

HISTORICAL AND GEOGRAPHICAL ASPECTS OF THE DEVELOPMENT OF BALNEOLOGICAL RESORTS

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Annotation. This article describes the historical and geographical aspects of the development of balneological resorts. Primary medical facilities, hospitals, population medicine service issues were specifically addressed. The organization of sanatoriums and spas in Europe and other overseas foreign countries, their specialization issues are covered.

Key words. Balneological resorts, restoration, sources of recreation, first sanatoriums and resorts, settlements, mineral waters, medicinal mud, medical services, medical tourism.

ИСТОРИКО-ГЕОГРАФИЧЕСКИЕ АСПЕКТЫ РАЗВИТИЯ БАЛЬНЕОЛОГИЧЕСКИХ КУРОРТОВ

Аннотация. В данной статье описаны историко-географические аспекты развития бальнеологических курортов. Отдельно были затронуты вопросы оказания первой медицинской помощи, стационаров, медицинского обслуживания населения. Освещены организация санаторно-курортных учреждений в Европе и других странах дальнего зарубежья, вопросы их специализации.

Ключевые слова. Бальнеологические курорты, восстановление, источники отдыха, первые санатории и курорты, поселки, минеральные воды, лечебные грязи, медицинские услуги, медицинский туризм.

Introduction. As a result of the globalization of the world economy and intense competition, as well as the continuous increase in the number of people, the death rates associated with infectious and parasitic diseases among people are increasing. International organizations are also paying great attention to combating these problems and ending their consequences. In particular in the UN program for sustainable development until 2030 [1], special emphasis is placed on "ending the epidemics of diseases such as AIDS, tuberculosis, malaria as well as ensuring measures to combat hepatitis and other water-borne infectious diseases until 2030". Successful completion of these tasks requires the stabilization of non-ecological and non-geographical situations that have arisen in arid climate regions [2].

The fact that some extremely infectious diseases, which were completely eradicated in the middle of the last century, are often seen among the population of some regions of the world, as well as the study of the characteristics of the

geographical spread of the COVID-19 coronavirus infection means that this issue is extremely urgent. The implementation of these tasks places important tasks not only on medical workers and the general public but also on medical geography specialists who diagnose diseases in the regions, that is, on the nosogeographical situation [3]. Balneological resources are of great importance in improving the health of the population that has experienced the pandemic as well as in restoring the health of the population.

It is known that natural mineral waters are used as the leading treatment factor in balneological resorts. It is recommended to take a bath from them, take them internally (drinking, etc.). Mineral waters help cure many diseases. Among those who come to balneological resorts there are many people suffering from diseases of the gastrointestinal tract, gall bladder, cardiovascular system, nervous system and musculoskeletal system. Medical research shows that balneological spas are effective in the treatment of several diseases. They give results equal to the effect of ordinary drugs [4].

Another type of spas - mud treatment - is associated with places with healing mud (peloides). Mud treatment is used in the treatment of joint pathology, nervous system injuries as well as gynecological and some other diseases. Due to modern methods and advanced technologies of treatment with mud high medical efficiency is achieved. The history of the origin of this type of health care institutions is different and unique in different regions [5].

Hippocrates was the first to clearly and consistently show the inseparable unity of man and nature. He looked at the effects of food, water and air on the human body. We can look at the history of the use of mineral water in some countries of the world. It is no secret that many healing mineral springs were discovered by primitive people. Temples were built at the exits of the "wonderful" springs. The use of healing water sometimes became an element of religious culture. One of the oldest sanatoriums from the Bronze Age includes the remains of capital structures at the carbon dioxide springs near the resort of St. Moritz in modern Switzerland. Hydrotherapy was common in ancient Greece. A page of ancient Greek texts describes the use of mineral waters bathing in sea water for medicinal purposes. Shrines of Asclepius the god of healing appeared where healing springs were discovered. The famous temples of Asclepius are located in the cities of Epidaurus in the Peloponnese and Kos. The doctors of Kos were believed to be descendants of Asclepius. A medical school was founded there by the ancient Greek physician Hippocrates (460-377 BC). Temples of Asclepius were usually built in places known not only for mineral water sources but also for healing clean air. In ancient Greece mineral waters were widely used for medicinal purposes. Temples in honor

