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16. A Spell Cast: Historical Aspects of Thermal Spring Use in the Western Carpathian Region

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Abstract: The history of geothermal resource use in the Western Carpathian region is mainly a history of the use of thermal springs. Thermal balneology established itself as a local tradition in prehistoric times; attention was paid to mineral and thermal waters not only by common people but by travelers, foreign visitors, and scientists. The richness of these waters is reflected in the geographical names of villages, towns, and springs. These names persist today, even in places where thermal waters are not presently found. The age of humanism gave rise to more precise investigation of these waters, their qualities and singularities, as well as possibilities for their technical and curative use.

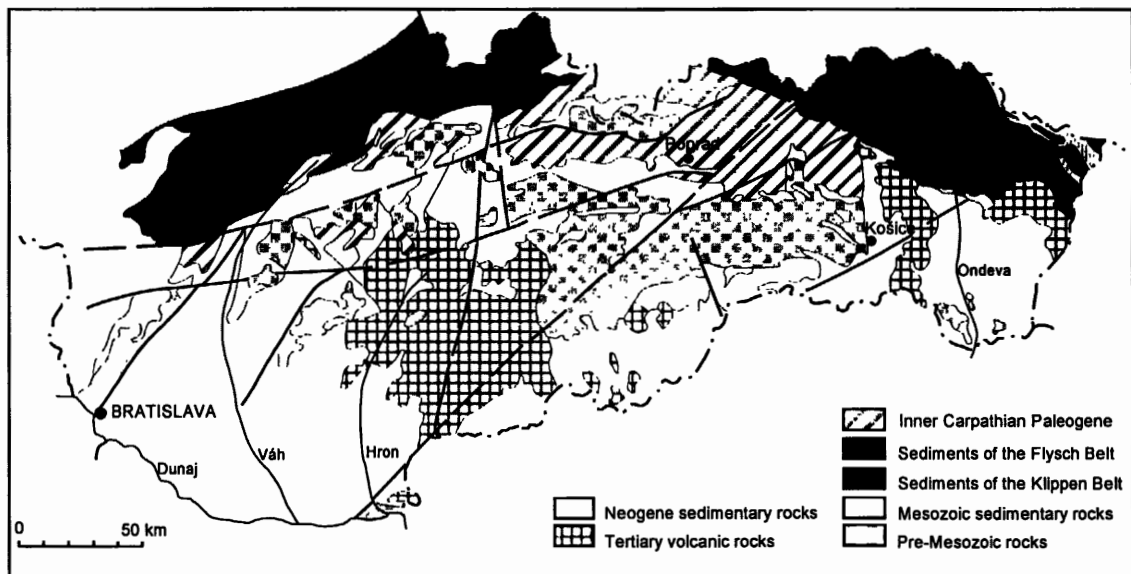
WESTERN CARPATHIAN GEOLOGY

THE WESTERN CARPATHIANS, WHICH OCCUPY THE TERRITORY of Slovakia, consist of an Alpine folded mountain system and Tertiary basins. The mountain system is divided lengthwise by the Klippen Belt into the Outer (Flysh Belt-Paleogene Sediments) and Inner Western Carpathians. The Inner Western Carpathians are characterized by the following (Fendek, 1995):

- Abundant pre-Upper Carboniferous crystalline schists
- Variscan granitoids
- Late Paleozoic sediments and volcanics
- Largely carbonate Mesozoic
- Pre-Senonian nappe structure
- Alpine metamorphism
- Formation of granitoids
- Post-Cretaceous vertical movements that modified basins of deposition

- Tectonics that gave rise to morphostructural elevations (mountains) and depressions (basins) with widespread post-nappe Paleogene and Neogene sedimentary and volcanic formations

The geological setting is favorable for the occurrence of thermal springs with temperatures higher than 25°C only to the south of the Klippen Belt, in the Inner Western Carpathians. These thermal springs are largely associated with Triassic dolomites and limestones of the Krížna and Choč nappes (Fatricum and Hronicum), less frequently with Neogene sands, sandstones, conglomerates, Neogene andesites, and related pyroclastics. Many archaeological finds at the site and nearby thermal springs indicate that people settled in these friendly areas. In historic times, the use of these waters and their thermo-mineral muds became more frequent and systematic, so that many thermal localities acquired recreational and curative importance.



