuscript preserves the manuscript of one of volumes by the "Book On Surgery and Instruments" by Abulkasim Zakhravi (died in 1013 AD), the Arabian physician which was known in medieval Europe as Abulcasis (the Latinized form of "Abulkasim"). He was born in Andalusia

(Spain) when this country was under the Arab rule. During many centuries Zakhravi's book was the most authoritative textbook on surgery both in East and West. The book gives description of different types of surgical treatment and provides drawings of hundreds of surgical instruments which were used 700 years ago.

§ 3. UNIQUE MEDICAL MANUSCRIPTS

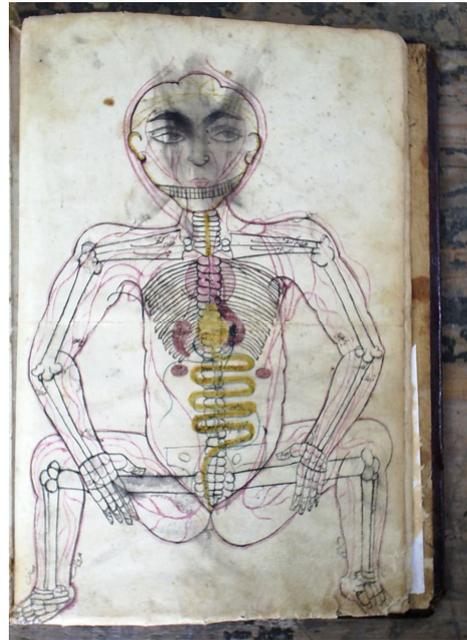
Important medical manuscript found at the Institute is "Souls of Bodies" (Arvah al-Ajsad) by Shamsaddin ibn Kamaladdin Kashani. This medical encyclopedia was copied at the end of the 17th century on high-quality European paper with filigree. In his volume, Kashani gives an exhaustive explanation of all kinds of medicine and diseases, from

the simplest to the most complex.

Before writing the book, Kashani carefully studied the works of his predecessors, including ancient and medieval physicians like Hippocrates, Galen, Zakaria Razi, Ismayil Gurgani and Ibn Baitar. His encyclopedic work is of great importance because it lists manuscripts that are not registered in any known and published catalogues or reference books in the world manuscript depositories.

The Institute houses the 17th century manuscript of "Kifayati-Mansuri" ("Sufficient from Mansur") written by Mansur ibn Muhammad ibn Yusif in 1423. The manuscript contains anatomic images of the human body.

Some of the most fundamental Azerbaijani works in the Institute's medical collection include:



A page from "Kifayati-Mansuri" (Institute of Manuscripts, Baku, copied in 1653 AD).

Mahmud Ibn Ilyas' 14th century work, entitled "Comprehensive Book On Medicine" ("Kitab al-Havi fi Elm al-Madavi"), is a comprehensive, 1200-page book describing fundamental ideas about medicine, symptoms and causes of specific diseases, and treatments. Ilyas gained his experience while living in Tabriz and Shiraz, and traveling to many different Eastern countries.

Azerbaijani scholar Yusif ibn Ismayil Khoyi (also known as Ibn Kabir) worked as a doctor in the palaces of the Arabian caliphs in Baghdad. He is known for his comprehensive pharmacology written in Arabic in 1311. Several thousand medicinal herbs are identified in "The Necessary Things For a Doctor So As Not To Increase His Ignorance" ("Ma la Yasa al-Tabib Jahlahu"), often referred to by its shortened title "Baghdad Collection" ("Jami al-Bagdadi").

Mir Muhammad Mumin (died in 1697), a palace physician for Suleyman Safavi, wrote many informative works in Persian including "Tuhfat al-Muminin" (1669). This encyclopedic work includes the names of more than 4,000 herbs, animals, minerals and other ingredients used in medicine. Mumin describes the name of each herb, its specific features, where it can

be collected, other regions where it is available, and its names in other languages, such as in Chinese or Hindi dialects. The Institution owns 33 complete manuscripts and 4 fragmentary copies of this work.

Anonymous "Tibbname" ("Book of Medicine") was written in Azeri in 17th century. We have a manuscript which was copied by Muhammed Yusif Shirvani's - a palace physician for the governors of Shirvan in 1711/2. "Tibbname" recommends using natural materials to treat symptoms, such as rubbing a piece of lemon peel against your neck when tired. "Tibbname" also describes more complicated drugs, as well as uses for "non-indigenous" plants in the region such as potatoes and sunflowers.

In the 13th century, Nasiraddin Tusi wrote an extremely enlightening book entitled "Mineral Cures"

("Tansukh Name") which identifies the symptoms of a disease and possible treatments via minerals. These are identified by color, as well as region [11].

The list of the principal medical manuscripts from the Baku collection is given below.

§ 4. LIST OF PRINCIPAL MEDICAL TEXT (INSTITUTE OF MANUSCRIPTS, BAKU)

TURKIC TEXTS (AZERBAIJANI AND OTTOMAN)

Anmuzaj al-Tibb (*Examples of Medicine*) by Sayid Muhammad Rais al-Atibba. No C-456/21962 (I). Copied in the 17th AD.

Daqaiq al-Alaj (*Niceties of Treatment*) by Karim Khan Kirmani. No B-2443/18463

Davajat (*Medicines*). No B-2490/18481 (VI)

Ghayat al-Bayan fi Tadbiri-Badan al-Insan (*Exp-*

lanations on Treatment of the Human Body) by Saleh bin Nasrullah Rais al-Atibba. No 255 /3563 (III). Copied in the 18th AD.

Ghayat al-Mutaraggi be Tadbiri-Kulli Maraz (*Modern Methods of Treatment of All Diseases*) by Hasan Afandi. No: B-2788/20827. Copied in 1294 H/1877 AD.

Islam Medeniyyetin-de Tibb ve Tebiber (al-Tibb wa al-Atibba fi Asna al-Tamaddun al-Islami) (*Medicine and Physicians in the Islamic Civilization*). No B-2444 /18462. Copied in 1910's AD.

Kitab al-Tibb (*Book on Medicine*) by Muhammad bin Ahmad Efendi al-Bargushadi. Written in 1239 H/1823 AD. (Autograph)

Kitabi-Mualijat (*Book on Medical Treatment*). No 6918/8543.

Lisan al-Avam (*Common People's Language*) by Nasrulla (Nasir) bin Zair. No: B-2706/8040. Copied in 1266 H/1849 AD.

Majmueyi-Kabir (*Large Collection*) by Nusrat Afandi. No: B-25898/19522 (III)

Makhzan al-Adwiyya (*Treasury of Medicines*) by Seyyid Muhammad Huseyn. No: B-2445/18461

Manafe al-Nas (*Benefit for the People*) by Darvish Nidai. No:

1. B-2835/20811

2. A-674/22900

Manafe al-Nas (*Benefit for the People*) by Muhammad Attar Salyani. No B-274/115 11. Copied in 1253 H/1838 AD

Mualijat al-Abdan (*Treatment of the Body*). No A-520/ 16181

Nuskhajāt (*Recipes*) No:

1. A-449/16978. Copied in the 19th c. AD.

2. B-1484/7265 (I). Copied in the 19th c. AD

3. A-655/22643. Copied in 1275 H/1859 AD.

Qanun (*Canon*) by Abu Ali Ibn Sina. Chapter about Fever from Canon. Translated from Arabic into Azeri by Mukhtar Ismayil oglu

Aghdashi. No: B-1626/11685

Qarabadin (*Pharmacy Book*) by Nuh Efendi. No C-529/22584 (VII). Copied in the 18th century AD.

Rasail al-Mushfiyya fi Amraz al-Mushkulat (*Treatises about Cure of Serious Diseases*) by Mustafa Feyzi. No C-529/22584 (I). Copied in the 18th c. AD.

Risalat al-Vafaiyya (*Reliable Treatise*) No B-5712/28799. Copied in 1208 H/1794 AD

Risaleyi-Jadvar (*Treatise about Jadvar*) by Ali Brusavi. No C-529/22584 (VIII) Copied in the 18th c. AD.

Risaleyi-Khulasat al-Abdan (*Abbreviated Medical Treatise*) by Ali Brusavi. No C-529/22584 (XIV) Copied in the 18th c. AD.

Risaleyi-Padzahr (*Treatise on Antidotes*) by Ali Tabib. No C-529/22584 (V) Copied in the 18th c. AD.

Risaleyi-Ravand (*Treatise on Rhubarb*) by Ahmad Sani bin Huseyn. No C-529/22584 (XII) Copied in the 18th c. AD.



A chapter from “Rasail al-Mushfiyya fi Amraz al-Mushkulat” (18th century AD, Turkish) with recipes of medicines against diseases of stomach.
Baku, Institute of Manuscripts.

Risaleyi-Tibb (*Medical Treatise*) No:

1. B-2384/4078 (II)
2. A-468/19333

Tabibname (*Book of Physicians*) No: D-711/28787. Copied in 1299 H/1882 AD.

Tibb Elmine aid Risale (*Treatise on Medicine*) No A-1096/30059

Tibb Kitabi (*Book of Medicine*) No B-7282/30 635

Tibb Risalasi (*Medical Treatise*) No C-209/16070 (II)

Tibbe aid Kitab (*Book on Medicine*) No B-7343/11005

Tibbe aid Lughat (*Medical Glossary*) No C-456/21962 (II). Copied in the 17th AD.

Tibbe aid Nuskheler, Dualar ve Qeyri Qeydler (*Recipes, Prayers and Other Notes on Medicine*) No C-4329/24023 (II). Copied in the 19th AD.

Tibbe aid Risale (*Treatise in Medicine*) No:

1. A-1018/28474 (I)
2. A-857/23650 (II)

Tibbi Meslehetler ve Elaj Dualari (*Medical Recommendations and Curative Prayers*) No A-747/24017. Copied in the 19th c. AD.

Tibbi Mualija Usullari (*Medical Treatment Methods*) No 1. B-3105/21575

Tibbi Mualicelere aid Sheirler (*Poems Related to Medical Treatment*) No A-151/2798 (II)

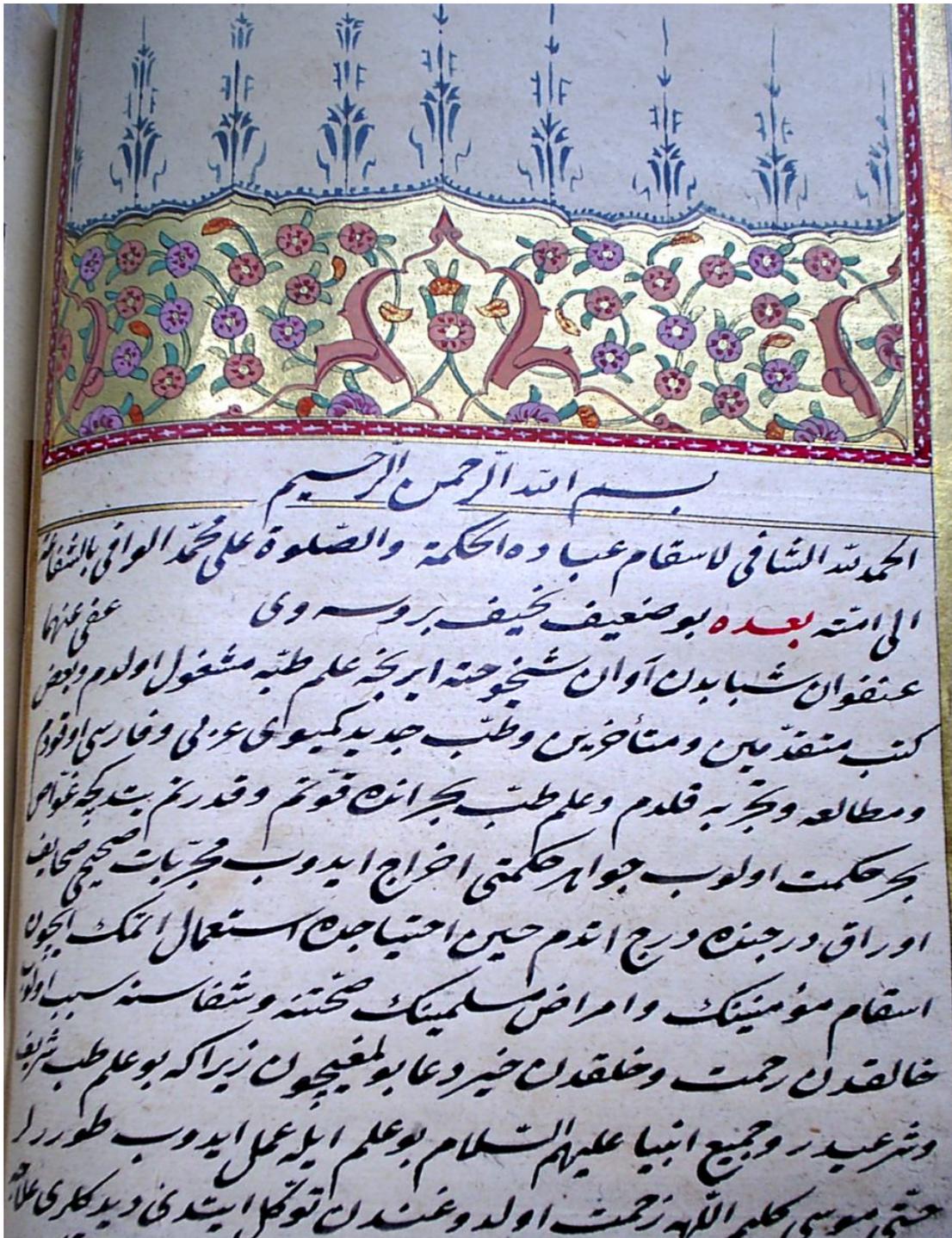
Tibbi-Jalinus (*Galen's Medicine*) No B-2891/ 20800 (II) Copied in 1273 H/1858 AD

Tibbi-Mansuri (*Winner in Medicine*) by Abubakir Razi. Translation into Azeri. No B-2443/18464. Copied in 1936 AD.

Tibbi-Nabiden Parchalar (*Extracts from 'Tibbi-Nabi' - Prophet's Medicine*) No B-6835/33557 (XXX)

Tibbi Risala (*Medical Treatise*) No A 862/31424.

Tibbname (*Book of Medicine*) No C-541. Copied in 1124 H/1712 AD.



A page from Risaleyi-Khulasat al-Abdan (Abbreviated Medical Treatise) by Ali Brusavi. (18th AD). Baku's Institute of Manuscripts.

ARABIC TEXTS

Al-Maqalatun Salasun (*Thirtieth Treatise*) by Abu al-Qasim Zakhrawi. No: M-64/543. Copied in the 13th century AD.

Al-Mughni fi Sharhi Mujiz (*Convincing and Brief Commentary*) No B-5494 /27353. Copied in the 16th -17th AD

Al-Mujallad al-Sani min al-Qanun fi al-Tibb (*Second Volume of Canon of Medicine*) by Abu Ali Ibn Sina. No M-148/17024. Copied in 657 H/1262 AD.

Al-Tassrih fi Sharh al-Tasrih al-Lihya (*Explanation on Looking after One's Beard*) by Molla Ali Al-Gari. No A-100/3057 (III) Copied in 1130 H/1718 AD.