of Asclepius the god of medicine and pharmaceutical arts are always located near water. Near the temple of Asclepius an inscription was found from the city of Cori about the clay healing of Julius Apella (2nd half of the 2nd century BC). In Greece these were primarily sulphurous waters in the 70s. Ad Pliny in his essay "Natural History" mentions the city of Parasin (now Saki) on the Crimean Peninsula where there is "land that heals all kinds of wounds." In ancient Egypt patients were treated with mud from the Nile and lying on the shore under the hot rays of the sun. This is "Egypt". The treatment method was popular in the ancient world. In ancient Rome in the 1st-2nd centuries - medicine developed in its own way which led to the emergence and wide spread of travel for the treatment of various diseases. The geography of "medical tourism" of antiquity was very wide. This was helped by relatively safe and good roads. Travelers enjoyed these Roman achievements. Egypt was also considered by the Romans to be a spa medical facilities that could be cured by consumption according to ancient physicians [6].

According to the ancient Romans, all mineral waters were of divine origin. Mineral processing was widely used in the campaign. Located near Mount Vesuvius and rich in thermal springs some of the cities of this province have been favorite places for Roman relaxation and healing throughout the ancient and modern eras. "Campania Felix" - the happy Campania - this region was active until August 23rd, 79 BC when the famous resort cities of Pompeii, Herculaneum and Stabia were buried under rocks and ashes by the eruption of Vesuvius.

Pliny the Younger (AD 23 - 79) developed the classification of mineral waters and the method of their treatment. In general there were about 80 settlements in the Roman lands during the state's prosperity where mineral waters were used for medicinal purposes.

Analysis of literature on the topic. The beginnings of balneology appeared as early as the 5th century BC when the ancient Greek scientist Herodotus suggested a way to use and indications for the appointment of mineral waters the writings of Hippocrates (V - IV centuries BC) mention the healing properties of river, salt and sea water. The Roman doctor Archigen (I century AD) belongs to the first classification of mineral waters. In the XV century the Italian monk J Savonarola published a treatise on Italian mineral waters, containing instructions on the use of mineral baths. In the XVI century lectures by the Italian doctor G Fallopi were published - Seven Books on Warm Waters in which the author among other things tries to find out the chemical composition of mineral waters. The beginning of scientific balneology in the XVII - XVIII centuries. put the German scientist F. Hoffmann. Armenian doctor A Amasiatsi (1420-1496) described the therapeutic effect of waters formed from copper, iron, lead, gold and silver ores in normal and

pathological conditions. He also identified waters containing a number of salts - alum, vitriol, ammonia. Many centuries of experience convince us that the use of mineral waters has led to a significant improvement in the health of many patients. The first description of the acidic waters in the Caucasus was given by the medical doctor Schober, in 1718. The first scientific work on balneology in Russia was the book of G.I. Hess. Scientists F. Verigo, O.O. Mochutkovsky, E.M. Brusilovsky, A.A. Lozinsky, A.I. Ogilvi, V.A. Alexandrov, I.A. Valedinsky. The works of G.A. Zakharyin, A.A. Ostroumov, S.P. Botkin made a great contribution to the formation of the clinical foundations of balneology. A new classification of underground mineral waters was developed by V.V. Ivanov and G.A. Nevraev in 1964 as well as maps of deposits of these waters and therapeutic mud were published in 1968.

Numerous archaeological excavations prove that hydrotherapy has existed in Bulgaria since 4-5 millennia BC (Hisar, hydrothermal centers near Sofia, baths in Haskovo). The foundation for the flourishing of balneotherapy was laid by the Thracians. They considered mineral waters as a source of health, strength and beauty. Cities were built in places of hot springs - Kyustendil, Serdika (Sofia), Sapareva Bath, etc. In the II century in AD Pautalia as the Romans called Kyustendil its baths were used by Asclepion which represented a combination of healing baths and temples [7]. During the Roman Empire balneology and hot spring treatments reached their peak. Augusta (Hisaria), Desudava (Sandanski), Toansos (Sliven mineral baths), Germopolis (mineral baths in Burgas) and others are developing as new balneological centers. Pautalia and Augusta (Augusta) were considered the largest in the Roman Empire. And today we admire excellent architectural projects and construction techniques. Some of these ancient structures are still in use today. One of them is Hisar balneological resort. The resort has preserved fortress walls dating back to the 4th century and a bathhouse with Latin inscriptions.