Geological map of the Western Carpathians of Slovakia, by J. Nemčok, 1984. Reprinted with permission of the Geological Survey of the Slovak Republic

THERMAL SPRINGS FROM THE 16TH TO THE 19TH CENTURIES

THERMAL SPRINGS IN THE WESTERN CARPATHIANS WERE KNOWN AS EARLY AS THE MIDDLE AGES, and in the 15th and particularly the 16th centuries. Georg Wernher, a humanist scholar, brought them to the attention of the public in his work *De admirandis hungariae aquis hypomnematum* (Basiliae, 1549). Although small in scope, his works surprised Europe and complemented the mining issues attracting the attention of scientists. His studies are cited by all

known specialists and writers dealing with mineral and thermal waters. Of particular interest were the “cement” waters in Smolník and in Špania Dolina, which were used as cheap tools to extract high quality copper.

In the 17th century, alongside the odes written in praise of Piešťany’s thermal waters (Trajan, 1642) and mineral waters in Svätý Jur (Peucker, 1679), a scientific work appeared, the first hydrogeological study of this region. It was the eighth dissertation of Martin Szentiványi’s *Miscellaneas* (1689). Szentiványi, a professor at Trnava University, explained and interpreted surface and ground water movement and the various mysterious powers and properties of lakes, springs, rivers, and other waters, not only in this region but also in other parts of the world (Rebro, 1983).

The treatise had a hydrogeological character. However, his interpretations were not original; they were taken from authorities such as A. Kircher and R. Descartes. Primarily, he accepted the ideas of Aristotle. He gathered and mediated his own scientific view from the domain of hydrology, even hydrogeology. Neither he nor other scientists, such as M. Zeiler, D. Fröhlich, K. Reyger, Sr., and J. Tollius, could let this unique part of nature go unnoticed (Rebro, 1996).

The 18th century witnessed an explosion of interest in mineral and thermal waters. Scientists, as well as political leaders, tried to apply to economics and medicine what had been advantageously exploited abroad.

In the first half of the 18th century, Matej Bel, scientist and historian, was the leading personality in this field. He was the third influential personality who devoted exceptional energy to the study of mineral and thermal waters. His literary legacy was extraordinary, and he published books as well as manuscripts in Latin, German, Hungarian, and Biblical Czech. Matej Bel introduced a team approach into his scientific work, and his most important books were the results of this collaboration (Rebro, 1983).

His most important work was *Notitia Hungariae novae historico geographica (Historical and Geographical Knowledge of Contemporary Hungary)*. However, only four volumes were published in Vienna in 1735, 1736, 1737, and 1742. They contained data mainly from the western districts of Slovakia. The other districts of Slovakia were mentioned only in draft manuscripts. Matej Bel, together with his colleagues, assembled the known facts about mineral and thermal springs and their practical applications. He wrote not only of contemporary

knowledge but often spoke of their history, of his own experiences with springs of mineral and thermal waters in Slovakia, and of their use. At those times, thanks to K. O. Moller, head of the medical preparatory school in Banská Bystrica, several physicians were already engaged in thorough, profound analyses and descriptions of the most important thermal waters (A. Hermann, 1726, Trenčianske Teplice; J. J. Torkos, 1745, Piešťany and Pezinok). Thanks to Bel and his cohorts, 137 places with mineral and thermal waters received much publicity.

Maria Theresa (Queen of the Austro-Hungarian Empire) and her enlightened advisors were probably influenced by Bel's treatise and decided to investigate medical and social uses for domestic mineral and thermal waters, thereby preventing the outflow of wealth abroad where nobility traveled for entertainment and health. The first official registration of mineral and thermal springs, which had been documented by chemical analyses and therapeutic indication instructions, occurred between 1763 and 1769. The official doctors were assigned to undertake the registration. The data from the registration attracted a wider public, who were interested not only in learning about mineral and thermal waters but also in their professional promotion via monographs, geographic publications, and balneographies.

One of the first balneographies was by H. J. N. Crantz (1777), a professor at a Viennese university. It recorded 158 places with mineral and thermal springs in the Western Carpathians. Later he would personally analyze many of those waters. Most admired were the well-known spas: Piešťany, Trenčianske Teplice, Rajecké Teplice, Turčianske Teplice, Sklené Teplice, Vyhne, and Sliach, but also Svätý Jur, Pezinok, Lipovce, and Rudno. The latter mostly had their own scientists and promoters.