Bara al-Saat (*Quick [treatment]*) by Abu Bakr bin Zakariyya Razi. No:

1. B-615/2317 (II) Copied in 1233 H/1818 AD).

2. B-2466/18440

3. C-355/18472

Dasturi-Jalali (*Jalali Handbook*) by Jamaladdin Muhammad Tabib Isfahani. No B-5417/27150. Copied in 1231

H/1816 AD.

Kamil al-Sinaat al-Tibbiyat (*Perfect [book] About Healing Art*) by Ali Ibn Abbas Majusi Arjani. No: B-5416/ 27151 (1). Copied in 1028 H/1612 AD

Kitab al-Hawi fi Ilm al-Tadawi (*Comprehensive Book on Medical Science*) by Najmaddin Mahmud bin Sheikh Sainaddin Ilyas Shirazi. No: D-98/17028

Kitab Sharh al-Asbab wa al-Alamat fi al-Tibb (*The Book about Causes and Symptoms in Medicine*) by Nafis bin Avaz bin Hakim. No:

1. C-819/30034

2. C-35/11390

Kitabun fi Ilm al-Abdan (*Book On Medical Science*) by Burhanaddin Nafis bin Awaz bin Hakim Kirmani. No: C-163/11047

Kitabun Muntakhabun min Tibbi al-Nabi (*The Book with Quotations from 'Tibb al-Nabi' - Medicine of Prophet*) No 385/17121 (I)

Majallat al-Tibb (*Medical Issues*) by Giyas al-Man-suri. No A-135/4115

Masabih al-Saniyya fi al-Tibb al-Bariyya (*Supreme Lights in True Medicine*) by Sheikh Shahabaddin Galyubi Shafai. No A-957/27156. Copied in 1218 H/1803 AD.

Minhajul-Bayan fi ma Yastamalah al-Insan (*Clear Explanations on Remedies Used by People*) by Ibn Yahya bin Isa Katib al-Tabib. No B-230/3365

Mualijat (*Treatment*). No B-6014/29544 (II) Copied in the 16th c. AD.

Mujamiat (*Sexual Relations*). No A-496/ 20530 (II) Copied in 1190 H/1777 AD.

Mujiz al-Qanun fi al-Tibb (*Abbreviated Canon of Medicine*) by Ala ad-Din Ali bin Abu al-Hazm al-Gureshi. Copied in 1257 H/1842 AD

Mukhtasar (*Abbreviation*). No 615/2317 (II). Copied in 1233 H/1818 AD.

Mukhtasar min Sanaat al-Tibb (*Abbreviated version of "Sanaa at-Tibb"*) NoB5380/270 57 (I). Copied in 1247 H/1832 AD.

Qanun fi al-Tibb (*Canon of Medicine*) by Abu Ali Ibn Sina. 1st Book. No D-332/17028. Copied in 1268 H/1852 AD.

Qanun fi al-Tibb (*Canon of Medicine*) by Abu Ali Ibn Sina. 2nd Book. No M-136/17026. Copied in 537 H/1143 AD

Qanun (*Canon*) by Abu Ali Ibn Sina. (al-Fann al-Awwal min al-Kitab al-Salis min al-Qanun - *First chapter from the third book of the Canon*). No M-219/ 2986. Copied in 1269 H/1852 AD.

Qanun (*Canon*) by Abu Ali Ibn Sina. No C-70/ 1989. Copied in 1229 H/1814 AD.

Rahmat fi al-Tibb wa al-Hikmat (*Mercy in Medicine and Wisdom*) by Sheikh Mehdi bin Ali bin Ibrahim.

No:

1. B-3496/22774

2. B-5296/26636

3. B-660/9105 (II). Copied in 1240 H/1825 AD.

4. B-5945/29412. Copied in 1251 H/1836 AD.

Risalat al-Manzumatun fi al-Tibb (*Poetic Treatise on Medicine*). No B-2217/15763. Copied in 1226 H/1811 AD.

Risalatun fi al-Tibb (*Medical Treatise*). No.A-496 /20530. Copied in 1190 H/1777 AD.

Risalatun fi al-Tibb (*Medical Treatise*) by Ishaq bin Husein. Press-mark: B-5409 /27157

Risaleyi-Qanunja (*Qanunja Treatise*). No B-754/2212 (III)

Risaleyi-Tibb (*Medical Treatise*) by Nasir ad-Din Tusi. No B-5380/27057 (II). Copied in 1209 H/1796 AD

Risaleyi-Tibb (*Medical Treatise*). No:

1. B-2642/19929 (IV)

Saqi al-Samum (*Antidotes*). No: B-5389/27120 (II). Copied in 1342 H/1924 AD.

Sharh al-Fusul (Commentaries to Chapters). Nafis bin Awaz bin Hakim al-Tabib. No C-163/11074. Copied in 1229 H/1814 AD.

Sharh al-Ganun (Commentaries to 'Canon'). No D-333/

17030. Copied in 1269 H/1853 AD.

Sharh Sanaat al-Tibbiya (*Commentaries to 'Sana-at al-Tibbiya'*). No C-819/30034 (III)

Sharhi-Qanunja (*Commentaries to 'Qanunja'*) by Sheikh Yusif. No B-700/2130. Copied in 1299 H/ 1852 AD.

Sharhi-Juzi Awwal min Kitab al-Qanun (*Commentaries to First Volume of 'Canon'*) by Gutbaddin Shirazi. No B-2328 /17024. Copied in 1067 H/1657 AD.

Sharhi Mualijat (*Commentaries to 'Mualijat'*) by Burhanaddin Nafis bin Awaz bin Hakim Kirmani. No C- 324/18439. Copied in 1244 H/1829 AD.

Sharhi-Nafisi (*Commentaries by Nafisi*) by Ala ad-Din Nafisi. No:

1. 5765/87658. Copied in 1047 H/1638 AD.

2. 5032/26021. Copied in 841 H/1438 AD.

3. M-174/2386 (II)

Sharhu Kitabi-Qanun (*Commentaries to Book of Canon*) by Muhammad bin Mahmud Amili. No D-320/ 17031. Copied in 753 H/1353 AD.

Sharh Kulliyat al-Qanun (*Commentaries to Entire 'Canon'*) by Gutbaddin Mahmud bin Masud Sharizi. No B-187/18406

Sharhu Mujiz (*Brief Commentary*) by Nafis Ibn Awaz. No C-221/17128. Copied in 1245 H/1830 AD.

Siraj al-Wahhaj (*Brilliant Lamp*). No 4547/24351 (1)

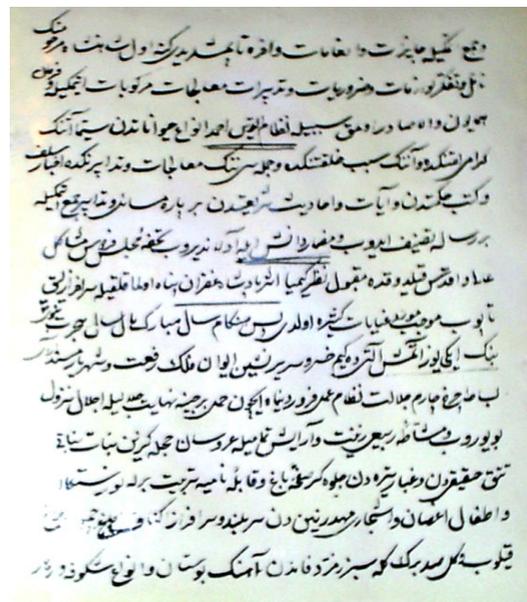
Tibb al-Abdan min Akhbari (*Prophet's Sayings about Medicine*) by Marwi Ali an-Nabi. No 2891/20800 (1) Copied in 1272 H/1857 AD.

Tibbi-Nabawi (*Prophet's Medicine*). No B-1484/7265. Copied in 1246 H/1831

Uyun al-Haqayiq wa Izah al-Tarayiq (*Exact Truth and Explanation of [Treatment] Ways*) by Sabiraddin Abu al-Gasim Ahmad bin Muhammad Iraqi. No A-375/1501 (II). Copied in 1011 H/1603 AD.



Mualijat al-Abdan (18th AD).
Baku, Institute of Manuscripts.



Lisan al-Avam by Nasrulla bin Zair. Copied in 1266 H/1849 AD.

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Adwiyya (*Medicines*). No B-2490/18431 (IX)

Alaj al-Asqam (*Surgical Treatment*) by Mirza Muhammad Huseyn Afshar. No:

1. B-1168/19964. Copied in 1323 H/1906 AD.

2..B-674/3203 (I)

Anatomi (*Anatomy*). No 215/11721.

Arwah al-Ajsad (*Souls of Bodies*) by Shamsaddin bin Kamaladdin Kashani. No D-373/18437. Copied in the 17th c. AD, restored in 1298 H/1881 AD.

Az Mujarrabat (*From Tried [Remedies]*) by Mirza Muhammad Ali. No B-1976/13345 (II)

Dastur (*Handbook*). No: B-5538/27440 (III)

Dastur al-Alaj (*Treatment Manual*) by Sultan Ali Tabib Khorasani. No:

1. C-768/29534. Copied in 983 H/1576 AD

2. D-299/18438 (II).

3.B-5417/27150. Copied in 1232 H/1816 AD.

Davasazi (*Pharmacy*) by Shlimeran. No B-667/10000 (I). Copied in 1299 H/1882 AD.

Davasazi (*Pharmacy*). Press-mark: B-63/3238 (III)

Farasname (*Book About [treatment of] Horses*). Press-mark: B-192 /2541

Farrukhnameyi-Jalali (*Jalali's Joy Book*) by Ramazan bin Sheikh Ali. No M-42/5304. Copied in 1109 H/1698 AD.

Fawaid al-Hikmat (*Benefit of Wisdom*) by Haji Suleyman bin Salman Iravani. No B-39/19955. Copied in 1249 H/1834 AD.

Fihristi-Daftari-Qarabadin (*Contents of Treatise on Pharmacy*). No: D-117/1253 (II)

Fihristi-Qarabadin (*Contents of Pharmacy*). No B-4678 /24561 (II)

Fihristi-Kitabi-Amraz al-Sibyan (*Contents of the Book about Children Diseases*). No B-1866/13331 (II)

Formulyar (*Recipes*). No: A-264/8635. Copied in 1202 H /1788 AD.

Ghiyasiyya fi al-Tibb (*Helpful Book in Medicine*) by Mahmud bin Ilyas Shirazi. No: B-1231/3257

Gulshan al-Alaj (*Garden of Treatment*) by Muhammad Tahir bin Muizaddin. No B-4678 /24561 (IV) Copied in 1255 H/1840 AD.

Hifz al-Sahhat (*Heath Protection*) by Ibn Muhammad Mahmud. No: B-1205/ 17519 (I) Copied in 1293 H/1876 AD.

Ikhtiyarati-Badii (*Property of the [princess] Badii*) by Ali bin Huseyn Ansari. No D-6/1136. Copied in 1097 H/1686 AD.

Ilmi-Tashrih (*Anatomy*) No:

1. A-499/205742.
2. B-2642/19929 (II). Copied in 1301 H/1884 AD.
3. B-4219/9999
4. B-2672/19929 (VII)
5. B-5377/27061 (I)
6. B-754/9212 (I)

Jami al-Fawa'id (*Collection of Benefits*) or **Tibbi-Yusifi** (*Medicine of Yusifi*) by Yusifi Yusif bin Muhammad bin Yusif Harawi. No:

1. B-246/18447. Copied in 1220 H/1806 AD.

2. B-1153/5319 (I). Copied in 1226 H/1811 AD.

Jami al-Hikmat va Majma al-Tabibin (*Collection of Wisdom and Physicians*) by Abdullah. No C-635/27065

Jami al-Mutafarriga (*Exclusive Collection*) by Muhammad Huseyn bin Muhammad Ali Ganjevi. No B - 2532/18144 (II) Copied in 1270 /1854 AD.

Khafi-Alayi (*Top Secrets [of Medicine]*) No A-576 /20963

Khasseyi-Davaha (*Compounds of Medicines*) No M-66/11601 (V) Copied in 1267 H /1851 AD.

Khirqa (*Dervish's Garments*) by Murtaza Gulu Shamlu Ardabili. No:

1. B-3637/ 22781. Copied in 1307 H/1890 AD.

2. B-3137/21585 (V) Copied in 1201 H/1787 AD.

3. B-812/11734. Copied in 1260 H/ 1844 AD.

Khulasat al-Tajarub (*Summary of Experiences*) by Ba-haaddin Nurbakhsh. No:

1. D - 187/11515. Copied in 1265 H/1849 AD.

2. C 688/27148

3. A-1079/29729

Khulasat al-Tibb (*Abbreviated Medicine*) No:

1. B-4292/23853

2. A-1079/29729

Kifayat al-Mujahida (*Sufficient Efforts*) or **Kifayeyi-Mansuriyya** (*Sufficient from Mansur*) by Mansur bin Muhammad bin Yusif Ibn Ilyas. No:

1. B-858/11502. Copied in 1063 H/1653 AD.

2. D-75/19935 (II) Copied in 1254 H/1839 AD.

3. B-1119/19934. Copied in 1261 H/1845 AD

4. C-817/35053

5. B-749/3531

6. B- 5462/27243

Kitabi-Baytari (*Book on Veterinary*) by Arastu (Aristotle) No B-6219/29729 (II) Copied in 1190 H/1775 AD.

Kitabi-Hikmat (*Book*

of Wisdom) or **Lughat al-Tibb** (*Medical Glossary*) by Haji Molla Suleyman Iravani. No:

1. M-66/11601 (I) Copied in 1267 H/1851 AD.

2. M-174/2386 (IV) Copied in 1278 H/1861 AD.

Kitabi-Rovshanai (*Enlightening Book*) No:

1. B-4678/24561 (III) Copied in the 19th c. AD.

2. B-5678/24561 (II) Copied in 1252 H/1837 AD.

Kitabi-Tibb (*Medical Book*) by Mahmud bin Ilyas Shirazi. No:

1. B-70/2161 (I) Copied in 1229 H/1814 AD.

2. M-23/2309. Copied in 968 H/1560 AD.

Kitabi-Tibb (*Medical Book*) by Mirza Baba bin Karbalayi Abu al-Qasim. No B-5121/26200. Copied in 1231 H/1816 AD.

Kitabi-Tibb (*Medical Book*). No B-5389/27126 (I) Copied in 1343 H/1925 AD.

Kitabi-Tibb (*Medical Book*) No B-2441/18426.

Kitabu Tibb al-Hayat (*Book about Life Medicine*) by Muhammad Hayat bin Fath Muhammad bin Nurmuhammad Tabib. No D-299/18433 (I)

Lazzat al-Eyshih-Nasirshahi (*Sexual Joy of Nasir Shah*) by Muhammad Tabib. No:

1. B - 737/9106 (II)

2. A- 235/11504

Majma al-Bayani-Tibb (*Collection of Medical Explanations*). No M-74/2386 (III)

Makhzan al-Fawaid (*Treasure of Benefits*) by Mirza Muhammad Huseyn Afshar. No B-674/3203 (II)

Man la Yahdar al-Taib (*Things that Have Not Been Said by Physicians Yet*) by Abu Bakr bin Zakariyya Razi. No B-468/4083 (1)

Mualijaname (*Book about Treatment*) by Muhammad Ashraf bin Shamsaddin Muhammad Tabib. No D-75/19935 (I)

Mualijati-Mukhtalife (*Various Treatments*). No M-66/11601. Copied in 1287 H/1851 AD.