The most visited balneological centers in the Middle Ages were Hisarya, Sapareva Banya, Merichleri, Vergiets. Sandansky was named after two brothers – Cyril and Damian who lived in these lands in the 10th century and cured people of various diseases.

In Budapest the capital of Hungary the use of mineral healing waters began more than 2000 years ago. The hot springs of Aquincum (as the Romans called the city) were known throughout the Roman Empire. One of the oldest spas in Budapest - Gellertfürd was built in 1556. The Balatonfüder balneological resort was officially opened in 1708 when the main source was acquired and the first bathhouse was built. Paradfurde balneological resort appeared in the middle of the 18th century. In 1925, Hajduszoboszlo was established on the basis of mineral waters. From the beginning of the 19th century hot mineral springs of Kharnan began to be used.

Among the mineral waters used during the Roman Empire are the many thermal mineral springs of Herculaneum. Stone slabs with Latin inscriptions found here testify to the great antiquity of the resort. After the fall of the Roman Empire the spa was revived only in 1734 when the first analyzes of the sources and balneology facilities were built.

Remains of Roman baths have been found in Kilimenesti - Romania's largest balneological resort. The springs were rediscovered in 1830 by the monks of Kozia Monastery. In 1873, Kelimenesti mineral waters were exhibited at the International Exhibition of Mineral Waters in Vienna. In 1770, water from Borček mineral springs was bottled and exported to Vienna and Budapest for sale. The resort of Sindorz, which mainly consumes medicinal drinking water has been known since Roman times. The drinking springs that made the resort of Olanesti famous have been known since 1760. In 1837 the first medical description of springs appeared indicating methods of medicinal use. In 1873 at the International Exhibition of Mineral Waters held in Vienna, mineral waters were awarded a gold medal. The mineral waters of the Slanic-Moldova resort were discovered in 1800. Vatra Dorney mineral springs have been used for about two centuries. The opening date of the resort is considered to be 1845 when the first balneological institutions were built. The first chemical analysis of the sources was carried out in 1862.

Currently the following resorts are the largest in Romania. With carbonated waters: Borsek, Buziash, Vatra Dorney, Bushnad. With hydrogen sulphide waters and salty thermal lakes - Herculanes, Talkora, Sovata, Okna, Sibiului. Balneological, mainly drinking - Kelimeshta, Olleneshti, Slaneshta, Slanic-Moldova, Syngiorz. Balneo-mud - Amara, Bazna, Victoria, Techirghiol.

Over the centuries healing centers began to form in the large mineral springs in Germany. These centers were later called Vichy, Baden, Wiesbaden, Baden-Baden, Aachen. Aachen's springs are the hottest in Central Europe. Their healing properties were known in pre-Roman times. At the end of the 1st century the Romans founded the settlement of Ackue Grani and used the water of the mineral springs for bathing.

In the 1st century BC the Romans used Baden-Baden mineral waters for medicinal purposes. The Roman baths (some of which are still in use today) were built for the garrison of Strasbourg during the reign of Caracalla (AD 211-217). It became the most popular resort in the 1850s and 1860s when it became the most modern resort in Europe.

Pyrmont resort has been operating since the 16th century. In 1716 Peter II was treated in Pyrmon after which he ordered to search for mineral waters in Russia. The

balneo-mud resort of Berka was opened in 1813 when mineral springs were discovered and explored. In 1875 significant deposits of healing mud were discovered near the resort. Liebenstein the oldest resort in Thuringia was opened in 1800 in the carbonate mineral springs.

The largest balneological mud and climate resort in Germany is Elster and the date of its opening is believed to be 1848. Carbonated mineral waters are the highlight of the resort. It is considered that the radioactivity of spa sources was first detected in 1912 [8].

Since the 18th century the concept of "spa" (from the German "kur" - treatment and "ort" - place) came into circulation, and it began to define the area where treatment is carried out under the influence of natural healing factors. At the beginning of the 20th century there were 600 spas in Germany, and along with Italy and France, the spa business was one of the most developed countries. At the beginning of the 21st century there were about 200 different spas in Germany.