A tireless analyzer of mineral waters, Professor Pavel Kitaibel from Budapest began his work in the late 18th and early 19th centuries. His posthumously published 1829 work *Hydrographica Hungariae (Hungarian Hydrography)* showed a depth of knowledge about many significant localities and included botanical information, particularly his monographs about mineral and thermal waters and spas in Slatina, Turčianske Teplice, and Bardejov. His descriptions included details on the discovery of new springs, their composition, and their other qualities.

Professor L. Tognio, an Italian born in Trenčín, was another enthusiastic expert in mineral waters. He visited many places in Slovakia, analyzing and evaluating mineral waters. He also encouraged medical graduates, such as D. Szűsz, J. Calas Nagy, K. Emresz, and A. Zsigmondy, to write dissertations on mineral waters.

Although several balneographies appeared in the mid-19th century, written mostly by physicians, it was David Wachtl's 1859 work *Ungarns kurorte und mineralquellen (Hungarian Spas and Mineral Springs)* that was most significant and instructive. The author not only assembled topographic, analytical, and medical data, but he also briefly categorized the springs' geological position.

USING THERMAL SPRINGS THROUGH THE AGES

PIEŠŤ'ANY

THE MOST ATTRACTIVE SULFUR THERMAL SPRINGS IN THE WESTERN CARPATHIANS ARE AT Piešť'any. Various forms of this name are found in Hungarian, German, and Latin: *Pestien, Pestyen, Postyeny, Pistinien*. The temperature of the thermal springs, 68°C, is the highest in the Western Carpathians. People have utilized the Piešť'any thermal springs since the oldest times. The extraordinary density of Stone Age settlements here was apparently closely connected to the occurrence of thermal waters; the area was also frequented by game, such as mammoth, reindeer, and red deer. Archaeological finds dating from this period include stone tools, animal bones, shell necklaces, and sculptures of women, particularly Venus. The excavations also show that the Celtic tribes of the Cotins settled in this region, as did the later German tribes of the Quadi (Šípoš and Kovačević, 1972).

An old tale says that a big and beautiful lame peacock discovered the medicinal waters in Piešť'any. The peacock dragged itself to the Váh River below Piešť'any, and after a time it was completely cured. According to another tale, the medicinal effects of the local waters were discovered by Roman legions marching to the north in the time of Marcus Aurelius. Their presence in Trenčín (*Laugaricio*) is noted by the well-known inscription on the Trenčín castle rock, and excavated Roman artifacts include objects made of bronze, iron, silver, and gold. Once, after a long march, the Roman horses were so tired that they could not walk, and so they rested for a few days in a marshy meadow by the Váh River near Piešť'any. After this rest, to the surprise of the soldiers, they continued their way north, quite fit and fresh. People heard of the medicinal benefits and started to use the Piešť'any waters to cure sore feet and joints. They dug hollows by the Váh River where hot water flowed in and they treated their sore limbs. In a short time, they enjoyed improvements in their health, and in this way people underwent treatments for many centuries.

In the 7th and 8th centuries, Piešť'any and its surroundings were already settled by Slavic inhabitants, as indicated by important artifacts dating from the Great Moravian Empire: the remains of a fortified redoubt and merchant center at Pobedim (Hunka, 1988) and the vast spaces of the fortified Great Moravian magnate seat on the Kostolec near Ducové. The magnate seat is located on a strategically important hill that overlooks the whole of the middle Váh Basin. There are stone foundations of a rotunda and other buildings. During reconstruction, the whole site was enclosed by a high palisade that could be seen from afar. The distance from Piešť'any is approximately 8 km.

The first written mention of Piešť'any is found in the *Zobor Chart* of 1113, which demarcated and listed the boundaries of monastery properties on King Koloman's order. Other written documents on life in Piešť'any's springs up to the end of the 15th century primarily are private correspondence. A letter written by Andreas Mesterházy to Palatine Thomas Nádasdy in Budapest is important: he praised the healing power of Piešť'any's waters. In addition to these letters, there are many other references by travelers, physicians, and poets describing the bustle at the springs, healing effects, water treatment, and bathing.