Mualijati-Munfarida (*Exceptional Treatment*) by

Abu al-Hasan al-Maragi. No B-2490/18431

Mujarrabat (*Tried Remedies*) by Muhammad Mehdi bin Ali Nagi. No B-1976/13345.

Mujarrabati-Akbari (*Akbar's Tried Remedies*) by Muhammad bin Pir Muhammad. No: C-336/20546 (I) Copied in 1249 H/1834 AD.

Mujarrabati-Mirza Muhammad Huseyn Tabib Hakimbashi (*Tried Remedies of Mirza Muhammad Huseyn Tabib Hakimbashi*) by Muhammad Huseyn bin Muhammad Ali Ganjavi. No 2532/18144 (III)

Mukhtasar dar Mualijat (*Abbreviated [Book] on Medicine*) No B-1942/17132

Mukhtasar Tibb (*Abbreviated Medicine*) by Ismail bin Ahmad Jurjani. No A-467/17141 (II). Copied in the 17th c. AD.

Mukhtasar Tibb (*Abbreviated Medicine*) No: 3331/21561. Copied in the 19th c. AD.

Nuskahaj (*Recipes*) by Shlimer Ferengi. No: B-5382/2705

Nuskhajat (Recipes) No:
1. B-2602/19929 (I) Copied
in 1209 H/1795 AD.

2. B-2642/19929 (I)
3. B-2602/19954 (I)
4. B-2642/19929 (III) Copied
in 1300 H/1883 AD.

5. A-985/27394
6. A-322/12095
7. B-74/16993
8. D-482/22453 (I)
9. A-533/15597 (II)
10. B-2632/20469

Qarabadin (Pharmacology) by Muzaffar bin Muhammad Shafai. No:

1. B-2678/24561 (I)
2. B-351/3334
3. B-2432/18143 (II)
4. B-4693/24574
5. M-174/2386 (I)
6. B-2432/18143 (III) Copied
in 1258 H/1843 AD.

7. B-5413/27143. Copied in
1282 H/1866 AD.

8. B-2419/18427 (I) Copied
in 1290 H/1874 AD.

Qarabadin (Pharmacology) No B-3125/21642. Copied in
1233 H/1818 AD.

Qarabadini-Qadiri (Effective Pharmacology) by Muhammad Akbar Arzani. No:

1. C-790/29723. Copied in
1220 H/1806 AD

2. B-4742/23609

Rahat al-Insan (Man's Relief) by Seyfaddin bin Gutbaddin. No B-1153/5319 (II)
Copied in 1225 H/1811 AD.

Risala dar Marifati-Nabz va Qarura (Treatise About Urine and Pulse Diagnostics)
No: C-370/18162 (II) Copied in
1087 H/1677 AD.

Risaleyi-Jarrahi (Surgical Treatise) No B-6219 /29731
(I). Copied in 1190 H/1777 AD.

Risaleyi-Kahhali (Treatise on Ophthalmology) by Mirza-Riza. No B-674/3283 (III).
Copied in 1343 H/1925 AD.

Risaleyi-Tibb (Medical Treatise) by Ismail bin Ahmad bin Huseyn Jurjani. No A-467/17141 (I). Copied in the 17th AD.

Risaleyi-Tibb (Medical Treatise) by Ibn Muhammad Huseyn Ahmad Tankabini. No B-5410/27145 (II). Copied in
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Risaleyi-Tibb (Medical Treatise) No:

1. C-370/18162 (I). Copied
in 1089 H/ 1679 AD.

2. B-2642/19929 (V)

3. C-234/18164
4. B-3821/23324 (III)
5. C-441/2144
6. A-495/20513. Copied in 1113 H/1702 AD.
7. B-3137/21583 (I). Copied in 1201 H/1787 AD
8. B-812/11734 (I). Copied in 1260 H/1844 AD
9. B-319/11442
10. B-1157/3566
11. B-4586/24364
12. B-1699/11703
13. B-2474/10424
14. B-5884/29132
15. B-2439/18445
16. B-6203/29732
17. B-2952/21160
18. A-515/20512
19. B-3898/23744 (II)

Risaleyi-Tibb va Ziraat (*Treatise On Medicine and Agriculture*). No A-770/24410 (I)

Rovshanainame (*Enlightening Book*). No M-66/11601 (III). Cop. 1267 H/1251 AD.

Sharhi-Zahabiyya (*Golden Commentaries*). No B-3226/21898

Siraj al-Tibb (*Light of Medicine*) by Hasan bin Riza Shirvani. No:

1. B-559/2394 (II)
2. C-14/3192 (II)

Tarigi-Sakhtani-Bazi Az Jowhariyyat (*Preparation Methods of Some Medicines*). No B-674/3203 (IV)

Tiryaqati-Samum (*Antidotes*). No: B-674/3220 (VI)

Tuhfat al-Muminin (*Gift of True Believers*) by Seyyid Mir Muhammad Mumin. No:

- B-2017/15078
- B-2490/18431 (IV)
- B-2490/18431 (III)
- B-295/9089
- B-4776/24361 (I)
- C-364/18446. Copied in 1125H/1713 AD
- D-254/3602
- D-482/22453 (II). Copied in 1221 H/1807 AD.

D-97/2179
C-5/3867. Copied in 1190 H/1777 AD.

D-312/13269. Copied in 1219 H/1805 AD.

C-482/22388 (I). Copied in 1222 H/1807 AD.

M-243/3747. Copied in 1245 H/1830 AD.

D-190/374 (1). Copied in 1254 H/1839 AD.

- B-1625/14449
- D-5/8252. Copied in 1190 H/1777 AD.

C-3/10275. Copied in 1197 H/1783 AD.

C-261/10515. Copied in 1293 H/1876 AD.

D-539/23909. Copied in the 19th century AD.

B-4776/24361. Copied in 1284H/1869 AD.

Zad al-Musafirin (*Travelers' Supplies*) by Muhammad Mehdi bin Ali Nagi. No:

1. A-470/17124
2. B-274/11511 (1)
3. B-3253/21984
4. B-4677/24562
5. B-538/3299
6. B-660/9105 (III)
7. D-110/5314
8. A-151/2785. Copied in 1781 AD.
9. B-517/3050-3052 (III). Copied in 1819 AD.
10. B-3706/24564
11. B-137/ 5307. Copied in 1820 AD.
12. B-4676/24563 (II)
13. B-5410/27145(I). Copied in 1846 AD.
14. B-2464/16817. Copied in 1868 AD.

Zakhireyi-Kharazmshahi (*Kharazm-shah's Supplies*) by Zeynaddin bin Abu

Ibrahim al-Jurjani. No:

1.D-176/8197

2.B-5538/27440 (I)

Zakhireyi-Nizamshahi (*Nizamshah's Supplies*) by Rustam Jurjani. No: M-220/5305. Copied in 954 H/1546 AD.

Ziynat al-Abdan (*Body's Wealth*) by Ibn Muhammad Hashim al-Ansari Muhammad Tagi Kashani. No B-1168/19964 (IV). Copied in 1303 H/1886 AD.

Ziynat al-Abdan (*Body's Wealth*) by Shlimer Felemengi. No:

1. B-5381/27066 (II) Copied in 1306 H/1889 AD.
2. B-5411/27155. Copied in 1296/1879 AD.
3. B-5375/27058. Copied in 1298 H/1881 AD.
4. B- 1816 /13331 (I). Copied in 1305 H/1888 AD.
5. C-14/3192 (I). Copied in 1312 H/1895 AD.

Zubdat al-Hikmat (*Cream of Wisdom*) by Ali Nagi bin Muhammad Ismail. No:

1. B-674/3203 (V). Copied in 1343 H/1925 AD.
2. B-5387/27117. Copied in 1292 H/1875 AD.

CHAPTER 3

MEDICINE IN MEDIEVAL AZERBAIJAN

§ 1. PROFESSIONAL AND FOLK MEDICINE

It's very important to make the distinction between Folk Medicine and ancient professional medicine. Folk medicine is treatment that is carried out by folk practitioners, not doctors or professional healers. Secrets of folk medicine are passed down from generation to generation, from parents to children and then to their grandchildren. Folk healers have their own special knowledge and skills in treating disease; they aren't graduates from universities and they don't rely on textbooks or other written sources.

Professional doctors in

those times were educated and wealthy. They usually lived in cities. Some became famous as court physicians in palaces of kings and governors.



Murals in the Apothecary Museum (Baku).

In contrast, common people of the Middle East, especially illiterate peasants in villages, had no idea about Avicenna and Hippocrates. Despite the fact that there were major hospitals in Tabriz, Ganja, Shamakhi and other medieval cities of Azerbaijan, professional medical care was not available in villages. Therefore, people tried to benefit from the knowledge of folk medicine, which was both widespread and inexpensive.

§ 2. MEDICAL THEORY

The professional medicine of medieval Azerbaijan was a scholarly system that was studied in medieval universities (madrasa) and based upon treatises by such erudite physicians as Avicenna (Ibn Sina, 980-1037) and other prominent medieval doctors of the

Muslim World. Their ideas were rooted in scientific observations based on ancient Greek medicine set forth by Hippocrates and Galen. Medicine of medieval Azerbaijan was similar to the Greek-Arabic or Islamic medicine.

The basic theoretical conceptions of the medieval Azerbaijan medicine are as follows: teachings about four elements of Nature (fire, earth, water and air), four qualities of these elements (humidity, dryness, warmth and coldness), four basic humours of organism (blood, bile, black bile and mucus) and four temperaments (sanguine, phlegmatic, choleric and melancholic).

The teaching about Four Holy elements was created by Zoroastrians in ancient Azerbaijan, Persia and the Central Asia.

It made a great influence on the development of science in ancient Greece. In the 6th-5th centuries BC, these scientific doctrines were developed by such Greek scientists as Empedocles, Herac-

lites and Hippocrates. As evident from medieval sources, during the Middle Ages these theories deeply influenced the traditional medicine in the Muslim East including Azerbaijan.

**Principal Humours and Temperaments
(According to medieval medical sources)**

ELEMENTS	HUMOR AND SEASON	PROPERTIES	SIMPLE TEMPERAMENTS	COMPLEX TEMPERAMENTS
Air	Blood Spring	Warmth Humidity	Hot temperament, Humid temperament	Temperament with prevalence of blood (sanguine temperament)
Fire	Bile Summer	Warmth Dryness	Hot temperament, Dry temperament	Temperament with prevalence of bile (choleric temperament)
Water	Mucus Autumn	Coldness Humidity	Cold temperament, Humid temperament	Temperament with prevalence of mucus (phlegmatic temperament)
Earth	Black bile Winter	Coldness Dryness	Cold temperament, Dry temperament	Temperament with prevalence of black bile (melancholic temperament)

According to scholars of those times, all substances consist of four elements of Nature. Each element has two of the existing four properties (humidity, dryness, warmth, coldness). Ancient scholars considered that each living being was made of four humours (blood, bile, black bile and mucus). Physicians of those times believed that a deficiency or surplus of any of these substances would cause disease.

Every medicine also has its own nature - cold or hot, dry or humid. For example, if you suffer excess cold in the organism, you must take hot medicine, while a patient with hot nature must balance it with a cold medicine. Foods also were considered to be cold, hot, dry or humid. For example, pepper is hot, while potato is cold. It was recommended to eat cold when an organism is hot, and eat hot when

it is cold.

The medieval Azeri authors emphasized that each season was associated with a relevant humour. For example, in summer, the total amount of bile in the organism increases, while the amount of mucus increases in winter. The anonymous author of "Risala-i Tibb" (17th century) writes: "First comes spring which consists of three months. Its nature is hot and humid. During these days, the total amount of blood rises in the organism. The patient should be treated in line with the nature of this season." [30]

"The second season is summer which is hot and dry by nature increasing the amount of bile in organism. The third season is autumn, with its cold and humid nature increasing the mucus amount. The fourth season is winter with its cold and dry nature increasing the amount of black bile." [30]

Of course, this is only a brief survey of the ancient medical ideas spread in Azerbaijan and other Muslim countries during that time

§ 3. HEALTHY WAY OF LIFE

Generally, medieval medicine focuses on three areas - (1) prevention, (2) treatment



A musician. Azerbaijani miniature (Tabriz school of miniature, 16th century AD).

and (3) pharmacology.

Medieval medical texts emphasize preventative me-

dicine and recommend healthy mode of life. Herbs and aromatherapy were considered to be an important part of staying healthy.

"Tibbname" recommended that insane, tired and high-strung nervous types be treated with Azerbaijani mugam music. "Such a patient should be made to lie down in a comfortable place, preferably near a flower garden next to a fountain of running water. If someone sits next to him and performs tender melodies on a stringed instrument, the effect is even stronger. Eventually, the patient will relax and fall asleep." [33]

Medieval doctors cautioned people not to get tired. Working to exhaustion and then trying to compensate by sleeping longer was viewed as harmful. Instead, frequent

short breaks were recommended. Emphasis was placed on a balanced harmony between work and rest. It is a citation from Tibbname [33]:

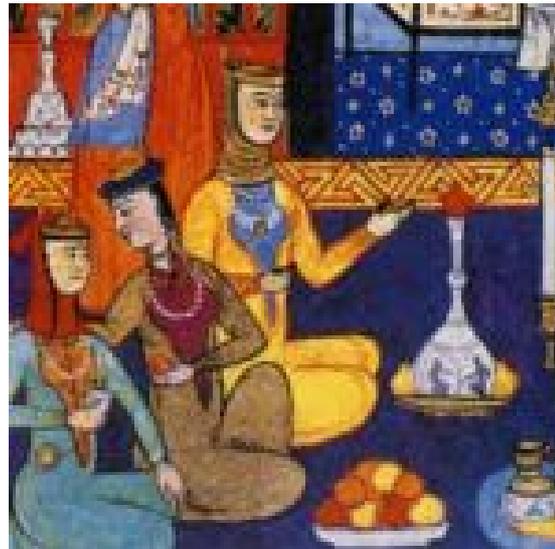
Həkimlər böylə rəvayət
etmişlər ki, çox yuxula-
maq bədəni zəif edir,
mədəni ağır edir, bəlğə-
it çox, bədəni ağır edir.

Doctors say that sleeping
too long weakens the body,
weighs upon stomach, in-
creases mucus,
lies heavy upon body.

Many physicians strongly warned about the overuse of animal fats. In the 14th century, Yusif ibn Ismayil Khoyi wrote that animal fats are bad to digest and may cause sickness and vomiting. So, whenever possible, overuse of animal

fats should be avoided.