Rabka is the oldest resort in Poland. The sodium chloride springs of Rabka were mentioned as early as the 13th century. In 1857 the balneological committee of the Polish Academy of Sciences substantiated and confirmed the high healing properties of the salty waters located in the depths of Rabka. Siliceous baths of Silesian Tsieplitsi are mentioned in the literature of the 12th century. At the end of the XIII century. The first primitive balneological institutions were built near the springs. The first mention of Dushniki mineral carbonate springs dates back to 1468. In 1769 the first medical facilities were built here.

Since the 16th century the resort of Londek has been famous where subthermal, radon, pure siliceous waters are widespread. Shavno mineral springs were first discovered in 1601 by K. Illustrated by Schwendfeld. However the existence of the spa dates back to 1776 when it was established to bottle mineral waters and take them out of the spa. The first chemical analysis of spring water was carried out by Fischer in 1814. Krinitza mineral springs were described in the 18th century. In 1807 the first balneological clinic was built here. Before the First World War Krynica was considered one of the best resorts in Poland. Plchina mineral springs were mentioned in literature in 1688. It has been known as a spa since the middle of the 19th century when high-quality peat mud was widely used for treatment.

Most of the resorts in the Czech Republic have a long history. Karlovy Vary resort is known and famous in the world. The exact date of the establishment of the city is unknown. The appearance of a permanent settlement in "Geyser" dates back to about 1350. The first documentary evidence of the Slovak settlement near Karlovy

Vary - Tasovice and Siedlce - dates back to the 13th century and shows that even then the healing properties of the local hot mineral waters and the possibility of using them for treatment were well known. From the Middle Ages to the end of the 16th century Karlovy Vary spa treatments developed mainly from bathing procedures. The use of the method of drinking Vary began with the initiative of the doctor Vaclav Paer who in 1522 published the first special book on the treatment of Karlovy Vary in Leipzig. In it he recommended the use of healing water against the background of bath procedures. In 1600 his followers in Karlovy Vary were the local doctors Michael Reudenius and Johann Stepan Strobelberger who preferred drinking procedures to baths.

Lušakovice is the oldest resort in Slovakia. It is famous for its many carbonaceous springs which have been used for medicinal purposes for several centuries. The spa of Piestani has been known since 1571, when the first medical description of its hot springs appeared. In 1813, instead of wooden buildings, the construction of capital stone resort buildings began. Italian mineral waters. The history of using mineral water goes back thousands of years. Abano-Tarme mineral waters have been used since the foundation of the Aponium settlement in ancient Rome. The restoration of the resort began in the 13th century. It is now one of the largest mud treatment spas in Europe. Mineral waters have been used in the spa of Acireale since the time of the Ancient Roman Empire.

Bath is Britain's oldest and only spa with thermal springs. Legend has it that Bath was founded in 863 BC by Bludud son of Lud Hadibras and father of King Lear. He was cured of the disease by soaking in salted mud. Roman colonists also used these waters for healing. The bath became especially popular in the 18th century. When it became the largest and most modern resort in the country.

Buxton's mineral waters have been known since ancient Roman times. In the Middle Ages the resort fell into disrepair. The baths were restored in the middle of the 16th century. At the end of the 18th century mineral water began to be obtained industrially.

Belgian mineral waters - the spa resort mentioned by Pliny the Elder has been known since ancient Roman times. It was rediscovered in 1326 and was used as a spa from the 16th century. The resort reached its peak in the 18th century when European royalty began to visit it.

The history of the discovery of mineral springs in the United States is also wonderful. Even before the arrival of Europeans, the healing therapeutic effects of Saratoga springs were known to the Indians. Their legends attracted the first white settlers here in 1771. In the 19th century, Saratoga Springs became one of the most

fashionable resorts in the country. In 1909 after commercial exploitation greatly reduced the water supply 83 springs were purchased by the state. Founded in 1880 Excelsior Springs developed as a health resort. The largest water and mineral bar was opened here in 1938.

In the 14th century, the Arab traveler Ibn Battuta told about the hot spring near Beshtau in his works. The first Russian information about Caucasian mineral springs appeared in the "Big Drawing Book" at the beginning of the 17th century. This book mentions the existence of hot wells in the Caucasus. Apparently, the author meant the hot waters of Pyatigorsk and Bragunsk (near the city of Grozny). A. Nelyubin found traces of carved baths near sulfur springs in two places on Goryachaya Gora. Probably in ancient times local people knew and used the healing properties of hot water.

