The thermal water in the Hisarya region – from the Roman baths to the present days (field trip of XXII Congress of CBGA)

Термалните води в района Хисаря – от римските бани до наши дни (геоложка екскурзия на ХХII Конгрес на КБГА)

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**Abstract.** The thermal waters and the historical heritage in the area of Hisarya were the focus of the field trip held during the XXII International Congress of the CBGA in Plovdiv.

**Keywords:** thermal water, Roman baths, field trip, CBGA 2022.

As part of the events of the XXII International Congress of the CBGA (September 07–11, 2022, Plovdiv, Bulgaria), a field trip was organized for the participants of the congress to the area of Hisarya, located on the southern slopes of the Sredna Gora Mountains. The excursion included an introduction in the geology of the area, a visit of the thermal springs in Hisarya with a walking tour of the Old Town, as well as other cultural and historical sights in the area. The group included fellow geologists from Romania, Serbia, Hungary, Finland, Zambia, Bangladesh, Spain, Bulgaria, etc. (Fig. 1). The tour was initiated and conducted by Assoc. Prof. Eugenia Tarassova and Prof. Aleksey Benderev, with the participation of Prof. Mikhail Tarassov and Prof. Zoran Stevanović as consultants and guides in English.

The territory of Bulgaria is one of the richest in thermal waters in Europe, which motivates us to show part of this national natural wealth to the congress participants.

**General characteristics of the Hisarya thermal water deposit**

The geology of the central part of Srednogorie is dominated by intrusive and metamorphic rocks. A number of deposits and occurrences of thermal waters are associated with granite plutons, the largest and most famous of which are located in the region of Hisarya.

The Hisarya mineral water deposit, located in the southeastern foothills of the Sashtinska Sredna Gora Mountains, is known since ancient times. This is one of the most popular resorts in our country, as the thermal water sources are located in the city. In the period 1959–1967 in the area of the deposit, 8 boreholes were drilled with drilling depths from 309 up to 691 m. Self-discharging thermal waters were discovered in most of the boreholes. Shterev (1964), Petrov et al. (1970), Benderev et al. (2016) provide a general characteristics of the thermal waters of Hisarya. The main intrusive bodies in the area are the Paleozoic in age Michiltsi and Matenitsa plutons of a crust origin and the Hisarya pluton of mantle origin. Most important tectonic structure in the area is the E-W trending and south-dipping post-Eocene Hisarya normal fault, which hanging wall is occupied by Neogene-Quaternary deposits (Ruseva et al., 1994).

An important role in the appearance of thermal springs is played by young N-S oriented normal faults, forming a system of open fractures in the
host granites, which is a convenient way for the circulation of mineral waters (Petrov et al., 1970). Currently, there are about 20 separate water sources with a total discharge of ca. 31.5 L/s and a temperature of 26 to 52 °C. The chemical composition of thermal waters is relatively constant over time and similar in individual water sources. The waters are hydrocarbonate-sulphate with mineralization from 220 to 340 mg/l, high pH – from 8 to 9.3. Some water springs are characterized by increased radioactivity. Distinctive feature of the Hisarya waters is the high content of metasilicic acid (from 40 to 70 mg/l) and fluorine (from 2.5 to 5.5 mg/l) dissolved in the water due to the leaching of the granitoids at high temperatures.

**Historical notes**

According to the archaeological data, the place was inhabited since 6000 BC probably due to the presence of many hot mineral springs in the area. Later on, a Thracian settlement developed there and in the 5th and 4th centuries BC it became a major market town, trading with Greek cities on the northern Aegean as evidenced by the range of imported coins and pottery found. In the 1st century AD, Thrace was conquered by the Romans and the settlement became a Roman city and one of the three most important towns in the province. It was first called Augusta. According to a discovered inscription, the region centered on the city was declared an imperial domain by at least 135–36 AD under Hadrian. It was a famous resort, indicated by the fact that Emperor Septimius Severus visited the city. In 293, the Roman Emperor Diocletian also came here attracted by the thermal springs and raised its official status as a city and renamed it Diocletianopolis. City walls of 2.3 km total length were built in the early 4th century after the Gothic invasions. After the fall of the Roman fortifications between the Black Sea shore and Pannonia, the city declined until at the end of 6th up to beginning of the 7th century it was...
destroyed during invasions of Slavs and Pannonian Avars. The settlement was rebuilt in the second half of the 17th century on the ruins of ancient and medieval buildings and was named Hisar. In Turkish and Arabic “hisar” means “fortress”. Archaeological excavations continue and reveal more remains.

For the convenience of the participants, a guide in English was prepared and printed, indicating the route and places to visit. The excursion route of the group included the Archaeological Museum in Hisarya, the Roman Imperial Thermae (2nd–3rd century AD), the catchment of the water of the “Momina salza“ (“Lily of the valley”) spring, the thermal water reservoir with tap, the spring “Stublata”, the Roman colonnade, the Southern fortress gate „Camels“ (emblem of Hisarya), the Roman tombs, the Thracian tomb (5th–4th centuries BC) in the Horizon mound near the village of Starosel and the winery near the village, producing wines from local and traditional grape varieties.

The thanks and high evaluations from the participants of the field trip us reason to believe that we have made our contribution, albeit a small one, to the promotion of the natural wealth of Bulgaria.

References