He went on to list the consequences of eating animal fats including stupefaction, poor memory, heart disease, weak eyesight and epilepsy. In order to counter these effects, sour substances should be incorporated into meals to help breakdown meat more effectively during

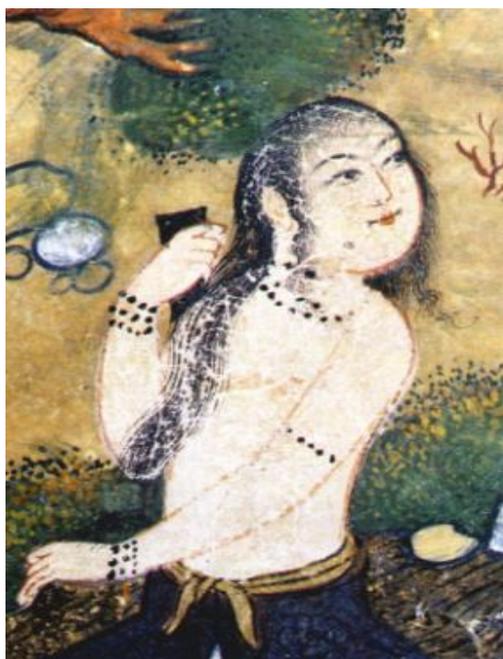


Pomegranates, pears and apples being served during a feast at the Shah's Palace. A 17th century miniature illustrating a poem by Nizami Ganjavi (1141-1209), famous poet from the city of Ganja (present-day Azerbaijan Republic).

digestion.

Khoyi recommends vinegar, lemon, pomegranate, unripened grapes and various spices such as fennel, saffron, cardamom, cloves and cinnamon, which have the ability of stimulating the gastric juices and making digestion more rapid and complete.

In Azerbaijan, various folk sports are used to promote health. The most pop-



Bathing queen Shirin. A 17th century miniature illustrating a poem by Nizami Ganjavi (1141-1209), famous poet from the city of Ganja (present-day Azerbaijan Republic).

ular include weightlifting, horse riding and national wrestling (*güleş*). Horse riding was used in the treatment of arthritis, atrophy of muscles, heart diseases, and nerve disorders.

Also taking baths was considered to be very effective for prevention of diseases. Traditionally, Azerbaijanis visited the national bath, the "hamam" several times each week. In the "hamam", services were available from a barber, masseur and pharmacist - perfumer.

§ 4. PROFESSIONAL TREATMENT METHODS

Herbs and aromatherapy were considered to be an important part of staying healthy. Unfortunately, much of the knowledge found in these texts has been lost or forgotten. For instance, out of the 726 medicinal herbs mentioned in medieval sources, only

466 are known to grow in Azerbaijan today. Of these, 252 are not being used for any modern medicinal purpose. Medieval physicians used 115 kinds of minerals and 150 species of animals. [5]

Not only were diseases treated by natural remedies (herbs, animals and minerals), but they were also treated by such methods as medical bloodletting (exsanguination), leeches and massage.

Bloodletting or "hajamat" (*hacamət*) was carried out to let out "the bad blood", stimulate the formation of new blood and lower blood pressure. However, it was forbidden to carry out bloodletting on small children or any person who had no appetite or who was physically exhausted. Spring was considered the best time for blo-

odletting. The practice was only rarely performed in summer under dire, emergency situations.

Even today, when Azerbaijanis are in a bad mood, they often say: *mənim qanım qaradır* (my blood is black). In old days, black blood was considered the reason why people experienced bad moods (melancholy). Specialists identified scores of veins, each



Early surgical instruments in treatise on surgery by Abulkasim Zakhravi (died in 1013 AD). The manuscript was copied in the 13th c. AD. Institute of Manuscripts, Baku.

of which they thought was responsible for specific diseases.

In addition to doctors, barbers were also involved in medical practices. Not only did they cut and shave hair, but they performed medical practices such as bloodletting, extracting of teeth and use of leeches.

Early physicians were also familiar with aromatherapy, which is becoming more and more popular in the West today. The smell of quince, for example, was believed to strengthen the natural energy of the body. Citron was used to tone the nervous system, and apples, to stimulate the brain.

Music was also recognized as another form of therapy because of its ability to affect emotions. Positive effects were observed when people listened to

music or to birds singing, especially the nightingale. Even listening to someone recite poetry was viewed as curative.

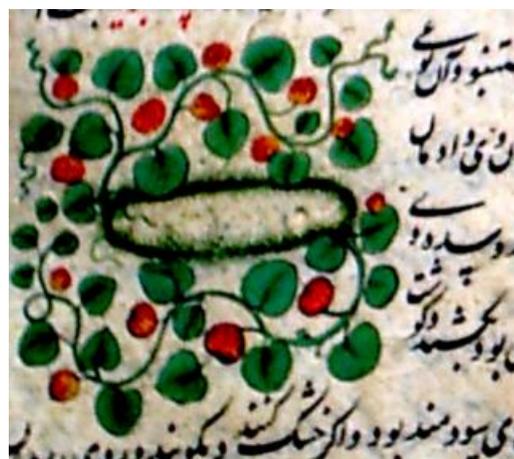
Even color entered into the treatment of some physicians. The 18th century text "Tibbname" suggests that one's place of rest be decorated in flowers and painted in pale blue, green or white tones.

§ 5. FOLK TREATMENT METHODS

Folk medicine treatment in Azerbaijan was called *Turkahara* (Turkic treatment). This procedure was well known among Turkic tribes living in the region of Azerbaijan. It consisted of various methods including magic, medicinal plants, folk surgery and massage.

“The Story of Monsieur Jordan, a Doctor, and Darvish Mastali-Shah, a Famous Magician”. One of the characters, the French botanist Monsieur Jordan visits the Karabakh region to study local flora. He discovers that yarpiz is very popular among the local population. The Azerbaijan Film Studio produced a film based on this play, "Darvish Explodes Paris" (Darvish Parisi Daghidir) where the famous Russian actor Sergey Yursky played Jordan.

Today, pennyroyal is used both in folk medicine, as well as in cuisine. "Dovga", made from yogurt and greens such as pennyroyal, is considered to be good for digestion and for alleviating intestinal colic. Similar to peppermint, it is also eaten as a fresh table green. Of course, not only is pennyroyal used in Azerbaijani folk medicine, mod-



Aromatic melon. Miniature from "Ikhtiyarati-Badii". Institute of manuscripts, Baku, copied in the 17th century AD.

ern field research shows that at least 800 species of herbs were used in folk medicine [2].

The most commonly used herb is thyme. The entire upper part of this plant (stem, flowers and leaves) is widely used in both folk medicine and cuisine. Dried thyme is sold in bazaars, markets and pharmacy shops. People add it to their tea to treat intestinal colic or indigestion. One tablespoon is infused in a glass of hot water. People drink

it three times a day prior to meals to cure infectious diseases of stomach and intestines and to stimulate the appetite. Thyme is used to flavor meat as well, especially kababs. It adds aroma and aids digestion. It is also used in the preparation of sharbats (fruit and herbal non-alcoholic refreshing drink), which are good for digestion and to promote secretion of gastric juices.

Since ancient times people have used the alcoholic extraction of peppermint for external application. This extraction is called *cövhar-nanə* (sometimes, *nanəcövhar* as well) (peppermint essence). Jovharnana is used to massage the belly when someone is experiencing intestinal colic. After the massage, the person covers up with blankets. This remedy is applied to treat neuralgia. It is used to ease breathing of those with colds and

influenza. People pour jovharnana into a spoon and heat it and inhale the extract as it evaporates. It clears out stuffed noses and eases breathing.

People frequently use the peel of pomegranates for dyspepsia and indigestion. It is a very strong remedy. The skin - either fresh or dried - can be boiled in water and sipped throughout the day. The taste is quite bitter so some people add sugar. Unlike antibiotics, pomegranate skin has no side effects and may be used in the treatment of little children.

Other frequently used herbs include chamomile (*çobanyastığı*), which is used for infectious diseases, peppermint (*nanə*) used for abdominal colic and colds, and juniper cones (*ardic qozaları*) for urinary infections.

Folk Surgery

Folk doctors called *sınıqçı* (fracture doctors) specialized in the treatment of dislocations and fractures. To alleviate severe pain in the extremities, compresses made of the fat of sheep's tail were placed on the injured part. Usually, these compresses were kept on throughout the night and removed the next morning. As a result, pain and inflammation decreased and the diseased joint had more flexibility.

In addition, fat from both the badger and fox was valued as a potent remedy. Ointments from these fats were applied to painful joints and bones. Sometimes, pepper, ginger or other spices were added to the fat. For rapid recovery of broken bones, folk healers recommended such food as *xaş*, *kəlləpaça* or *başayaq*. These are soups made from hooves and heads of sheep and cows and are rich in nutrients as they contain connective tis-

sues vital for repairing damaged joints. Another group of folk healers was called *çöpçü*. They were skillful in removing any bones that got lodged in the throat.

CHILDAGH - FOLK REFLEXOTHERAPY

On the Absheron peninsula, there are still folk healers named *childagchi* (spot burners) who treat nervous diseases and remove tiredness by applying heat to certain spots on the forehead, arms and legs. Childagh is still practiced in Mashtagha, one of the villages in the suburbs of Baku. Many people still seek out this treatment [1].



Cigarette for cauterization

The art of Childagh is quite unique although it has not been thoroughly investigated. It is not known when Childagh was introduced into this region or from where it originated. It seems to be a modified form of Chinese reflexology replacing needles with cauterization (burning). Perhaps this art came to Azerbaijan from China during the Mongolian invasion of the 13th century when many features of Chinese culture and medicine were brought to Azerbaijan. The Mongolian rulers of the Elkhanid Dynasty who ruled in Azerbaijan favored such Chinese traditions.

Childagh has not been found to be documented in the ancient medical manuscripts of Azerbaijan or surrounding Muslim regions. However, Ibn Sina does mention in his Canon that some nervous diseases were treated by burning three points on the forehead. Sharafaddin Hakim, a Turkish

physician of the 15th century, also describes this treatment in his book of surgery, which is now preserved in the Topkapi Museum in Istanbul. This book provides color miniatures showing this treatment. We see a physician burning the points on a patient's forehead with a metallic stick-like implement. Some Azeri Turkic verses by Muhammad Fuzuli (1494-1562) also provide information about early cauterization practice.



Childagchi at work

In childagh as practiced in Azerbaijan today, the healer uses a cigar made of wormwood or plain cotton wool. Chinese also use this same type of cigarette.

§ 6. MEDICINE AND MAGIC

Healing by magic was also an essential part of folk medicine in Azerbaijan. Beginning in ancient times, shamans (*qam* in ancient Turkic) from Oguz tribes who inhabited Azerbaijan used various magical songs, music and verbal formulas to stave off evil spirits. They used various parts of animals in this process. Vestiges of these practices are evident in Azerbaijan even today, even though Islam severely criticizes such beliefs and considers them to be superstitious [10].

For example, some people believe that if a childless woman eats fried rooster genitals, she will become pregnant. According to another folk belief, the eyes of an owl work well for both inability to sleep, as well as an excessive desire to sleep. This folk idea is described in the medieval book, *Tibbname* (Book of Medicine) of 1712: "It is necessary to remove both eyes of an owl and put them in a bowl with water. A heavy eye will sink, a light eye will float on the water's surface. If a person suffering from insomnia swallows the heavy eye, he will fall into a sound sleep. However, if he consumes the lighter eye, he will not sleep all night" [33].

Some healing practices are related to Islam as well as folk magic. For example, according to the *Tibbname*, if one

reads the Sura of Fatiha from the Koran every morning and then trims his eyebrows with a comb, he never will die of plague. Another belief advises that bad memory can be treated by writing down the Fatiha on a big piece of sugar and then eating it on an empty stomach. All such recommendations are held in disdain by Islam and have nothing to do with religion nor with traditional medicine of medieval Azerbaijan. However, such beliefs continue to persist.

RHINOCEROS HORN And Lion's Heart

It is believed that if one eats the heart of a lion that he will be brave and recover from such conditions such as depression, bad mood and nervousness. Even today, Azerbaijanis have an expression to des-

cribe such a courageous person. They say: "Did you eat a lion's heart?" (*"Şir ürəyi yemisən?"*). It's impossible to find any lions' hearts in Azerbaijan today because they all became extinct in the 16th century.

However, there have been occasions when people have gone to the Baku Zoo and tried to persuade personnel to sell various animal parts: snake skins, wolf paws, camel fur, rhinoceros excrement, and even elephant urine.



It is still believed that this statue of Camel in Sofi Hamid Sanctuary nearby Baku treats infertility in women and other diseases.

Such a situation is described in Magsud Ibrahimbeyov's short story, "The Horn of Rhinoceros". The protagonist of the story, an elderly person decides to marry a young girl. He discovers an ancient book with a folk recipe describing how to make himself appear younger and healthier. One of magical ingredients was powder from the horn of rhinoceros. So he goes to the zoo at night with the intention to saw off a horn of a rhinoceros. However, he is suddenly attacked by a small kiwi bird, which made such a noisy racket that the perpetrator gets arrested by the police.

HEDGEHOGS AND WOLF CLAWS

Hedgehogs are extremely popular in Azerbaijani folk medicine. It is believed

that the fried meat of hedgehog cures female infertility. So many hedgehogs have become victims of this superstition.

The wolf is considered a sacred ancestor or totem of Turkic tribes. Many beliefs are associated with this animal. All of them date to Pre-Islamic times though they still live on in folk belief today despite the negative attitude of Islam towards such "pagan ideas".



Room for treatment of insane persons in Sofi Hamid Sanctuary nearby Baku.

All parts of the wolf are believed to produce positive medical effects. For example, the wolf's claws are considered the best medicine against male impotence. It was recommended to carry claws to increase potency. Another belief advised soaking the claws in oil for a long time and then using this oil as an ointment.

EXTRASENSORS AND FORTUNE TELLERS

Azerbaijan has its share of extrasensors who are convinced that they have the ability to treat others with the help of words, suggestions or bioenergy. Many extrasensors are folk healers and have no medical diploma. Sometimes they mix their practice with Islam and magic, meaning

that they make a diagnosis based randomly selecting texts in the Koran along with amulets and magical formulas. One of Azerbaijan's most famous extrasensors Tofiq Dadashov claims to be able to treat diseases by drawing upon his telepathic skills.

There are also fortunetellers and magicians who claim to have the ability to remove evil eye with the help of black and white magic.

Therapy with massage and chiropractics is less widespread now in comparison to a few decades ago, but they continue to be practiced. Throughout Azerbaijan there are centers where Tibetan, Indian and Chinese folk medicine is used to treat those in need of medical assistance and cures.

CHAPTER 4

MEDIEVAL PHARMACOLOGY



§ 1. INTRODUCTION

Azerbaijani people have a rich and ancient tradition in the field of pharmacology. Physicians of those days widely used medicinal plants, minerals and substances of animal origin (milk, honey, oil, meat, gall, bones, feathers, skin, etc.). There are numerous medicinal plants described in medieval Azerbaijan manuscripts on medicine and pharmacology that date back to the 9th-18th centuries AD. Phitotherapy was very popular. Traditionally, no part of a medicinal plant was wasted; all parts were used - seeds, flowers, leaves, stems and roots.

