

THE OLDEST CHARTS AND MAPS OF SPELEOLOGICAL OBJECTS IN BOSNIA AND HERCEGOVINA

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Speleological researches are taking place in Bosnia and Hercegovina as early as second half of XVIII century, with the discourse of scientist and philosopher from Dubrovnik *Nikola Gučetić* (1549-1610). He had published his discourse titled "Sopra le Metheore d'Aristotile" in 1584 in Venice, and an unchanged edition one year later. In his discussions he has mentioned two caves: *Šipun* near Cavtat, and another cave whose name he hadn't mentioned, but from its location Popovo Polje it can rather precisely be identified as *Vjetrenica* (DADIĆ 1984). There are no maps or sketches of caves in his discourse, but there is a schematic presentation of how wind originates in underground areas (Fig. 1).

na Anaflogora
 la inferiore, &
 Superior parte
 de la terra?
 C. La Superior
 parte della ter-
 ra intenda que
 sia superficie,
 che noi colubiam-
 o, & quella
 inferiore, ch'è
 contraria per
 diametro alla su-
 periore, come
 vedete in questa
 figura.

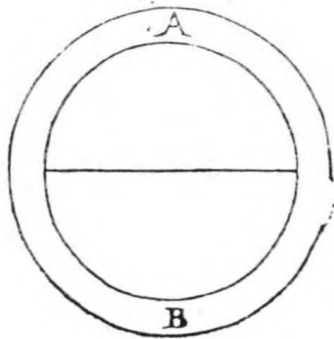


Fig. 1.

Later explorers of karst and caves in Bosnia and Hercegovina, *BOUÉ* (1840) and *AYALE* (1851), also didn't give any grafical representations of the area they have researched. They confine themselves to descriptions.

It is very probable that first maps of speleological objects have been made by numerous army experts,

that came to these parts after Austro-Hungarian Empire has gotten the rule over Bosnia and Hercegovina on Berlin Convention held in 1878. Among them it is necessary to mention many contributors to Military-Geographical Institute from Vienna who have commensed with geographical mapping: Löbl, Funk, Willitzer, Cvitas, Humitja et al. (MALEZ 1988).

They came across many speleological objects in the field, which is obvious from their articles published in the review "Mittheilungen der Section für

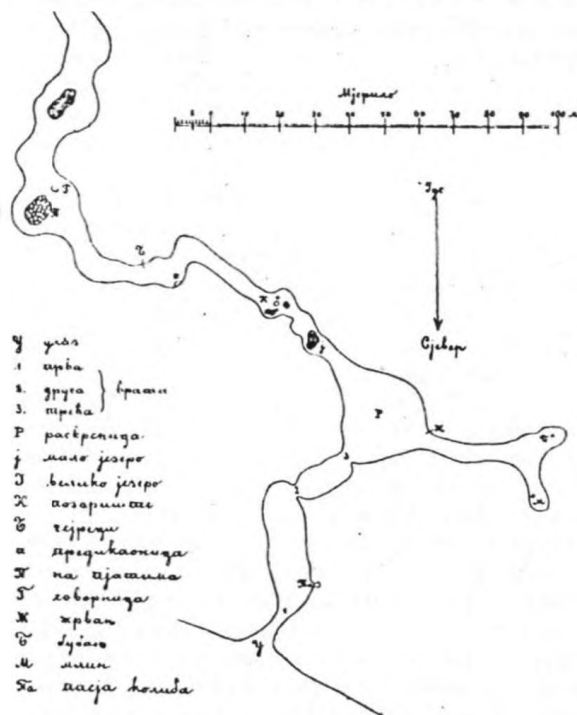


Fig. 2.



Fig. 3.

Höhlenkunde des Oesterreichischen Touristen-Club" between 1884 and 1888. However these articles gave no drawings of these objects from Bosnia and Hercegovina, and it can be presumed, that they are kept in the Archive of Military-Geographical Institute in Vienna, because it isn't likely that expert geodesists and surveyors would not leave any sketches besides them.

The first map of one cave in Bosnia and Hercegovina, from the data available so far, is a map of cave Vjetrenica, (Fig. 2) made by H. MIHAJLOVIĆ (1890), the abbot of monastery Zavala. The map was made in cca. 1:1500 relation and it has characteristic places marked with letters from Cyrillic alphabet as a help to descriptive part.