Wernher wrote that Piešť'any spa was well-known for its hot springs and medicinal benefits, surpassing all other hot springs in Hungary (1549). Its speciality was that it had no permanent well, that the thermal springs incessantly changed their locations. The bathers were therefore obliged to dig new hollows on the Váh riverbank. Water treatment was simple in those times. In places where thermal water gushed forth, people dug holes and covered them with dead branches. They then let the warm water cool in the holes, or they cooled it with water from the river. The sick were submerged in the holes and thus recovered their health.

Physician Johann Crato de Craffheim, in his 1571 work *Five Books of Medical Recommendations* (Bottan, 1996), suggested a period of 30 days to treat ischias. However, not everybody consulted a doctor, and many people came to Piešť'any to treat all diseases. They believed in the superstition that the holy water would show within three days who could be cured and who would die.

In the 16th century, Habans came to Western Slovakia. Some of them worked in the simple spas of those times. They took care of patients, carried out sanitary measures, and performed minor medical services such as extracting teeth, blood taking, blood letting, and clyster administration. They applied tin bottles filled with hot thermal water to aching parts of the patients' bodies (Mulík, 1982).

During the 17th century, Piešť'any was frequently visited by sick people. Therefore, Emperor Leopold I issued a charter in 1682, *Salva Guardia*, by which he took Piešť'any and Banka villages under his protection. It meant that both settlements were protected against military requisitions and compulsory accommodation of soldiers. The most beautiful 17th century image of the healing springs of Piešť'any is that of Czech exile Adam Trajan of Benešov who settled down as a preacher in Drahovce near Piešť'any. His ode, "Saluberimae Pistiniensis Thermae" ("The Healing Springs of Piešť'any"), was published in 1642. He described the baths of the sick in the hollows, gave advice and recommendations for taking baths, but he also praised nature and the springs. For this reason, the main thermal spring of the spa was named after him.

In 1745, the doctor and physician of Bratislava Torkos built a dike in Piešť'any to prevent the destruction of thermal springs by floods and to enable the construction of more permanent buildings for patients bathing near the springs. He also recommended connecting the springs to wells by drilling. Professor Johan Crantz was interested in Piešť'any's thermal waters and was critical that the thermal water sources were not captured in a workmanlike manner. In 1771, he recommended the construction of permanent buildings. Nine years later, Count Johann Nepomuk Erdödy constructed the first wooden spa building at a site where patients already bathed in wooden bathtubs. Two other buildings were added: a second building for baths—in a mixed basin with a board roof—and a walled inn on the right side of the Váh River. Several farmhouses for the patients also were built there. Thus the colony of Teplice arose by the Váh River, about 2 km from the village of Piešť'any. Life in the settlement of Teplice was described in a comical poem by Count Jozef Gvadáni: "Clouds of dust or seas of puddles welcomed the guests arriving on wagons. It was a procession of a small defeated army. First wagons full of furniture, chair, beds, clothes, kitchen utensils, foodstuffs. This advance-guard was followed by horses with rich harnesses drawing the carriage of the spa guest..." (1787). Many other authors described their experiences at Piešť'any spa.

The spa was visited by important personalities: the Hungarian Palatines and Cardinal Peter Pazmán. In 1801, Ludwig van Beethoven underwent treatment. He was a frequent guest in the castle of the Brunswick family at Dolná Krupá (Bottan, 1996). He traveled quite often to Bratislava where his famous musician friends lived and gave piano lessons to Babeta, a gifted girl in the Keglevič family. His letter to an "immortal beloved," written here, was never sent to the intended recipient. Although the reason for not sending this letter will never be known, it is important that he wrote this letter in a spa: it was apparently written in Piešť'any in 1802. Beethoven's ardent love, felt from each line of this letter, inspired him to compose the "Moonlight Sonata."

At the beginning of the 19th century, the spa's proprietor was the county administrator and state minister, Count Jozef Erdödy. This man already saw a possibility for revenues to pay off debts of the Hlohovec dominion, and so he wanted to improve the spa. The authorities sent him officers and soldiers wounded in the Napoleonic war to undergo treatment. The cost was, of course, paid by the army.

