## The akratopege “Barbarabad”, Carinthia, Austria

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The history of a mineral spring, with historical data, chemical analyses and references to literature is the topic of this article. The history of this spring with a water temperature below mean yearly surface temperature but with a pronounced mineralization goes back to the late 15th century. Already in the year 1506 the spring was called mineral spring (Heilquelle) and dedicated to holy Barbara. In the following centuries a lot of legends were told in combination with the therapeutic power of the water.

The first chemical analysis of the water was performed by Crantz and semi quantitative values for the content of calcium- and magnesium- sulphates were published by this author. The range of therapeutic applications varies from dermatologic diseases up to rheumatism in this time.

Accurate chemical analyses were given by Mitteregger and explicitly written: “In 10 000 G. T. ist enthalten: Abdampfrückstand 2,70 G. T. [Gewichtsteile]. Aus dieser Analyse ist zu ersehen, dass dieses Wasser zu den indifferenten kalten Gebirgsquellen zu rechnen ist.” “In the 19th and in the first five decades of the 20th century the spring and the bath had an excellent reputation, after this time the owner ruined the whole buildings by bad management”. Nowadays no access to the spring and the environmental buildings is possible.

Perhaps by some relevant articles we can wake up this jewel to reality. Especially, while today the “originality” in all spheres of our life is of predominant interest.

## On a comparison of olistostromes and olistoliths from the Cilento Flysch in the Southern Apennines (Italy) and the Northern Carpathians (Poland, Slovakia)

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Comparative studies show significant analogies of geodynamic stages between the S Apennines and the N Carpathians as well as analogies of occurrence of similar levels with olistoliths and olistostromes related to these stages. One of the periods with extensive development of olistoliths and olistostromes was related in both orogenes to the final geodynamic stage when internal margin of sedimentary basins as well as adjacent accretionary prism started to be extensively uplifted and overthrusted onto their foreland. The redeposited blocks and olistoliths are of shallow water sediments and their adjoined basement of various ages. These have been derived from the internal margin of the basin as well as from older basin sediments transformed already into accretionary prism. In the Cilento Flysch unit (S Apennines) a level of chaotic deposits developed during Paleogene and/or Neogene. It crops out along costal cliff at Tempa Rossa within the Cannichio Formation (Monte Stella Succession) where debris-flows rich of mudstone and sandstone clasts or olistoliths and sandstone layers folded and mixed together by submarine slumping are visible. They are partly similar to deposits of an olistostrome within the Hieroglyphic Beds (Silesian Nappe, Carpathians), which crops out along a shore of the Rożnów Lake.

In the Monte Sacro Succession (S Apennines) two large olistostromes occur within the Miocene San Mauro Formation The upper one, about 100 m thick, includes large olistoliths (olistoplaques) of Late Cretaceous red shales. Comparable to it is an olistostrome within the Bystrica Subunit of the Magura Nappe by Rabka village (Polish Carpathians) that is built up of debris-flows, sandstone blocks and olistoliths of Eocene red shales. In both cases very

thick-bedded marly turbidites occur below. In the Carpathians other good example of olistoliths derived from basin margin are Bukowiec olistostromes within the Krosno Formation (Oligocene) which contain blocks of shallow water limestones and basement metamorphic rocks. Within the youngest sediments that terminated Western Carpathian flysch succession there are olistoliths derived from accretionary prism that was build up of older, Cretaceous and Paleogene rocks. Good examples are olistostromes within Menilite Formation in Skrzydlna and Klęczany with large olistoliths of Lower Cretaceous flysch deposits derived from a southern margin of the Silesian Basin. Locally, huge olistoplaques, up to hundreds meters in diameter, are also observed within the Krosno Formation (Late Oligocene - Early Miocene) in Gorlice - Jasło area that are represented by the Magura and Fore-Magura successions. The Monte Sacro Succession is terminated by a thick complex of conglomerates. That can be compared with the early Miocene Sloboda Conglomerates from the Borislav-Pokutya Nappe in marginal part of the E Carpathians

On the other hand, the olistoliths and olistostromes within the Cretaceous sediments of the Pieniny Klippen Belt are believed to be of origin related to the tectonic margin along the active ridge migrating during the Late Cretaceous till Early Eocene. The rising "cordillera" produced a huge amount of clastic material, mostly deposited in flysch facies sporadically intercalated with diastrophic slumped bodies.

Some spectacular outcrops of flysch and conglomerate olistostromes are in Orava river bank (N Slovakia), where thick flysch sequence of Turonian – Coniacian age contains bodies of chaotic slump sediments 15-80 m thick.

Nearby, at the Dolný Kubín town another type of olistostrome outcrops: the Late Cretaceous Globotruncana marls (Púchov Formation) are overfilled with clasts of Early to Late Cretaceous marls and marlstones. Both examples document the proximity of source area, and even the erosion of synchronous sediments involved. Such phenomena support the idea that at least part of the klippen in some areas of the Pieniny Klippen Belt is of sedimentary origin, as stated earlier and recently.

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## The impact of a uranium mining site on the stream sediments (Crucea mine, Romania)

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XRF methods were used to evaluate the impact of uranium mine dumps on the stream sediments from Crucea region (Romania). In order to estimate the natural and anthropogenic inputs of radioactive and heavy metals in the sediments, normalization to Al was applied. The pollution degree of the bottom sediments show that U, Th and Pb reach medium and punctual high values, while the rest of the elements appears in concentrations close to the background or lower. The measurements carried out in the surroundings of a local uranium mine show that the impact of Crucea mine on water quality downstream of mining area is insignificant.

## The Lower Danube Valley. Geological structure and evolution during the Pliocene-Quaternary

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Stratigraphical and geophysical arguments are put forward, whereby that the beginning of sediment deposition by the Lower Danube and by its tributaries date back to the Late