The first "complete" map of one cave in Bosnia and Hercegovina, from the current point of view, was published by V. RADIMSKY (1891) in his book about the prehistorical findings in Bosnia-Hercegovina and Austro-Hungarian Empire. This author has given a map and cross section of the cave in order to show, for the first time in our literature, how a research (excavation) is done and how to complete all the necessary documentation. The directions given in this book are gathered advices from his correspondence with J. Szombathy. However, Radimsky didn't mention the name of the cave whose map is given in his book, neither did he state where the cave is located.

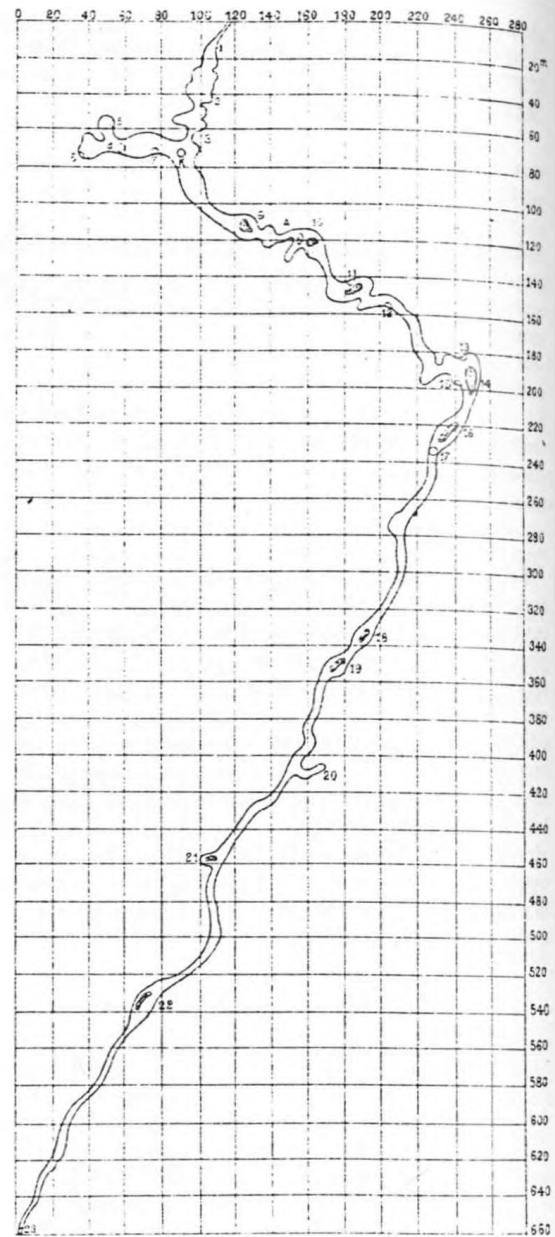


Fig. 4.

One can therefore doubt the existence of the cave represented by this map. It is also possible that the map was made by Szombathy himself, as a part of his instructions to Radimsky.

This book had a great echo in the local cultural circles, and resulted in presence of cave maps in reports from archaeological excavations.

One of them is the map of Marin's Cave near Sarajevo, made by F. FIALA (1892), who had done

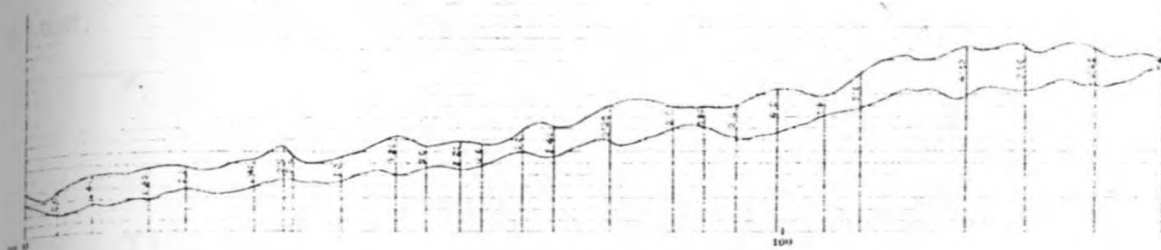


Fig. 5.

archaeological excavation in this cave in 1891 and used the map to mark the place where he had found traces of man abode (Fig. 3). This author has researched the *Magara Cave* on Bjelašnica Mountains, but it is not known whether he left any maps.