Piešť'any was often struck by great catastrophes. In 1813, after a four-day rain, the Váh burst its banks; the water level rose 4 m and flooded the whole valley, an expanse of 9 km. Most houses in old Piešť'any were washed away. The flood destroyed or damaged 355 houses, claimed lives (Šípoš, 1981), and washed away the spa buildings. Other catastrophes included long periods of drought in 1816 and 1817 and the great fire of 1822, which destroyed many farmhouses.

The spa prospered in the 1820s. In Teplice, an extension was built to the Gentlemen's Inn, together with a superstructure and a casino. On the opposite side, the pharmacy house, the house of the county commissioner, and a Jewish dining hall appeared. The aristocracy started to build private villas in Teplice, doctors constructed private sanatoria, and private hotels appeared. Count Erdödy launched a major reconstruction of the spa. He razed the old buildings used for bathtub treatments, replacing them with a classical brick building. The first mirror room, "Napoleon's Bath," was built in 1822. In the same year, the Count developed regulations for the spa, and the first list of patients was compiled. Most patients drove to the spa in carriages and stagecoaches, which also served as mail transports. Letters were collected in a large, book-shaped wooden box.

Following Joseph Erdödy's death, the spa began to deteriorate. Dr. Francis Scherer, the permanent doctor of the spa since the 1820s, rented the spa and started to reconstruct some of the buildings (Mulík, 1984). To his merit, the Military Institution of the Spa was established in 1863. The arrival of Dr. Scherer thus brought about improvements in treatments at the spa.

A speciality of Piešť'any must be mentioned here. Since even seriously ill patients were lodged rather far from the spa, they used to lease *infanterits* to be transported there. The *infanterits* had special push-carts with a booth in which the patients could be seated comfortably.

A new era for the spa began in 1876, when a railway opened from Trnava to Nové Mesto nad Váhom, and in 1883 it was extended to Žilina. Thus Piešť'any was connected to the rail

network of Hungary, a most important event. The patients grew in numbers and romanticism, too, because in front of the railway station many fiacre-drivers waited for guests they could drive to the spa.

In 1889, the firm of Alexander Winter and Sons rented the spa for 100 years from Count Francis Erdödy. The number of facilities and buildings showed that the Winters family was able to fulfill their plans to revitalize the world-famous spa of Piešťany.

TRENČIANSKE TEPLICE

THE CURATIVE QUALITIES OF THE THERMAL WATERS (38°-40° C) AND THE MINERALIZED SULFUR mud have been used for ages at the Trenčianske Teplice spa, as its environs were a hunting ground and hence a suitable locality for prehistoric habitation. Archaeological findings include Paleolithic and Neolithic stone implements and Bronze Age artifacts at a dwelling on Čvirigovec hill and at an urn burial site in the lowland of the Teplička brook, not far from the spa. Later, a Celtic tribe (Cotins) settled there and after that a German tribe of Quadi. The latter fought against the Roman legions. A Slavonic housing estate in the valley of the Teplička brook dates back to the 7th century, the period of the Great Moravian Empire.

The oldest written records of the Trenčianske Teplice thermal springs are from 1242 and 1265, during King Belo IV's reign. As a spa, it was mentioned in a 1488 document (Šípoš and Kovačević, 1972). In Trenčianske Teplice there were three holes dug at a spring. The holes had no artificial bottoms, only mud. The advantage of the water was its temperature, which did not vary and needed no cooling or heating. The people could not only dangle their feet in the water but also could walk in it. This was the first mention of rehabilitation treatment in the Slovak spas of the 16th century. The pools were built on the springs; they had roofs, and the walls were covered with wood. There was mud nearby. The spa had a spa-master, who introduced the "spa order" according to an Austrian model that was gradually implemented by other Slovak spas. The order had 23 items (Horváth, 1984). For example, patients must use a laxative before the cure. During the cure, patients must follow a diet, and after their baths they could have only a short rest. It was also necessary to avoid negative emotional conditions. Patients must sleep during the night. All parts of the body should be covered with mud. A perspiration cure was advised not only when the tonsils swelled but also for hypochondria and hysteria. As to the length of the treatment, three to four weeks was sufficient for a lighter case. Patients were also advised to drink water early in the morning for 3, 7, and 9 days, day after day.