In spite of this rich heritage, the traditional phytopharmacology of Azerbaijan has not been satisfactorily investigated. Until quite recently, we had no information about the quantitative and qualitative composition of plant species described in medieval Azerbaijan sources. These plants had not been identified and classified into taxonomic and therapeutic groups.

Since 1987, the author of the present book has been engaged in identifying and analyzing the medicines described in these manuscripts. As a result of this work, numerous medicinal plants used in Azerbaijan during the Middle Ages have been identified. [5]

§ 2. STUDIED MANUSCRIPTS

For studying traditional phototherapy of Azerbaijan, a wide range of the medieval sources on medicine and pharmacognosy have been analyzed. The main attention was paid to studying the primary sources from the collection of the Institute of Manuscripts of the Azerbaijan Academy of Sciences in Baku. About 40 medieval sources of the 10th to the 18th centuries including 17 manuscripts have been selected as the objects of the recent study. The list of the manuscripts studied is given below.

Works of Medieval Azerbaijani Authors

1."Adwar al-Hammiyat" by Muhammad bin

Namvar Tabrizi (1194-1245).

2."Kitab al-Hawi fi Ilm al-Madawi" by Mahmud bin Ilyas (13th-14th centuries).

3."Jam al-Baghdadi" (written in 1311) by Yusuf bin Ismail Khoyi (Ibn Kabir)

4."Siraj al-Tibb" by Hasan bin Riza Shirvani (18th century).

5."Fawaid al-Hikmat" by Haji Suleyman bin Salman Qajar Iravani (18th century).

6."Khirga" written in 1678 by Murtaza Qulu Khan Shamlu al-Ardabili.

7."Tbbnama". Anonymous. Copied and edited in 1711/2 by Muhammad Yusuf Shirvani.

8. "M u a l i j a t - i - Munfarida" (1775/6) by Abulhasan al-Maraghi.

Works of Persian,
Central Asian and Arabic
Authors Widely Used in
the Medieval Azerbaijan

1."Kamil al-Sina'at al-Tibbiyat" by All bin Abbas Majusi Arjani (d. 994 AD).

2."Zahira-i-Kharazmshahi" by Zeynaddin bin Ahu Ibrahim Jurjani (1045-1137).

3."Zakhira-i-Nizamshahi" by Rustam Jurjani supposedly in the 13th century.

4."Ikhtiyarat-i-Badi'i" (1369) by Abu bin Huseyn al-Ansari (1329-1404).

5."Kifayat al-Mujahida" (1423) by Mansur bin Muhammad.

6."Jam' al-Fawaid" (1511) by Yusif bin Muhammad al-Ilarawi.

7."Karabadin" by Muzaffar bin Muhammad Hluseyn Shafai (1586/7-

1628/9).

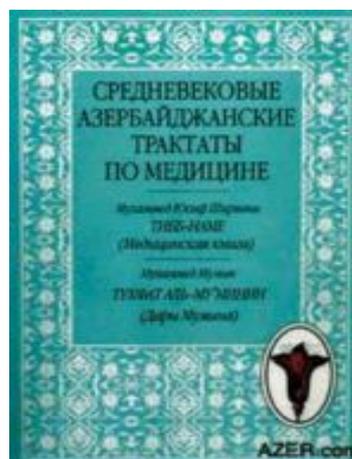
8."Tuhfat al-Muminin" (1669) by Sayyid Mir Muhammad Mu'min (d. 1697).

9."Arwah al-Ajsad" by Shamsaddin bin Kamaladdin Kashani (17th century).

10."Kitab-i-Ruju al-Sheykh" by Sheykh Ajal al-Sharif (17th century).

11."Zad al-Musafirin" (1729) by Muhammad Mahdi bin All al-Nagi.

12."Karabadin-i-Kabir" (1777) by Muhammad Huseyn Khan Alavi Samarkandi.



Modern edition of "Tibbname" and "Tuhfat al-Muminin" in Russian (Sankt-Peterburg, 2002). Translation by F. Alakbarli and A. Farzaliyev.

All these manuscripts have been collected from various regions of the Azerbaijan Republic. They were copied in our country and belonged to Azerbaijani owners. The above mentioned books were widely used by medieval Azerbaijani physicians and these writings may be considered as the most popular books of Medieval Azerbaijan.

§ 3. RESEARCH METHODS

Studying the medieval sources on medicine and pharmacy is fraught with numerous difficulties and involved various sciences. Medieval sources were handwritten in the Arabic script employing medieval special terminology and medieval ideas on medicine. Medieval Azeri authors collected medical information from a wide

range of sources written by Indian, Chinese, Arabic and Greek scholars. Consequently, the same concepts were often identified by numerous foreign terms.

Physicians of those times used more than 2000 names to designate hundreds of species of medicinal plants in 27 languages and dialects including Azeri, Turkish, Arabic, Persian, Ancient Greek, Latin, Ancient Hebrew, Chinese, Hindi, Sanskrit, Aramaic, Coptic, Berber, Ancient Turkic, Uigur, Andalus (dialect of Arabic), Isfahan (dialect of Persian), Gilan and Mazàndaran (Iranian languages) [4].

The scientific terminology of such modern languages as Azeri, Arabic and Persian is not the same as that used during the medieval period. Other languages (Coptic,

Ancient Greek, Latin, Aramaic) ceased to exist many centuries ago and consequently hamper the correct translation of many medieval terms. In this chapter, the facts and methods of both the social (history, philology, philosophy, etc.) and the natural (botany, zoology, mineralogy, chemistry, medicine, pharmacology, etc.) sciences have been used to try to solve these difficulties.

Translation of the medieval terms has been carried out according to modern and medieval dictionaries. However, sometimes special dictionaries do not contain the necessary information or offer various interpretations of the same terms. Fortunately, the medieval manuscripts on pharmacy contain detailed biologic descriptions of botanicals. These descriptions ha-

ve also been analyzed to identify plant species. The old scientific books were widely applied. Modern scientific literature was analyzed as well. Reference books on flora helped the author in various stages of this work.

Information on the medicinal plants of medieval Azerbaijan is scattered in various sources that were written in different languages. It must be noted that various dictionaries can give us unlike or contradictory translations of the same terms. Work with these sources requires great caution and a critical approach to the material, and a thorough comparison with the other data obtained on the basis of morphological, ecological and bio-geographical analyses of the plant species described in medieval sources.

§ 4. SYSTEMATICAL ANALYSES OF THE IDENTIFIED SPECIES

As a result, 724 species of plants described in medieval sources on medicine and pharmacognosy have been identified. These plants belong to four sections (*Equisetophyta*, *Polypodiophyta*, *Gymnospermae*, *Angiospermae*), to six classes (*Equisetopsida*, *Polypodiopsida*, *Gnetopsida*, *Pinopsida*, *Monocotyledones*, *Dicotyledones*) and 143 families.

It turned out that 16 families contain about 54% of identified plants. The remaining 121 families include 45% of the medicinal plants. Physicians of those times used a number of species of lichens belonging to three genera: *Lecanora*, *Roccella* and *Usnea*. Some

species of mushrooms also were used: *Polyporus officinalis* Fries., *Tuber album* Sow., *Tuber meianasporum* Vitt., *Morchelia esculenta* Pers.

Of the 724 species of plants described in the medieval sources on medicine and pharmacognosy, 422 species (58.3%) belong to indigenous plants and occur in the territory of modern Azerbaijan Republic. Comparative analysis shows that only 166 of them are currently being used in modern phytotherapy of Azerbaijan. It must be noted that 60 of mentioned species are known as plants of folk medicine, whereas the 106 species are currently being used in scientific medicine of Azerbaijan.

The fundamental studies and reference books on

medicinal plants of Azerbaijan do not contain any information about other 256 indigenous species that are described in the medieval manuscripts on medicine and pharmacognosy. Therefore, these 256 species (60.7%) are no longer used in the modern Azerbaijan phytotherapy. The identified medicinal plants may have therapeutic value once they have been experimentally and clinically tested.

§ 5. DESCRIPTION OF PLANT SPECIES IN MEDIEVAL SOURCES

While describing the species of plants, medieval authors gave wide information on their therapeutic properties. For example, Muhammad Mumin (d. 1697) wrote:

"QUINCE (*Cydonia vulgaris Pers.*). Ripe fruit can be used as a tonic and

has diuretic qualities. It strengthens heart and nervous system. Warm quince salve can be applied to irritated skin. Sour fruit is recommended to person with an accelerated heartbeat. It stimulates the appetite. Fruit and juice are good against liver diseases, hepatitis, rhinitis, pneumonia and nausea. Juice can be used to stop bleeding, blood spitting, ulcers and injuries of the urethra, vomiting and hang-over. Besides, it quenches thirst well. Quince pulp (especially of sour fruit) acts as an opiate; therefore it should be taken in small quantities, preferably with honey, stewed or in the form of jam.

Excessive consumption of fresh fruit might cause cough or colitis. The fluff of skin is strong opiate and helps to stop bleeding, but is bad for the larynx and vocal cords.

The seeds are strong styptic. The infusion is good against angina, cough and irritation of the mouth. Seed's compresses are applied to fire and sun burns. Core of seeds intensifies libido, acts as a purgative and stimulates breathing. It is used against ulcer, cough and the vocal cords' inflammation. The moisture around the seeds is good against dry cough as well as burns." [27]

From the above quotation, it appears that medieval physicians applied the same plant against a number of different diseases. Individual plants or their mixtures were used to prepare different medical forms such as unguents, powders, tablets, pills, infusions, syrups, different mixtures, etc.

Physicians of the Middle Ages knew that differ-

ent parts of plants have different healing properties. Modern pharmaceutical use only some parts of plants, while medieval physicians used roots, stems, leaves, flowers, fruits and seeds, with each part used in an adequate way. Traditionally, no part of a medicinal plant was wasted; all parts were used.

As a rule, the medieval manuscripts on medicine contain numerous chapters devoted to treatment of various diseases using remedies of natural origin. For instance, the title of the first chapter of "Tibbname" (1712) is as follows: "The First Chapter. Narrates About Treatment of Headache And Migraine." [33]

The following chapters of the mentioned book are devoted to healing such

diseases as melancholy, epilepsy, meningitis, poor memory, nasal bleeding, toothache, extraction of teeth, weak gums, and so on. Some examples of these recommendations are given below (the manuscript of "Tibbnama," Code: C 541, pp. 41-77). The medieval weight units are converted into grams, scientific names of plants and comments are given in parenthesis.

Colic in Stomach. "Take dried leaves of peppermint (*Mentha piperita* L.), mix with some vinegar and massage the belly. The ointment from cinnamon (the dried bark of *Cinnamomum cassia* (Nees) Nees ex Blume) is also useful, if it is applied externally on the stomach".

Colitis. "Root of althea (*Althaea officinalis* L.) is the best remedy against colitis. To remove the acute pain one should eat 3 g of its

leaves. Besides, take so-called mastic (the resinous exudate from *Pistacia lentiscus* L.), add twice as much sugar and eat during several days

Cough. "Take 20 g of basil's (*Ocimum basilicum* L.) leaves and flowers, mix with 20 g of thyme (*Thymus* sp.) leaves, and infuse in 1 liter of water for 15 minutes. Then, add to infusion two spoons of honey and stir it. The diseased person has to take one spoon of this medicine in every half an hour "

Headaches. "To heal chronic headaches (migraine), take 5-10 g of basil's (*Ocimum basilicum* L.) leaves, boil in a cup of water, titter, add some honey or sugar and drink. Repeat this treatment every day during two weeks. If headache is associated with cold, you have to drink decoction of thyme (*Thymus* sp.) or add its leaves into

common tea. Ginger (the dried rhizome of *Zingiber officinale* Rosc.) is used for preparation of analgesic ointment against headache. You should take the ginger's juice, stir with sesame (*Sesamum orientale* L.) oil or rose (*Rosa damascena* Mill., *R. centifolia* L., *R. gallica* L.) oil and spread on the head"

Heart Diseases. "Decoction of balm-mint (*Melissa officinalis* L.) leaves with rose water is good against excessive heartbeat (tachycardia). The pomegranate (fruits of *Punica granatum* L.) syrup is also used to heal this disorder. Make a mixture of juice of plantain (*Plantago major* L.) leaves, rose water, purslane (*Portulaca oleracea* L.) juice, and drink it. Apples (*Pirus malus* L.) and their decoction are good in prophylaxis and treatment of heartbeat as well".

Hemorrhoids. "Grind 15 g of the oleander (*Nerium oleander* L.) leaves. Put threshed leaves into a pot filled with 100 g of olive oil and carefully boil them. Then, decoction should be filtered to obtain pure oil. Take a bit of cotton, submerge into oil and prepare suppository to apply on the hemorrhoids. If diseased is a child, you should prepare decoction from pomegranate's (fruits of *Punica granatum* L.) skin. Then the child should take a bath with this decoction".

Indigestion. "For a day a diseased person should avoid any food and follow to a rigorous diet. Then, he should eat fresh leaves of balm-mint (*Melissa officinalis* L.). To improve the poor digestion, it is good to sprinkle dried powder of peppermint (leaves of *Meniha piperwell*".

rita L.) on the dishes. Such seasonings as cinnamon and mastic also are good for digestion. Besides, it is recommended to eat various dishes with fresh herb of tarragon (*Artemisia dracunculus* L.)"

Kidney Diseases. "Cones of cypress (*Cupressus sempervirens* L.) and juniper (*Juninerus sabina* L.) are good against inflammation of kidney and urinary bladder. The green cones of cypress should be boiled in two glasses of water. Then, the diseased person should take half a glass of this decoction three times per day during one-two weeks. Cones are good diuretics and remove inflammation from urinary organs"

Melancholy. "Saffron (*Crocus sativus* L.) is called 'the medicine cheering heart' because it removes the had spirit. Those who want to be cheerful and vig-

orous should take 1 g of this remedy. To remove bad spirit you have to carefully and slowly chew and swallow one or two cloves (dried flower buds of *Eugenia caryophyllus* (Spreng.) Bull. et Harr.)"

Pains in Ear. "Pomegranate (fruits of *Punica granatum* L.) should be cleaned from seeds, stuffed with rose oil and heated. Then you have to prepare the ear drops from this oil and to use it against ear pain. Besides, you may boil the sour pomegranate's juice, mix it with equal amount of honey and drop into ears".

Pains in Joints. "There is a good analgesic ointment against rheumatism. Take some garlic (*Allium salivum* L.), chop it, mix with equal amount of camphor and massage the joint. The chamomile (flower heads of

Matricaria chamomilla L.) oil also removes rheumatic pains. A person with ill joints should also take a bath with decoction of thyme (*Thymus* sp.) leaves. He has to take 500 g. of thyme, chop it and put in the little bag which should be placed in boiling water for 15 m. Then, he should empty this decoction into bath".

Quinsy. "Gargles with decoction of the black plum-tree (*Punus domestica* L.) leaves are good against this disease. Gargle removes inflammation and strengthens muscles of a throat. Infusion of aloe (leaves of *Aloe vera* L.) is also used against quinsy. Take one sour and one sweet pomegranate (*Punica granatum* L) and boil them with skin. Use this decoction for gargling".