In 1719 the first official spa was opened in Russia. In 1803 the state importance of Caucasian mineral waters was recognized. Among the many medical regions under state administration were the Kavkaz, Starorussky, Lipetsk, Sergievsky, Kemmerinsky and Bussky mineral waters. A.P. Ermolov – the main scientist who made a great contribution to the development of Caucasian mineral waters. At his request in 1823 professor of the Academy of Medicine and Surgery A. Nelyubin is sent to the Caucasus. He described 20 new Essentuki and 7 Zheleznovodsk springs.

Morocco - the healing properties of its waters have been known since ancient Roman times - even then they were actively used in the Middle Atlas. Mineral-rich water erupts from volcanic rocks and has a constant temperature of 54 °C. The city of Fez is the main resort of the country due to the nearby thermal springs.

It should also be noted that during the period of the Turkish invasion of European territories (Balkan countries, Hungary, etc.) the Ottoman Empire like the Romans had a very high level of water use culture for many centuries. During this period the culture of Turkish using water bodies spread throughout the conquered lands. Turks historically used two types of baths: "kaplidja" (kaplidzha, ilidzha) baths based on the use of natural thermal water for medicinal purposes (skin diseases, rheumatism) and steam baths - hammam. There were no water baths (pools) in the bathhouse, bathers poured warm water from buckets. This was caused by the economical use of water by the Turks. Pamukkale thermal springs - one of the famous places is the pool of Cleopatra. According to legend, the Egyptian queen Cleopatra herself once used this pool, but this fact has not been confirmed by historians. This is the main source of clear thermal water in the open air in Pamukkale. They say you can look years younger by visiting this place. During the

Roman Empire the Romans built baths in thermal springs. Baths also existed here which were destroyed hundreds of years ago and the fact that its stone pillars and blocks still depict the water of Cleopatra's pool makes the place even more mysterious.

In the immediate vicinity of Istanbul is the spa town of Yalova – the emergence and development of which is associated with the presence of sodium chloride (common salt), calcium-saturated hot springs (water temperature from +57 to +60 ° C). The spa town of Balchava is not far from Izmir has a well-deserved reputation and the springs help patients protect themselves from inflammatory processes in the body, destabilization of metabolism. Since the 17th century people have been coming to the foot of Mount Seben (now Bolu resort) to bathe in the Great Geothermal Spring which helps with dermatological and digestive problems. A small source relieves the situation in the presence of gynecological diseases, rheumatism, stress. The internal use of liquid helps to eliminate inflammation in the kidneys and urinary tract.

Information about the use of thermal waters in the "Land of the Rising Sun" is available in the annals of ancient temples. The age of balneological resorts in Japan is more than three thousand years. Almost every thermal mineral spring - *onsen* in Japan has a legend about its origin. The discovery of many *onsen* was helped by ancient people's observation of animals, healing wounds of wild animals in mineral springs. In the absence of ideas about hygiene and medicine, thermal mineral springs - *onsen* were considered a divine gift with supernatural power. In many Japanese Shinto shrines - the *onsen* was an object of worship. The first records of Japanese hot springs date back to the year 720 and are found in the first written records of Nihon Shoki: Annals of Japan. He talks about the holy springs - Arima-*onsen*, Tamatsuku-ri-*onsen* and Dogo-*onsen*. For the first time in Japan the healing properties of hot underground springs were "officially" discovered by itinerant monks among whom the monk Kukai (774 - 828) was known posthumously as Kobo Daishi - The Great. The teacher who spread the law is often mentioned in historical documents. Widespread use of life-giving hot springs dates back to the Edo period (1603-1868) in Japan. In Japan during the Edo period medical treatments were born based on the characteristics of the water content of each known source, as well as the methods of regulating the sources and taking mineral baths. Among them are sand baths with mineral water *sunayu*, baths under falling water pressure *utaseyu*, foot steaming *ashyu* to relieve fatigue. Tokugawa Ieyasu - the founder of the third shogunate in the history of Japan from 1603 to 1868, was very fond of local mineral water and medical treatments, so it was supplied throughout the entire period of the rule of the Tokugawa shoguns imperial palace. Gradually infrastructure for visitors

began to develop near the springs, first in the form of individual ryokans, hotels or public baths, and later they became entire resort towns.

The use of mineral springs in each region, the history of their discovery is different, and studying them is of scientific and practical importance even now.

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