The first literary reference to the spa is found in G. Wernher's book (1549). Thirty years later, the spa was visited and explored by a learned provincial doctor of the Moravian margrave, Thomas Jordan von Klausenburg, who described it in detail, conducted chemical analyses of its curative waters, and gave remarkable advice on how to rationalize methods of cures. The results of his study were published in 1581 in Czech and in 1586 in Latin. During his visit, the spa consisted of only two pools in the open air and several log cabins (Šípoš and Ondrejko, 1989).

The thermal springs and the spa were a part of the Trenčín castle estate from the very beginning. As early as the 16th century, various Hungarian aristocrats were its owners. The spa reached its first real prosperity during the rule of Count Joseph Illésházy, who inherited it in 1724. He built a manor, new houses, and five spas (Mulík, 1981). He improved the whole environment of the spa, extended the parks, and introduced a dazzling social life. His descendants continued improvements, especially the last of kin, Count Štefan Illésházy, who was the owner from 1799 until 1835. By reconstruction and construction, according to a well-considered plan, the Trenčianske Teplice spa became the most popular of Hungarian spas, frequented by Hungarian, Austrian, Moravian, Czech, Silesian, Polish, Russian, and Prussian nobility. In 1835, a Viennese banking magnate, Juraj Sina, bought the spa from Štefan Illésházy and improved and commercialized it (Rebro, 1983). In 1856-1876, his son, Šimon Sina, continued developing the prosperous spa as did his granddaughter, Iphigenia d'Harcourt, from 1876-1909. Among other innovations, she enriched Trenčianske Teplice with a precious architectural jewel: the "Hamman Bath," completed in 1888. In 1909, the spa was bought by the Hungarian Bank and Trade Association. Its aim was to build a worldwide spa center at Trenčianske Teplice, another Pyrmont. But the association's extensive investments were thwarted by World War I.

SKLENÉ TEPLICE

THE SKLENÉ TEPLICE SPA IS ONE OF THE OLDEST KNOWN HEALTH RESORTS IN HUNGARY. THE village was Sklenô, known for glass production. According to information from the 16th century, mud was collected from thermal waters in Sklené Teplice and applied in curing procedures. It was the first instance of spa mud therapy in the Western Carpathians (Horváth, 1984). Mud formed in places where water gushed from the rock and was applied to joints, ulcers, and wounds. Five roofed spas had benches, and there was also a steam cave, *Parenica* ("sweating bath"). In 1671, the English traveler Edward Brown, on a visit to mining towns, described Sklené Teplice in great detail (Rebro, 1984). In 1690, the Dutch scholar Tollius wrote that there

were about 30-40 thermal springs there (37°-52° C). Thirty years later, Slovak scholar Matej Bel found fewer springs. He thought that they had disappeared due to human interference. Fourteen of the springs are registered today (Rebro, 1996).

At the beginning of the 18th century, after the Lippay family had died, the spa was forfeited to the state (Šípoš and Kovačević, 1972). Then it was in the hands of ministerial authorities in Štiavica, who promoted its further growth. They built the “nobility” bath in 1701. In 1777 Professor Henrich von Cranz mentioned three baths: nobility, common, and poor. In the 19th century, mining administrator Zipser commissioned a bathhouse to be built above the spring, which was named the “Zipser Bath” after him (Rebro, 1983). The local mining administration also provided a permanent spa doctor. Present reality, however, is far from past glory. The Sklené Teplice spa has remained a small resort, set in magnificent natural surroundings with fond vestiges of the past.

VYHNE

VYHNE, A MINING TOWN, BOASTS THERMAL WATER (37°-40° C) AND A SPA DATING FROM THE 16th century. Known as Rössler’s spa after the owners, it was also called *Hadie* (“Snake spa”) since young snakes used to appear in a pool rising from the gallery of a mine. Thermal waters were collected during mining operations (Rebro, 1984), and the spa flourished and declined with the mining enterprise. English traveler Edward Brown came to Vyhne after visiting Sklené Teplice spa in 1671. At that time, there were three baths, used mainly by miners for treatment of movement diseases. Thermal waters were used also in silver processing. Despite efforts to secure higher capacity, balneal business has not been revived at the present time.