§ 6. THERAPEUTIC APPLICATION OF HERBS

Most of species (150 spp. or 36.4%) was used externally as antiseptics for ulcers, furuncles, scabies, mange and other skin diseases. This group includes such drugs as leaves of oleander (*Nerium oleander* L.), juices of onion (*Allium cepa* L.), ramsons (*Allium ursinum* L., *A. victorale* L.) and garlic (*Allium sativum* L.). The mentioned plants were used for preparing unguents, powders and different medical forms that were applied externally. The second group contains plants species applied to diseases of kidney and urinary bladder (92 spp. or 23%). This group contains the following herbal medicines: flowers of corn camomile (*Anthemis arvensis* L.), fruits of dog-rose (*Rosa canina* L.),

leaves of blackberry (*Rubus fruticosus* L), bark of willow (*Salix* sp.), etc. These remedies were given mainly in decoction or infusion form. The plants of third group were used against various diseases of liver and bile duct. In medieval sources most of them were designated as cholagogues. Scholars of the Middle Ages point out that there are two kinds of bile in a human's organism: the so-called "black bile" (*qara öd* in Old Azeri and *sawda* in Arabic) and the "yellow bile" (*sari öd* in Old Azeri and *saфра* in Arabic). The following plants were considered by medieval authors as cholagogues: spearmint (*Mentha spicata* L.), dandelion (*Taraxacum officinale* Wigg.), saffron (*Crocus sativus* L.), barberries (*Berberis vulgaris* L.), fumitory (*Fumaria officinalis* L.), celandine (*Chelidonium majus* L.), chicory (*Cichorium intybus* L.), black radish

(*Raphanus sativus* L.) etc. Many plants were used against other ailments.

Azerbaijani physicians of the Middle Ages widely used botanicals which are similar to our present armamentarium. For example, *Matricaria chamomilla* L. was applied against inflammatory diseases and nervousness, and *Valeriana officinalis* L. in treatment of cardiovascular diseases. Botanicals of modern phytotherapy were used by medieval physicians more widely than we use them today. For example, *Valeriana officinalis* L. was applied not only to treat nervousness and heart diseases, but also as a diuretic and haemostatic medicine. These properties of valerian are confirmed by the modern studies as well.

Muhammad Mumin, the author of the 17th century, recommended to treat cancer of skin with the help



The 17th century picture of cabbage. Baku's Institute of Manuscripts

of cabbage's (*Brassica oleracea* L.) leaves. It was recommended to apply the fresh threshed leaves or their juice on the patient's skin. The future experimental studies have to check this medieval recommendation.

Despite the wide application of saffron (*Crocus sativus* L.) in medieval phytotherapy, nowadays this plant is almost forgotten by modern scientific medicine. Most of authors of the Middle Ages recommended to use saffron in treatment of diseases of liver, heart and as a tonic. For these purposes, the homeopathic doses of saffron were ap-

plied. Presently, saffron's infusion is successfully used by some traditional healers in Azerbaijan for treatment of diseases of liver.

§ 4. SOME "FORGOTTEN" BOTANICALS OF THE MIDDLE AGES

These plants are not included in the list of species recommended for medical application by Ministry of Health. Besides, they are not used even in the folk medicine of modern Azerbaijan. Some examples of them are cited below.

Amaranthus retroflexus L. This well-known decorative plant is not used by scientific medicine in Azerbaijan. According to the modern literature it may cause allergia. However, it may be supposed that this herb has the antimicrobial and anti-inflammatory properties.

For example, the medieval sources inform that decoction of leaves was used against tumors and diseases of skin. Besides, juice of leaves was applied to heal wounds. To treat ulcers in mouth and inflammation of gums, it was recommended to rinse it with decoction of dried amaranth's leaves.

Anacyclus ciliatus Trautv. It was considered that seeds of this plant strengthen an organism, and has the diuretic, antipyretic, anti-inflammatory, sudorific, lactogenic and expectorant properties.

Doronicum macrophyl-lurn Fish. The root of this herb was used as a tonic. It was believed that it strengthens liver, heart, digestion and organs of senses. Decoction of the root was prescribed against arrhythmia.

Gypsophyla elegans M.B. Root was used as diuretic, styptic and cholagogus. Externally was ap-

plied against herpes. It was believed that the decoction of root crushes stones in urinary bladder.

Microlophus behen (L) Taht. The herb was used as a tonic and medicine against tiredness and arrhythmia.

Myosotis arvensis L. Flowers, leaves and roots were used as antiseptics and sedative medicines. Recently, this plant is widely cultivated in Azerbaijan for decorative porpoises.

Onopordon acanthium L. Seeds and root were used against spasms, blood-spitting and as antidote against the scorpion's bites. It was believed that the bandage with seeds stops bleeding.

Salsola dendroides Pall. Decoction of stem or leaves was used as cholagogus. The juice was applied on burns and irritated skin.

The future scientific studies have to check effectiveness of the plants described in the medieval sources.

CHAPTER 5

AROMATHERAPY IN MEDIEVAL AZERBAIJAN

§ 1. WHAT IS AROMATHERAPY?

Aromatherapy is a type of alternative medicine that is gaining popularity in the United States and Europe. Specialists in this field believe that flowers and herbs have value beyond their wonderful smells - perhaps these plants even have the power to heal.

The practice of aromatherapy is believed to date back several millennia to the Egyptians and Babylonians, who often took baths with aromatic herbs and other substances for hygienic and medicinal purposes. For instance, Egyptian queen Cleopatra was

known to bathe regularly with rose petals.

In Azerbaijan as well, aromatherapy was once considered to be part of mainstream medicine. Medieval Azerbaijani doctors regularly prescribed essential oils and other fragrances for their patients. For example, a bath that smelled of roses - such as Cleopatra used to take - would have been prescribed for someone who was feeling melancholic or who had a headache. Today, this term usually refers to treatment with essential oils. These fragrant extracts come from flowers, fruits and herbs - such as rose, violet, thyme, lavender and marjoram - and are usually breathed in or applied to the skin.

Although the term "aromatherapy" was only coined in 1937 by René-Mauric Gattefossé, a French cosmetic chemist, the technique itself is thousands of years old.

§2. ANCIENT BELIEFS

In the ancient kingdoms of Mannai (9th-7th centuries BC) and Atropatena (4th-1st centuries BC) - now situated in the provinces of Eastern and Western Azerbaijan (Iran) - people believed that they had to be clean and beautiful in order to attain a higher spirituality. For these purposes, ancient Azerbaijanis used aromatic oils such as frankincense, myrrh, galbanum, rosemary, hyssop, cassia, cinnamon and spikenard.

Some fragrant herbs and trees served a religious purpose. For example, the cypress, with its fragrant

needles, was known as the tree of the prophet Zarathustra (Zoroaster). The dispersion of oils was also thought to purify the air and provide protection from evil spirits.

According to ancient Turkic beliefs, all fragrant flowers were created by Tangry, the Supreme God of the Blue Sky. The Goddess of Grasses and Trees, Oleng, was his wife. Oleng was also considered to be the patroness of physicians. Each year, at the beginning of spring, the Turkic peoples held solemn festivals in honor of this goddess and burned fragrant herbs such as wormwood.

Ancient Turkic legends tell that the souls of all children arise inside flowers and are then moved to their mothers' bodies. In a 7th-century legend, the elder named Gorgud says:

"I was created inside a flower... moved to my mother's body, and born with the assistance of the gray-eyed Angel." [31]

Azerbaijanis treated diseases and injuries with aromatic substances. One scene describing such an occasion comes from the ancient Azerbaijani epic "Dada Gorgud" (Grandfather Gorgud), a compilation of legends that were set down in writing during the 11th century but contain stories that can be traced back to the 6th and 7th centuries. [23]

Aromatic plants weren't just for healing. For instance, as far back as the 4th century AD, the people in Caucasian Albania (now northern Azerbaijan) used the herb thyme as both a tonic and an aphrodisiac.

§ 3. ESSENTIAL OILS

After Islamic invaders conquered the region in the 7th century, Azerbaijanis began studying the chemical properties of essential oils. They learned from the experience of Muslim alchemist Jabir ibn Hayyan (702-765) and other scholars who had helped to develop and refine the distillation process.

In those times, Azerbaijanis could easily have extracted rose oil and prepared rose water, substances that were very popular throughout the entire East. Other essential oils used by medieval Azerbaijanis were fennel, melissa (lemon balm), spearmint, nutmeg, dill, chamomile, cinnamon, lime, orange, bergamot, lemon, myrrh, coriander, black cumin, tarragon, bi-

rch, cedarwood, cypress and myrtle. According to existing Azerbaijani manuscripts, at least 60 plant species were used in aromatherapy at the time. Unlike today, even aromatic animal species were used. Our documents identify eight of them.

By studying essential oils, medieval Azerbaijani doctors were able to expand their understanding of aromatherapy and its ability to cure disease. Specific oils were used to treat certain ailments. For instance, basil oil was believed to relax the muscles and have a calming effect. As an ointment, it could heal wounds, cuts and sores. Basil and camphor mixed with flour was used against scorpion bites, and bergamot root was known to alleviate insect bites and act as a repellent. According to the poets Nizami Ganjavi (1141-1209)

and Muhammad Fuzuli (1494-1556), rose oil was used as a remedy for headaches and as a topical antiseptic. Mahammad Yusif Shirvani (18th century) recommended an unguent of cumin for sword wounds. Though the concept of antibiotics was not known at the time, physicians did use ointments of cumin, honey and raw onion juice as topical antiseptics.

We know that juniper oil was also used as an antiseptic because Haji Suleyman Irvani, a 17th-century Azerbaijani physician, recommends using ointment from juniper cones to heal wounds. Cypress was used as a strong diuretic for treating urinary disease. And for a person with a cold or a stuffy nose, doctors recommended inhaling the vapors from an infusion of thyme, peppermint or spearmint.

§ 4. LUXURY TREATMENTS

Not everyone could afford these treatments. While substances like violet oil and rose water were fairly inexpensive, imported essential oils were quite costly and only available to the wealthy. Rich people liked to dab themselves with aromatic ointments, substances that also functioned as a form of currency. Kings would barter and buy land, gold, slaves and wives with their crudely extracted oils.

Tenth-century writer Abu Ali Tanuhi observes that shahs and sultans possessed hundreds of jars of rare aromatic ointments in their treasure houses. Some of the ointments - which were worth their weight in gold - were brought from India, Egypt and Byzantium. Tanuhi writes of a miserly ruler who opened his jars, looked at his aro-

matic ointments with pride, then closed them again, explaining: "I can't bring myself to touch these treasures." [36]

Animal substances like musk, castor and ambergris were particularly expensive, as they had to be imported from China, Russia, the Persian Gulf and India. Not only were these fragrances supposed to attract the female sex; they were also believed to have therapeutic properties.

A dab of ambergris - a gray, waxy substance from the intestinal canals of sperm whales - would strengthen the brain and heart, believed 17th-century physician Hasan ibn Riza Shirvani. This substance is often found floating in tropical seas; to reach Azerbaijan, it had to be imported from the coastal regions of the Indian and Pacific oceans.

The scent of musk, it was believed, would streng-

then the heart and nerves and help to get rid of melancholy. To alleviate a headache, musk was mixed with saffron; a single drop on one nostril would be sufficient.

Castor, a substance secreted by male beavers to attract mates, often served as a substitute for musk. One or two drops of castor applied to the face and arms would make a person more appealing, it was believed. In 1311, Kabir Khoyi wrote that a bandage with a few drops of castor was good for treating headaches. Beverages containing castor and vinegar were also used to treat abdominal pain.

Fourteenth-century Azerbaijani scholar Yusif ibn Ismail Khoyi describes eight different methods for administering aromatherapy: (1) Use a pillow filled with medicinal plants. (2) Carry

a small pouch filled with dried medicinal plants. (3) Inhale the boiling decoctions of medicinal herbs. (4) Inhale the scent of flowers in special gardens. (5) Hang bunches of healing grasses inside the house. (6) Breathe the odor of burned medicinal plants. (7) Use an aromatic ointment. (8) Take an aromatic bath.

§ 5. AROMATIC HERBAL BATHS

From ancient times through the Middle Ages, different nations of the Mediterranean and Near East used aromatic herbal baths widely for medical purposes. Over time this practice, which began in Ancient Egypt and Babylon and was further developed by famous Greek scholars and practitioners, spread throughout Southern Euro-

pe and the Near East and, later, influenced medical practices in Western Europe.

Herbal baths, which were highly valued by the ancients, are not completely forgotten today. Modern science proves that bathing can relieve muscle tension, dilate blood vessels, and slow the heart rate.

Herbs can contribute to these benefits. Bathing with infusions of fragrant herbs is used traditionally to treat many diseases, may eliminate physical and mental tiredness, and is beneficial for the skin and hair.

Since the late 1960s, owing to the widespread use of phytotherapy in the United States and Europe, herbal baths have become even more popular. Many unique methods of application of herbs in our daily life have been developed, and today a number of medicinal preparations and cosmetics are produced with herbs and sold throughout the world. Soaps, shampoos, and shower gels con-

taining various herbs and other plant-derived aromatic substances are now widely available for bathing or hand washing.

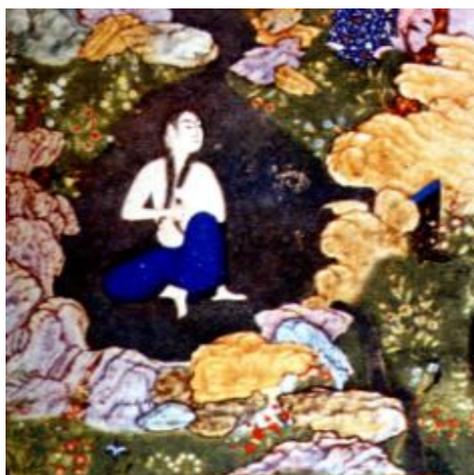
However, volatile oils are not the only agents working in an aromatic bath. Fragrant plants contain numerous other constituents (tannins, flavonoids, alkaloids, etc.) that are also therapeutic in an herbal bath. The infusion of a whole fragrant herb is often considered to be more effective than its pure volatile oil.

Despite the number of modern works on phytotherapy, compared with the ancient medical manuscripts, they contain limited information about aromatic baths. Many ancient recipes have been forgotten. To revive them, one must refer to the ancient books on medicine and pharmacy. These sources contain numerous recommendations that might be of interest to modern physicians and could enrich modern herbal medicine.

§ 6. HISTORY OF AROMATIC BATHS

During the Middle Ages, a cult of bathing was formed in Azerbaijan, Persia and Turkey. Contemporary sources attribute great healing properties to bathing. An 11th century Iranian writer, Keykavus Ziyari, wrote, "Since architects began to raise buildings, they created nothing better than a bathhouse." [43]

In order to maintain health, it was recommended that a person visit a bathhouse at least two or three times each week. Bathho-



Bathing queen Shirin (the 16th century Tabriz miniature).

uses served as both beauty parlors and health clinics. Medieval Middle Eastern bathhouses usually offered services such as bathing and massage with the application of aromatic oils. Many large public bathhouses had a staff of masseurs for this purpose, because it was believed that massage alleviates physical and mental tiredness, and improves circulation.

