

THE EAST SLOVAKIAN MINERAL DEPOSITS

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It was in the ancient past already, that Eastern Slovakia had been known as an area of extensive mining activity carried out especially in the Spišsko-gemerské rudohorie Mts. abounding in mineral resources, less in the region of the East Slovakian Neovolcanites. In spite of such a long-lasting mining activity, however, the mineral resources of these areas still serve nowadays as an important basis for industrial purposes in our country.

From this point of view, a considerable success has been achieved during the period of the last ten years, when Eastern Slovakia was subject to intense geological prospection and investigation.

The Spišsko-gemerské rudohorie Mts.

The Spišsko-gemerské rudohorie Mts. are considered to be one of the most significant metallogenetic areas of the West Carpathians having all the characteristic features of an Alpine — West Carpathian metallogenetic province (according to W. E. Petraschek, 1963). They form there a separate tectonic unit — the so-called Gemic (D. Andrusov, 1968) being built by a complex of Paleozoic — Mesozoic rocks. It is the innermost West Carpathian nappe having been thrust from the area situated south of the Ráb — Rožňava deep-seated fault over the Tatra — Veporide Crystalline Complex to the north (Grecula, 1973).

The anticlinorium of the Central Volovec Zone limited from the north by the North Gemicide Synclinorium and by the Slovak Karst Synclinorium from the south is considered to be the main structural unit of the subject area. Its core is formed by the Gelnica Series referred to Cambrian — Devonian in the frame of which three bed sequences (P. Grecula, 1970) are distinguishable. These are the Kojšov Beds in a psammite facies with sandy phyllites and conglomerate intercalations, then the Betliar Beds in a graphitic schist facies with carbonate and lydite intercalations, and at last the Hnilec Beds with a complex of chloritic — sericitic phyllites, quartzites and acid to basic volcanites as well. The mantle of the Central Volovec Zone is formed by rock complexes of Upper Paleozoic to Mesozoic age. North of this Central Zone, in a typical Verrucano facies, continental sediments are developed, while in southern direction marine sediments including mainly clayey and limey shales, limestones, sandstones and anhydrite as well as gypsum layers predominate. In the course of Triassic sedimentation, basic to ultrabasic volcanism took place. The granitoid rocks having been formed during Hercynian and Alpine orogenetic processes are also taken as very important structural elements in the whole geological structure of the Spišsko-gemerské rudohorie Mts. They are, according to many geologists, in close relation with the generation of hydrothermal mineralization in this area.

The mineral deposits situated in the Spišsko-gemerské rudohorie Mts. are ascribed to various metallogenetic epochs from among which the pre-Variscan

one is represented by the Smolník copper-bearing pyrite deposit considered to be of exhalation — sedimentary origin.

The Alpine metallogenetic epoch is taken into account as the most productive one. During its initial stage (Triassic) some accumulations abounding in gypsum and anhydrite mineralization as well as poor haematite deposits formation took place. The asbestos deposits and Ni — laterite and chromite occurrences are related to basic and ultrabasic bodies as well. In the course of the middle (Upper Cretaceous) stage, manifestation of conspicuous plutonism can be observed being associated with pneumatolytic and hydrothermal activity represented by siderite deposits formation of veiny and metasomatic origin, frequently abounding in higher contents of Cu, Pb, Zn — sulphides as well (e. g. Rudňany, Rožňava, Dobšiná). The magnesite deposits at Košice, Dúbrava, Burda and Podrečany and the talc ones at Kokava, Samo and Mútnik as well as the recently discovered Sn — accumulations at the village of Hnilec situated around the granite apophyses are to this stage referred, too. The antimony and gold deposits occurring near the villages of Čučma and Poproč being also displaced around the granite apophyses mentioned above are considered as the latest ones having been originated during the Alpine metallogenetic epoch.

In the Spišsko-gemerské rudohorie Mts. we intend to visit the Jaklovce asbestos deposit and the Hnilec Sn — mineralization. At last, the drill core coming from the deepest borehole SG — 2 (2.532 m) as well as the Ni — laterites situated near the village of Hodkovce will be seen.

The East Slovakian Neovolcanites

The East Slovakian Neovolcanites are spatially restricted to the area of Miocene Molasse extending south of the Klippen Belt and east of the Hornád Fault.

These are the products of Neogene volcanic activity which are responsible for two conspicuous mountain ranges formation. The Slánske vrchy Mts. and the Miliča Mts. situated on the western margin of the Miocene Molasse are running in N — S direction following the parallel course of the Hornád Fault. The Vihorlat Mts. on the structure of the Klippen Belt and that of the transverse Vihorlat Fault are developed. In the opinion of J. Slávik (1974), the initial stage of volcanic activity characterized by rhyolite volcanism reaching its highest intensity in Lower Badenian time can be placed to the Lower Miocene Epoch. The further volcanic phase taking place in Badenian time has manifested by the products of andesite composition. In this time, numerous volcanic bodies, especially in the area of the Zemplín — Beregovo Elevation and later on also in the northern part of the Slánske vrchy Mts. were formed. Towards the sedimentary space, generation of extensive stratovolcanos took place in the course of Lower Sarmatian time. It was in the Middle Sarmatian Period that some further volcanic activity took place in the area of the Zemplín — Beregovo Elevation having been responsible for pyroclastics and rhyolite bodies formation. Some effusions of later age represented by amphibole — pyroxene garnet andesites, in the northern part of the Slánske Vrchy Mts. as well as in the SW Vihorlat Mts. are to be found. The volcanic

rock complex having been formed in such a way was penetrated then by diorite — porphyrite and andesite bodies of holocrystalline texture. Volcanic activity has continued during Pliocene having been terminated in Upper Pliocene time.

The East Slovakian Neovolcanites are conspicuously differing from the Central Slovakian — West Carpathian ones their evolution of volcanism being resemblant to that of the East Carpathian part of Volcanic Arc (J. Slávik, J. Čverčko, R. Rudinec, 1968). According to Petraschek (1963), they can be referred to the Eastern Mediterranean Province.

The Zemplín — Beregovo Elevation of Eastern Slovakia is known because of its Ba, Cu, Ag, Au mineralization while in the Vihorlat Mts. there are marked anomalies of Hg, Mo, Bi, Ag minerals and a corundum — andalusite — topas mineralization was there also found.

The Slanské vrchy Mts. are characterized by cinnabar and antimony occurrences situated especially in the Dubník and Zlatá Baňa areas, but polymetallic ore occurrences at the village of Zlatá Baňa as well as precious opal at Libanka near the village of Dubník are there also known. At last, the Merník cinnabar deposit and the Ladomírov one having been discovered in the East Slovakian Flysch by geochemical methods should be also mentioned.

On the basis of the results of geological prospection carried out by geochemical methods, several cinnabar, polymetallic and other anomalies were there distinguished as a subject to further investigation in this area.

The East Slovakian region is also rich in non — metallic raw material occurrences, from among which some halloysite (Biela Hora near Michalovce), perlite (Byšta), bentonite (Lastovce, Kuzmice) and halite (Soľná Baňa, Zbudza) deposits as well as numerous building stone, gravel sand and brick clay ones should be mentioned.

In the subject area our excursion will visit the Dubník cinnabar deposits as well as the known precious opal occurrence at Libanka in the Slánske vrchy Mts. In the Vihorlat Mts. region, the corundum — andalusite — topas mineralization mentioned above and the Biela Hora halloysite deposit situated near the city of Michalovce will be seen.

Translated by Vikisalyová