SLIAČ

THE HEALTH-GIVING THERMAL SPRINGS OF THE SLIAČ SPA (33° C), LOCATED IN THE ZVOLENSKÁ kotlina depression, have been known for centuries. Today, these springs bring relief and comfort to those whose cardiovascular systems have been impaired by the pace of modern life. The earliest written record about the springs dates from 1244, during the reign of King Belo IV. Since the mid-15th century, numerous eminent scholars and writers have mentioned the springs’ curative effects. G. Wernher characterized them as waters with deadly effects (1549), but Matej Bel cast doubt on that view and proved their harmlessness. It was just evaporation of carbon dioxide that was deadly (Rebro, 1983).

Sliach has served as a resort for centuries and in the past was among the most frequented spas of former Hungary. It owed its popularity and attractiveness to the curative nature of its thermal waters and to visits from eminent personalities. The spa expanded before the Enlightenment, and it has remained popular until the present, chiefly for the treatment of cardiovascular diseases. Bathing pools are directly over the curative springs, allowing the mineral water, rich in carbon dioxide, to be applied directly in its most natural and effective form. The gas emanating from the spring is also exploited for curative purposes as subcutaneous injections.

KOVÁČOVÁ

THERMAL WATERS IN KOVÁČOVÁ WERE DISCOVERED BY THE VIENNESE FIRM TRAUSSL, WHICH mined coal in the Zvolenská kotlina depression. The firm drilled a 405 m borehole in 1899 and hit a free outflow of thermal waters with a temperature of 48°C. A spa with a hotel was located next to this source of thermal water. The spa focuses on the treatment of adolescents and on the rehabilitation of motion organs.

DUDINCE

THE FIRST MENTION OF DUDINCE (DYUD) DATES FROM 1284 (ŽIGO, 1992). THE DUDINCE SPA IS located in the Štiavnica river valley. In the past, this area was crossed by an important trade road, the “Via Magna,” which connected Budapest with Kraków (Poland) and the Baltic Sea. There is also evidence of thermal springs in Dudince in ancient times. More than 30 Roman baths, miniature pools hollowed in travertine, are remnants of the visits of the Roman legions. However, monuments to prove this view are lacking.

The oldest known written document about the use of thermal waters in this region is the work of G. Wernher (1549). D. Wachtel, the first to write about water analyses of the Dudince thermal springs, described the water as iodine, alkaline-saline, hydrogen acidulous (Hyánková and Melioris, 1993). At the same time, he described seven springs in travertine. The thermal water was used for bathing in holes that were dug. Thermal springs (27°-28° C) have long been utilized to treat rheumatism, eye inflammations, skin diseases, and digestive organs. In 1890, specialists from the Geographical Institute in Vienna came to survey the springs, and after them other specialists from the Mining Geological Institute visited the area. Based on research results, a decree was issued in 1894, officially acknowledging the thermal springs of Dudince as healing waters. The area around Gestenec hill was declared a protected zone (Krajčík and Krajčíková,

1995). The mineral water was used later for drinking treatments for stomach acid or pressure disturbances. It was also bottled and sold in stores. Bottled mineral water in special boxes was transported by trains to Komárno and from there by river ships to seaports, where it was sent to America.

A FEW WORDS AT THE END...

“**A**LL THINGS CONSIDERED, YOU ARE LIKE A LUCKY PRINCESS IN A FAIRY TALE HAVING IT ALL—youth, beauty, curative art, love of all the people, and at the same time, lots of excellent virtues—even the virtue of taciturnity. Reposing silently in a lap of mountains, mysterious and so shy! However, a single look at you and the spell is cast.”

These lyrical words were written more than a century ago, in 1872, by the great Czech writer Jan Neruda about the Mariánské Lázně spa. However, they actually apply to all the spas in the Western Carpathians, spas with old traditions and new approaches to treatment, with reputations achieved through abundant natural thermal resources with excellent curative properties. Like a king's crown sparkling with gems, the Western Carpathian region glistens with the life-giving gifts of nature. And like oases of health, spas have grown for centuries around these gems: settlements and towns with sanatoria, colonnades, parks, cultural and social facilities. It is not only the vast quantity of curative springs—preliminary data in the territory of Slovakia shows 1,382 mineral and thermal springs were registered by 1980 (Rebro, 1979)—but their exceptional quality that makes them noteworthy: their many-faceted chemical compositions, physical properties, and curative effects through time.