Aromatic oils were also used to treat various diseases. For example, thyme ointment (*Thymus spp.*, *Lamiaceae*) was applied for rheumatism, and an ointment with henna (*Lawsonia inermis L.*, *Lythraceae*) or onion (*Allium cepa L.*, *Liliaceae & Alliaceae*) was used for herpes. The staff of many bathhouses included a barber who cut hair and shaved the customers, and then applied henna (*Lawsonia inermis L.*, *Lythraceae*), dyer's woad (*Isatis tinctoria L.*,



**Barber in a bathhouse
(17th century miniature).**

Brassicaceae), or other dyes to their hair.

After a bath and a massage, visitors to the bathhouse could rest and relax in a special room where they would drink coffee or tea with fragrant herbs that included peppermint, thyme, sweet marjoram, rose petals, cardamom (*Elettaria cardamomum* (L.) Maton var. *cardamomum*, *Zingiberaceae*) or cloves (*Syzygium aromaticum* (L.) Merr. & L.M. Perry, *Myrtaceae*). In Azerbaijan, cus-

tomers could also order sweets, dinner, or a pipe. Stays in the bathhouse were so pleasant that some people would spend all their free time there; some even slept there. As a rule, after a visit to the bathhouse, people felt rejuvenated, attractive, healthy, strong, and energetic.

The Azerbaijani authors of the Middle Ages suggest numerous plants to use in one's bath, including grape leaves (*Vitis vinifera* L., *Vitaceae*), chamomile (*Matricaria recutita* L., *Asteraceae*), pomegranate (*Punica granatum* L., *Lythraceae* & *Punicaceae*), basil (*Ocimum basilicum* L., *Lamiaceae*), anise (*Pimpinella anisum* L., *Apiaceae*), violet (*Viola sororia* Willd., *Violaceae*), almond oil, garlic (*Allium sativum* L., *Liliaceae* & *Alliaceae*), and barley (*Hordeum vulgare* L., *Poaceae*) [3].

Ancient manuscripts provide evidence that during the 9th-14th centuries the aromatic oils of about 50 species of herbs and flowers were used for treatment through bathing and external application. Medieval sources provide information about methods of preparation and the curative properties of these baths.

Azerbaijani bathhouses used fragrant substances in several ways, including:

1. Aromatic decoctions or infusions were added to the water in a bath. For example, Mumin (d. 1697) wrote that bathing in a decoction of pine needles (*Pinus spp.*, *Pinaceae*) is good against diseases of the uterus and rectum.

2. Ointments containing aromatic herbal oils were applied to patients' bodies after or before bat-

hing. For example, it was recommended to massage a patient's body with the ointment of pine pitch, euphorbium juice (from *Euphorbia spp.*, *Euphorbiaceae*) and guggul (resin of *Commiphora wightii* (Arn.) Bhandari, *Burseraceae*), which was considered a good cure for stones in the bladder if applied after bathing with a special decoction. Some caution must be taken when using euphorbium juice, which is caustic.

3. Usually, fragrant fruits or perfumes were placed near a bathing person. It was believed that aromatic substances strengthen the heart and have a sedative effect. "[Hot] water in a bath should not cover the patient's breast and heart," wrote Ibn Sina. It was recommended to bathe as long as the skin continues to redden and swell.



Bathing queen Shirin. A 17th century miniature illustrating a poem by Nizami Ganjavi (1141-1209), famous poet from the city of Ganja (present-day Azerbaijan Republic).

However, one was advised to stop bathing after the skin began to pale.

According to the folk medicine of Azerbaijan, after a hot bath or nap, one was advised to apply rose, narcissus (*Narcissus spp.*,

Liliaceae & Amaryllidaceae), or violet aromatic oil to the face and body. Women especially liked these oils since they make the skin tender and silky when applied after bathing.

§ 7. BATHHOUSES

The medieval Azerbaijan bathhouse was a very beautiful architectural object, usually a stone building with arches, domes, and beautiful gates. In Azerbaijan, the inner part of the public bathhouse consisted of the entrance hall and one or several large bathing halls with pools. There was also a cloakroom and rooms for rest. Bathhouses were heat-

ed by hot steam circulated in pipes under floor and walls. Several large medieval bathhouses are still preserved in Baku, including the Haji Gayib Bathhouse (built during the 15th century C.E.) and the Gasim bey Bathhouse (built during the 17th century C.E.), which now houses a museum of medieval pharmacy. In medieval times, the bathhouses would serve men one day, and women the next.

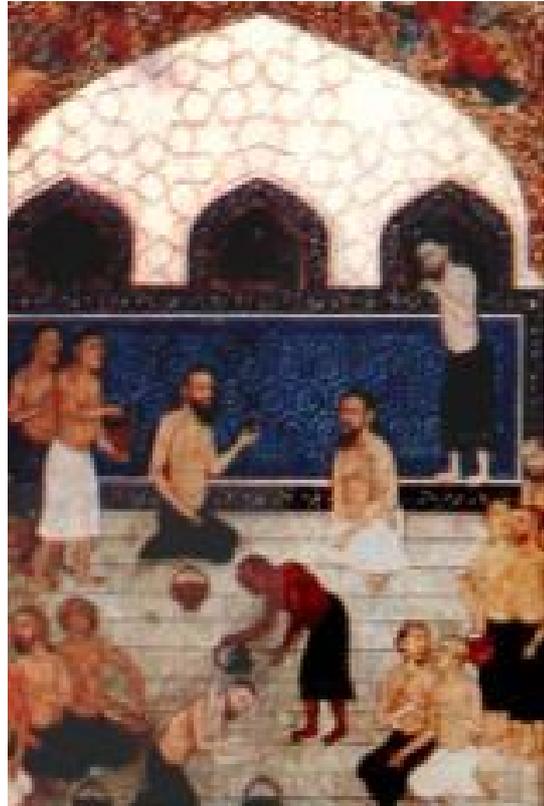


HAJI GAYIB BATHHOUSE IN BAKU (BUILT DURING THE 15TH CENTURY C.E.)

The Shirvanshah Palace within the perimeters of the "Inner City" (Ichari Shahar) also had a large bathhouse dating from the 15th century, but it lies in ruins now.

Medieval Azeri sources attribute great healing properties to bathing. In order to maintain good health, it was recommended that a person visit a bathhouse at least two or three times each week. Medieval authors suggested several plants to use in one's bath, including grape leaves, chamomile, pomegranate, basil, anise, violet, almond, garlic and barley.

All public bathhouses had masseurs who applied healing and aromatic oils on the visitors' bodies. It was also possible to get meals, drinks and medicine, and you could even rest or sleep in the bathhouse.



Medieval bathhouse (16th century miniature).



Bathhouse in Shamakhi city (Azerbaijan Republic). The 17th century picture.

To treat a cold, the bathhouse would offer a formula like the following: "Take 20g of basil leaves and flowers, mix with 20g of thyme leaves, and infuse in 1 liter of hot water for 15 minutes. Add two spoons of honey to the infusion and stir. The diseased person has to take one spoon of this medicine every half hour." [33]

Gasim bey's bathhouse doesn't look like modern bathhouses or saunas because it was based on the Oriental style of architecture, which uses domes and arches. It has several large pools and a number of separate rooms for individual bathing.

§ 8. THE FRAGRANT BATH

According to Azerbaijani folk medicine, after a hot bath or nap, one should apply rose, narcissus or vio-

let essential oils to the face and body. Eastern women especially liked these oils because they made the skin silky and soft.

PINE NEEDLES

Some Azerbaijanis use pine branches to prepare an extraction for bathing, a substance that is supposed to strengthen the nervous system. The essential oil from pine is condensed to a thick syrup, then dried and pressed into tablets.



The 17th century bathhouse in Ganja (Azerbaijan Republic).

ROSEMARY

In Azerbaijan, people with low blood pressure are advised to take a bath with rosemary. It is believed that this fragrant plant stimulates the circulation and serves as a tonic. The recipe has even been documented. To prepare the solution, pour 4 cups of boiling water into a pot containing 5 tablespoons of rosemary leaves, cover, and let steep for 30 minutes. Strain the infusion and add to warm bathwater. The optimal duration for such a procedure is half an hour.

LAVENDER

According to Azerbaijani folk medicine, bathing in a lavender decoction has anti-spasmodic and calming effects and is used for neurasthenia and tachycardia (rapid heartbeat).

MARJORAM

Taking a bath with a marjoram decoction is good for flatulence and nervousness and has a diuretic effect, Azerbaijani folk healers say.

MELISSA

According to Azerbaijani folk medicine, bathing in a melissa (lemon balm) decoction is good for heart disease, relief of tachycardia and lowering of the blood pressure. The bathwater must be warm, but not hot.



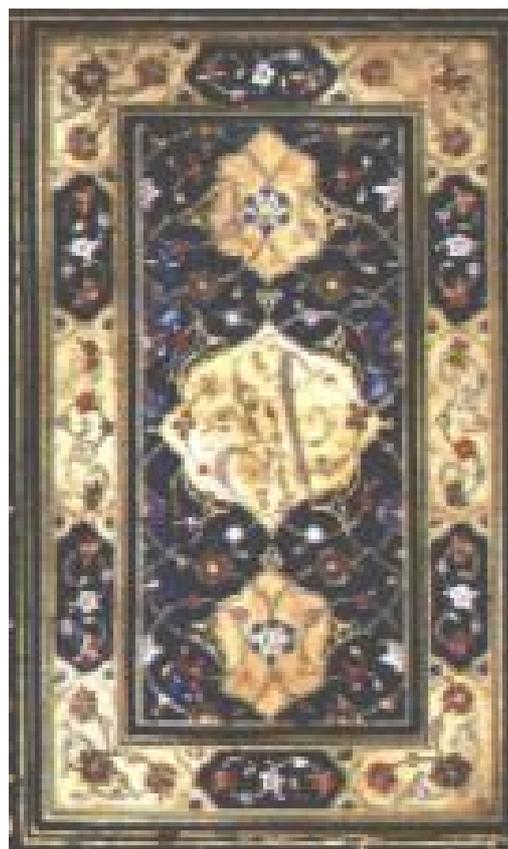
**Naftalan Health Resort.
Azerbaijan Republic, 1950s.**

§ 9. THE POWER OF SMELL

Medieval Azerbaijani physicians believed that the smells of these aromatic substances could help cure ailments. Scholars proposed a type of therapy that may be called "therapeutic use of flower gardens." Medieval Eastern rulers and nobility were advised to spend their leisure time in flowering gardens, for their own treatment and relaxation. If they inhaled the fragrances of flowers, it was believed that they would relax and be cured.

Considering that medieval Azerbaijani doctors were working without the advances of modern scientific medicine, aromatherapy was a fairly ingenious way to treat patients with natural substances that were readily available. For instance, physicians had figured out

how to use frankincense and myrrh as natural antiseptics. Herbs like spearmint and chamomile were also known to have antiseptic and healing properties. Today, scientists know that these fragrant herbs contain essential oils that are able to kill microbes and clean and heal wounds.



Cover of a medieval Azerbaijani manuscript.

CHAPTER 6

MEDICINE AND NUTRITION

§ 1. NUTRITION FOR LONGEVITY

Longevity is the cherished dream of every human being. What, one may ask, is the actual age limitation for human beings? Are there limits? Is it possible to secure an active, creative life for 100 years? Of course. But what about 150 years? Again, the answer is "yes".

Azerbaijan has one of the highest rates of longevity in the world. In the 1981 census, Azerbaijan recorded 14,486 people aged 100 or older. In other words, 48.3 people per 100,000 inhabitants.

Even though longevity is mostly determined by heredity, diet definitely plays a role in achieving this goal. What do centenar-

ians eat in Azerbaijan? Does their diet correlate with what modern science knows about health and longevity?

Contemporary dietitians would cry out: "They eat too much animal fat!" Indeed, many Azerbaijanis are fond of lamb, mutton and sheep fat, but in rural areas where most of these long-lived people reside, meat is eaten no more often than once or twice a week. The main source of animal fat in rural diets is not derived from meat but rather from dairy products.

The typical diet of Azerbaijani villagers consists primarily of eggs, cheese, butter, yogurt, milk, curds (shor), sour cream, bread, various vegetables, fruits and herbs. They are used to eating soup made of

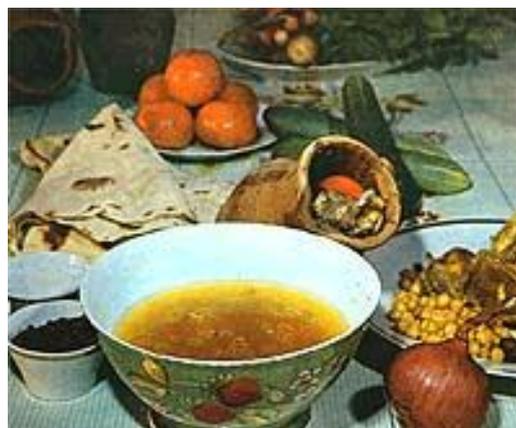
yogurt and greens (dovgha) along with various soups made with beans, peas and grains. In the olden days, people who enjoyed longevity did not eat very much bread or products made of flour.

§ 2. ANIMAL FAT CONSUMPTION

Historically, Azerbaijanis eat fairly large amounts of animal fat, which is considered by modern scientists to be the "No. 1 Killer." Why then has this slayer not visited upon the centenarians from villages of the Lerik district in Azerbaijan, where quite a number of residents live beyond 120 years old?

Animal fat is fairly harmless to Azerbaijanis because they follow nutritional guidelines set forth by the physicians of medieval Azerbaijan who insisted that there is no

such thing as completely healthy or unhealthy foodstuffs. Rather, these properties are determined a great deal by the quantity that is consumed and the way food is combined. For example, according to the "Book of Medicine" (Tibbname, 1712) you can consume animal fat, but you shouldn't overdo it, and you must counter the effects of fat by eating fresh vegetables and greens like spinach, celery, dill, onions, spring onions, coriander, mint, basil, tarragon and parsley. [33]



Piti, the rich soup from lamb is a favorite dish of Azerbaijanis. Usually, piti is served with fresh greens.

Modern scientists confirm that the food fibers contained in green vegetables and herbs decrease the assimilation of fats in the stomach. According to modern scientific medicine, animal fat, in fact, must be consumed (though in moderation), as it is necessary for creating hormones and promoting the normal functioning of the liver, heart and brain. If we examine the teeth of a human being, we notice that they contain features typical to both carnivorous and herbivorous beings.

This fact proves that our early ancestors ate meat, and that the human organism is historically adapted to the consumption of animal fat. However, along with meat, early humans ate large amounts of vegetables and fruits. Medieval Azer-

baijani physicians proposed the same approach: Don't eat just meat. Don't eat just vegetables. Eat both and combine them correctly! As opposed to one-sided theories of the modern day, such as vegetarianism, the medieval approach is based on their observation of the biological nature of the human being.



Parcha Doshama Plov (rice with roasted meat) is served with onion, mint and other greens.

A high level of animal fat consumption is not just limited to longevity in Azerbaijan. Fifteen years ago, correspondents from the Russian magazine "Vokrug Sveta" (Around the World) interviewed elderly people in Abkhazia and questioned them about their diet. It turned out that most of the centenarians enjoyed fatty meat, preferably lamb. As distinct from Azerbaijanis, Georgians drank wine every day even at the age of 100. However, most people who enjoy longevity in the Caucasus don't eat very much

meat in the first place, and they habitually consume large amounts of yogurt as well as vegetables and fruits to neutralize the negative effects of animal fat.