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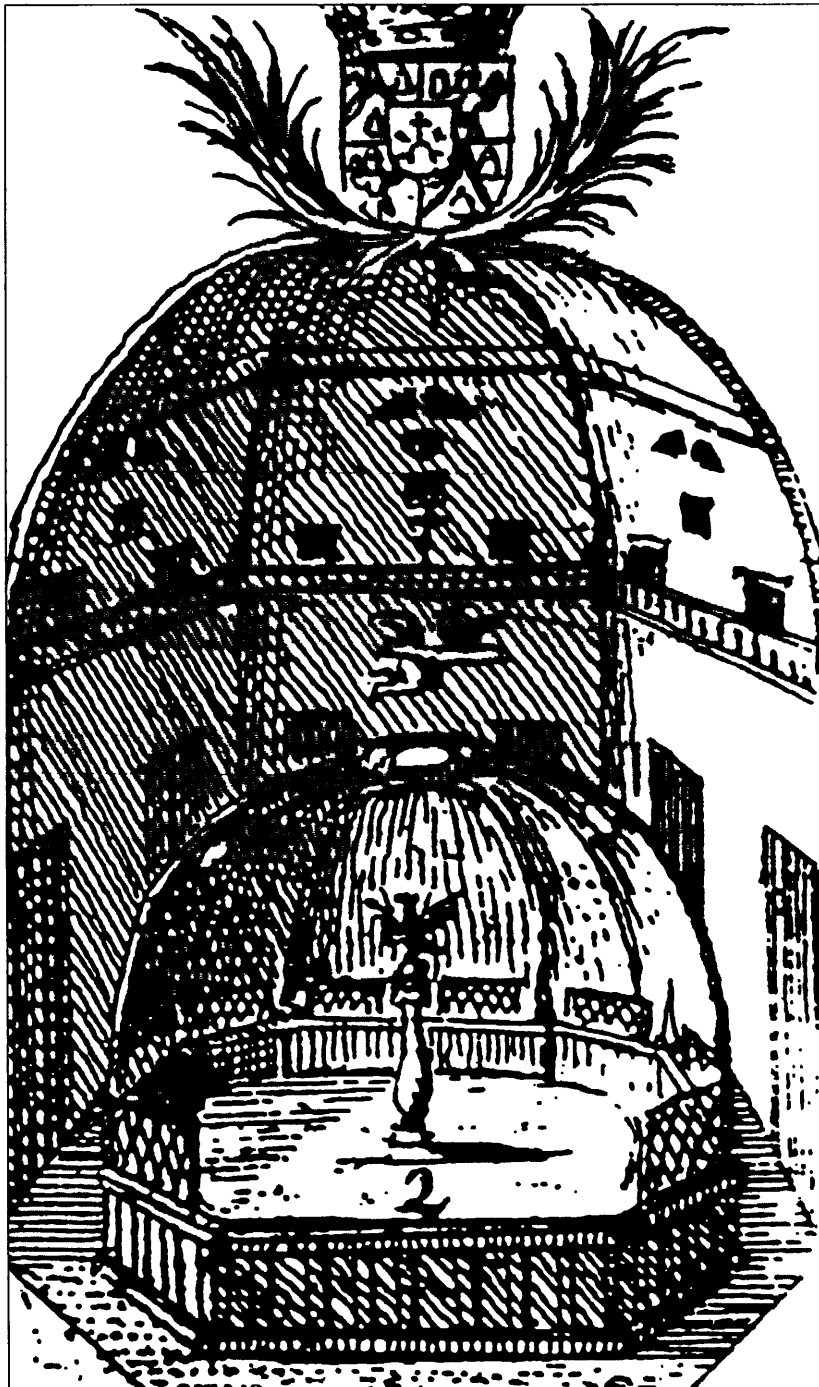
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The entranceway of the "Maria" thermal establishment at Ladek Zdroj in the Sudetes region of Poland, as seen in the late 17th century. This spa was visited for cures by many important persons in the 17th and 18th centuries, including John Quincy Adams, who would later become the sixth President of the United States. At the end of his visit, Adams declared, "I have never seen a spa, the location and appearance of which would be as much favorable to health preservation and restoring as Ladek."

The figure was first published in *Fons salutaris en Ladek et Silesia (Healing springs in Ladek and Silesia)* (1693, Vienna). The original drawing has been granted in recent years to Professor W. Ciekowski, who published it in his work *Ladek Zdroj* (1992), and who has authorized the authors to reproduce it in this chapter.