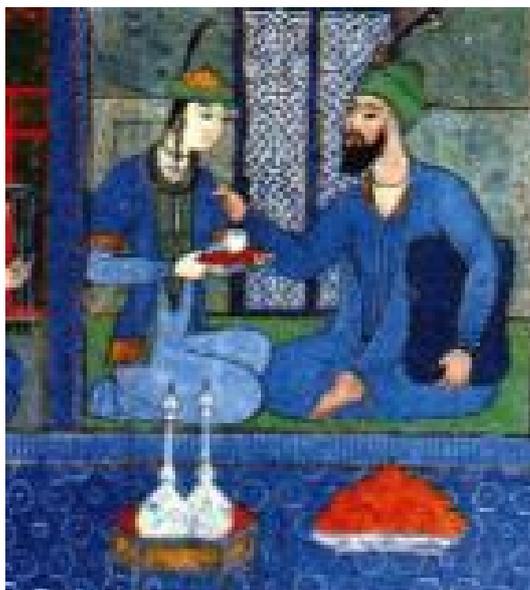
In addition to yogurt and garlic, it is also possible to counter the negative effect of fats with liberal amounts of raw onion, lemon juice, pomegranate juice and with the traditional burgundy - colored, sour spice known as sumag. These all work to promote digestion and break up the fat.



Jug for wine (1st century BC). Found in Torpagkala archeological site (Azerbaijan Republic).



Gurza (meat dumplings) is served with garlic, greens, yogurt and spicy seasonings.



Conversation at Shah's Palace. Pomegranates and drinks are served. Medieval miniature to "Khamsa" by Nizami Ganjavi (1141-1209)

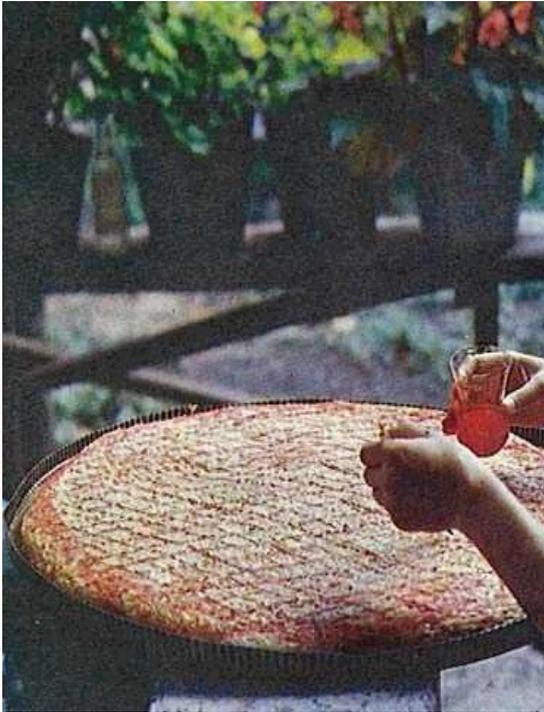
§ 3. HONEY OR SUGAR?

Even though Azerbaijani cuisine is rich in sweets, traditionally, Azerbaijanis didn't overuse them. When preparing national sweets like pakhlava, shakarbura and halva, they preferred honey over sugar. For example, the Azerbaijani scientist Yusif Khoyi in his "Baghdad's Collection" (1311) recommends preparing ja-

ms and sweets with honey. Modern science has established that honey contains vitamins, ferments and is considerably healthier than sugar. According to Professor M. Sultanov, the regular use of honey and the avoidance of sugar contribute to health and long life.

Professor John Yudkin of London University points out: "Not fat, but sugar leads to coronary heart disease - the sugar that you pour in coffee or tea, or eat with cakes, sweets or chocolate." [35]

Sugar, if used excessively, turns to fat and cholesterol in the organism. Previously, poor people in the rural areas of Azerbaijan considered sugar as a delicacy and used it only on rare occasions. The standard fare for peasants included dairy products and herbs, not sweets. As for rich people, they preferred honey.



Pakhlava A-la Shaki (Shaki pakhlavasi) is prepared in Shaki city (Azerbaijan Republic) on the basis of honey. Then it is sprinkled with the saffron water.

According to recipes from the "Tibbname", all kinds of Azerbaijani halva should be prepared on the basis of honey. Therefore, the harmful influence of "the white killer" that we struggle against in modern society was avoided.

Modern man might think: "Why buy expensive honey, when it's possible to

substitute sugar that is much cheaper?"

Unfortunately, most of the national desserts in modern Azerbaijan are based on sugar now. But in the long run, such economics are injurious to human health. Muhammad Huseinkhan (18th century) also points out that the regular consumption of honey diluted with water prolongs human life. Nevertheless, even though honey is better than sugar, it should not be overused.

§ 4. YOGURT AND LONGEVITY

Since antiquity it was believed that regular consumption of yogurt is the secret to longevity, as it promotes digestion and rejuvenates the organism. The "Tibbname" recommends adding yogurt to cooked dishes. To promote digestion of meat, it was suggested to serve it with yogurt



A black slave roasts game for his master. Medieval Azerbaijan miniature (Tabriz school).

sprinkled with mint. If you eat yogurt on its own, add chopped garlic. In Azerbaijan, a popular drink (ayran) is made by diluting salted yogurt with water. This drink is known to lower blood pressure and treat diarrhea. The word "yogurt" itself is of Turkic (Azerbaijani and Turkish) origin and derived from the verb "yogurmak" - "to knead."

The medical effect of yogurt is explained by the fact that it contains useful microorganisms such as lactobacteria. Since the accumulation of waste substances in the inflammation of the bowels is harmful to all organs of an organism, normal digestion of food contributes to a healthy and long life. Modern scientists in Japan have also established that regular consumption of yogurt protects the organism from the injurious influence of radioactive rays and prevents the development of cancer.

§ 5. GARLIC - ELIXIR OF YOUTH

The healing properties of garlic are often mentioned in books by numerous ancient authors throughout the region - in Azerbaijan, Arabia, Persia, Tibet and China.

According to the "Tibbnama", regular consumption of garlic prevents gray hair, strengthens memory and eyesight and is good for the heart. In Tibet, an herbal potion of garlic and spirits was known as an "elixir of youth." In Azerbaijan, physicians used infusions of garlic and saffron in their spirits.

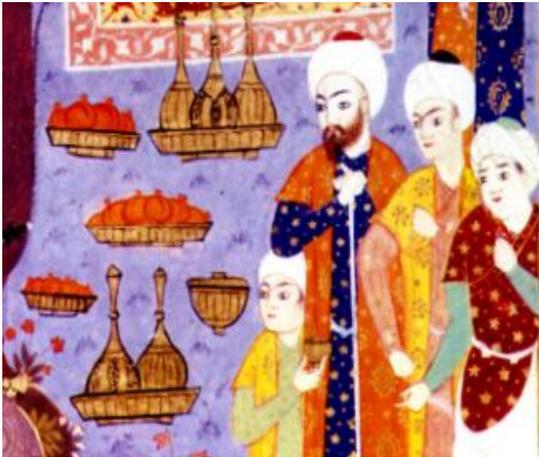
Modern scientists confirm that the regular consumption of garlic lowers the level of cholesterol in the organism and improves the circulation of blood. As a result, all organs are well supplied with blood. For example, a proper supply of blood to the head prevents hair from graying, refreshes the face and improves memory. When blood is able to circulate well in the heart vessels, it prevents myocardial infarction.

Azerbaijanis have com-

bined these two foods - garlic and yogurt - which are typical to diets of people who enjoy the benefits of long life. They chop garlic and add it to yogurt in a dish called "sarimsagli gatiq" (yogurt with garlic). The "Tibbnama" also suggests mixing garlic with yogurt. This combination is used as a condiment with dishes made of flour or meat, such as dolma of grape leaves (stuffed grape leaves), khash, khingal and others.

§ 6. LIMIT BREAD

The excessive use of bread so typical to modern Azerbaijan cuisine can be traced to the influence of Russian cuisine. In the past Azerbaijanis did not overuse bread and flour products. They never had what might be called a cult of bread. Pilaf was never eaten along with



A feast at Shah's Palace. Pomegranates, wine, sherbet and sweatmeats are served. Medieval miniature from "Khamsa" by Nizami Ganjavi (1141-1209)

bread because rice was considered to be a substitute for wheat. But these days, many people eat pilaf with bread, and also with national dishes made with dough, such as khingal, gurza, arishta, dushbara, umaj and others.

Physicians of medieval Azerbaijan didn't recommend eating much bread, especially on hot summer days. Modern investigations prove that overuse of bread, desserts and carbohydrates promotes the

creation of cholesterol in the organism and leads to coronary disease and obesity. They concluded that overuse of bread is more dangerous than the regular consumption of animal fat.

Note that the national Azerbaijani bread (chorak) does not resemble Russian bread: it is a thin, flat bread, not a round loaf. Another national substitution for bread is lavash, a paperthin bread - neither of these two types is very heavy to digest when eaten in moderation.

§ 7. USE OF HERBS

Since antiquity, Azerbaijanis have been convinced that saffron and licorice prolong life, refresh the skin and face, and promote health for the liver, heart and kidneys. In addition, persons of longevity traditionally consume large amounts of vegetables and fruits, including apples.

The Azerbaijani physician Yusif Ibn Ismayil Khoyi (1311) wrote that if eaten



In modern Azerbaijan, roasted meat is served with greens, vegetables and sour fruits.

regularly, apples rejuvenate the organism, strengthening the heart, stomach, liver, intestine and stimulating the appetite. Regular use of apples prevents heavy breathing and excessive-heart-beat in elderly persons. Apples refresh the brain and strengthen its efficiency.

Fruits, vegetables, various wild medicinal plants and products prepared from them - jams, juices, sharbats,

wines, dried fruits and spices - all play an important role in Azerbaijan's national cuisine. In particular, hot dishes are combined with various vegetables, fruits, greens and spices.

Modern investigations show that vegetables and fruits contain many microelements, vitamins and fibers that neutralize cholesterol. Of course, scientists in the Middle Ages had no knowledge about these substances, but based on close observation, they drew similar conclusions that are being confirmed by modern scientific research.

§ 8. TEA, NOT COFFEE

Regular consumption of tea is another main characteristic of people who enjoy long life in Azerbaijan. According to Muhammad Husein-khan (18th century), tea is a healthier beverage



Tea is a favorite drink in Azerbaijan, Iran and Central Asia.

than coffee. He points out that: "Tea is a diuretic. It alleviates headaches caused by spasms and cold. In addition, tea cleanses the blood, stomach and brain and refreshes the face. If used moderately, it can treat rapid heartbeat, facilitate regular breathing and is good for the heart. This drink eases melancholy, sorrow and bad spirits." [26]

Modern investigations prove that tea promotes longevity. It contains caffeine, which stimulates the nervous system, and theo-

phylline, which enlarges blood vessels, eliminates spasms and improves the function of the heart. It also contains tannins, which strengthen blood vessels and prevent bleeding. As distinct from coffee, tea not only does not increase the risk of the myocardial infarction but even lowers it, because theophylline enlarges the blood vessels of the heart.

However, one should avoid drinking tea on an empty stomach and should not drink it very hot. Milk neutralizes the negative effects of caffeine. Even though tea mixed with milk is considered to be healthier, it is not popular in Azerbaijan. Tea is historically cultivated in the Lankaran district of Azerbaijan, which curiously enough, is a region known for its longevity.

§9. CHEAP, HEALTHY FOOD

Although the famous Azerbaijani Oil Baron Haji Zeynalabdin Taghiyev (1823 - 1924) enjoyed a very long life span, most elderly people in Azerbaijan are not so well off. When analyzing their diet, we see that they eat relatively cheap foods: eggs, yogurt, vegetables, fruits and beans. In addition, most of them don't overeat. Nor are they overweight because they are involved with hard physical labor.

In the past, those who enjoyed long life in our country rarely consumed the expensive dishes of our national cuisine, except on special occasions. Baked goods, kababs, pilaf seasoned with meat and dried fruits were usually reserved for the New Year celebra-

tion (Novruz), Muslim religious festivals (such as Gurban Bayram) and wedding celebrations. During the 19th century, even wealthy landowners didn't eat sweets and meat every day because it was considered to be harmful.

Most people in Azerbaijan who enjoy the benefits of longevity actually know nothing about cholesterol, carbohydrates or vegetarianism. They simply maintain the nutritional practices of their fathers and grandfathers, who lived to be more than 100 years old. This reality would seem to prove that Azerbaijan's traditional diet, which has been tried and tested over centuries and millennia, is at least equal to modern theories of healthy nutrition, and may even be superior.

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CONTENTS

INTRODUCTION	3
CHAPTER 1. HISTORY OF MEDICINE IN AZERBAIJAN	
§ 1. Historical Survey	6
§ 2. Famous Physicians of Medieval and Post-Medieval Azerbaijan	32
CHAPTER 2. MEDICAL MANUSCRIPTS	
§ 1. Baku's Institute of Manuscripts	37
§ 2. Memory of the World Program of UNESCO	39
§ 3. Unique Medical Manuscripts	41
§ 4. List of Principal Medical Texts	44
Turkic Texts	44
Arabic Texts	49
Persian texts	53
CHAPTER 3. MEDICINE IN MEDIEVAL AZERBAIJAN	
§ 1. Professional and Folk Medicine	60
§ 2. Medical Theory	61
§ 3. Healthy Way of Life	64
§ 4. Professional Treatment Methods	66
§ 5. Folk Treatment Methods	68
§ 6. Medicine and Magic	74
CHAPTER 4. MEDIEVAL PHARMACOLOGY	
§ 1. Introduction	78
§ 2. Studied manuscripts	79
§ 3. Research Methods	81

§ 4. Systematical Analyses of Identified Species -----	83
§ 5. Description of Plants in Medieval Sources -----	84
§ 6. Therapeutic Application of Herbs -----	89
§ 7. Some Forgotten Botanicals of the Middle Ages -----	91

CHAPTER 5. AROMATHERAPY IN MEDIEVAL AZERBAIJAN

§ 1. What is aromatherapy? -----	93
§ 2. Ancient Beliefs -----	94
§ 3. Essential Oils -----	95
§ 4. Luxury Treatments -----	97
§ 5. Aromatic Herbal Bath -----	98
§ 6. History of Aromatic Baths -----	100
§ 7. Bathhouses -----	104
§ 8. The Fragrant Bath -----	106
§ 9. The Power of Smell -----	108

CHAPTER 6. MEDICINE AND NUTRITION

§ 1. Nutrition for Longevity -----	109
§ 2. Animal Fat Consumption -----	110
§ 3. Honey of Sugar - -----	113
§ 4. Yogurt and Longevity -----	114
§ 5. Garlic - Elixir of Youth -----	115
§ 6. Limit Bread -----	116
§ 7. Use of Herbs -----	117
§ 8. Tea, not Coffee -----	118
§ 9. Cheap Food, Healthy Food -----	120

REFERENCES-----	121
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