An improved plan of the cave Vjetrenica was published one year later by J. VAVROVIĆ (1893). As a base of the floor perspective there was a rectangular net dimensions 20x20 meters (Fig. 4). The profile was deformed lengthwise, which was obvious from its dimensions on horizontal and vertical axis (Fig. 5). This author was the first to present the plan of cave adornment stalactites (Fig. 6), stalagmites (Fig. 7), and travertine basins he had referred to as "Pjati" (Fig. 8).

Engineers of Railway Management for Bosnia and Hercegovina were working in Hercegovina in 1904. One group was exploring the Vjetrenica Cave once again, total length 1350 meters, and made the plan of the main channel 770 meters long (RADOVANOVIĆ 1929).

Upon their arrival to Bosnia and Hercegovina numerous engineers from the Monarchy faced the local problems trying to solve them. One of them was especially challenging – to solve the problem of watering and overflow of big karst fields in western and eastern Hercegovina. This problem tried to solve BALLIF (1896, 1899). In his first book he published several plans of precipices in Livanjsko Polje. For precipice near Čaprazlija and Kameniti ponor (i.e. stone precipice) he gave profiles with elevation marks

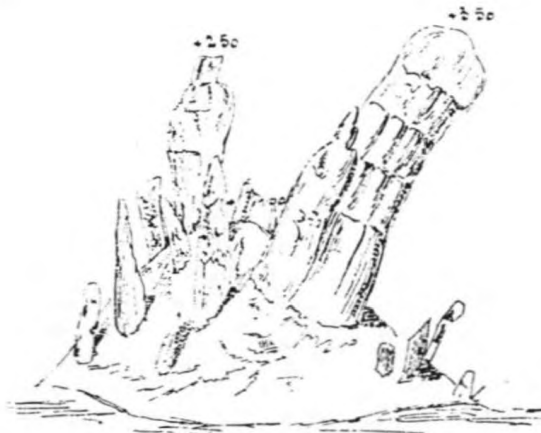


Fig. 7.



Fig. 6.



Fig. 8.

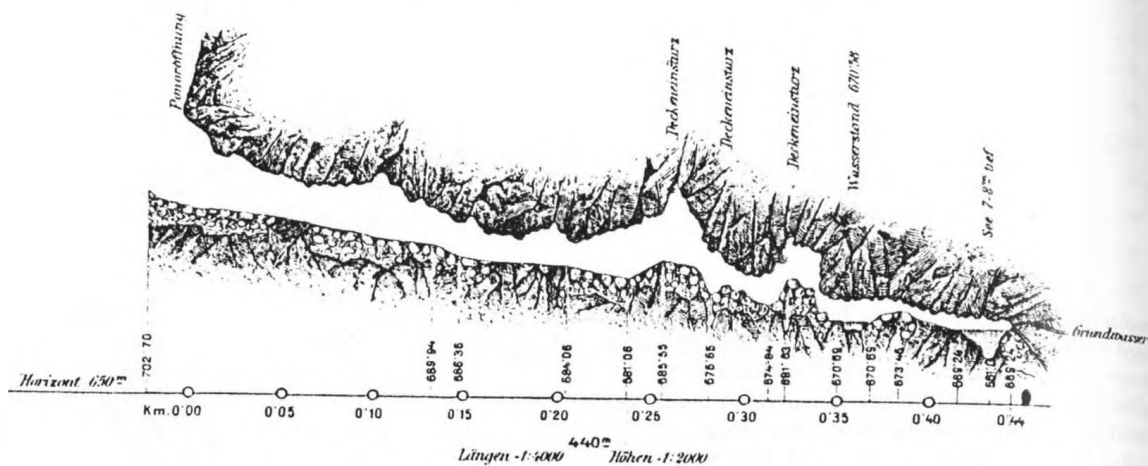


Fig. 9.

(Fig. 9). Ballif gave several plans of entrance parts of precipices (Opaki ponor, Veliki ponor, Ponor near Čaprazlija, Kameniti ponor), when he dealt with their arrangements, i.e. technical realisation on their apertures. It is necessary to mention Ballif's drawings of profile of Dinarides of Western Herzegovina (from Glamočko, Livanjsko to Cetinsko polje) in which he gives schematic inspection of underground channels, i.e. the connections between these fields.

This is the crucial part about cave mapping accessible to us so far. I believe that most interesting contributions on this topics are available at the Archive of Military-Geographical Institute in Vienna, but in order to come to Vienna I would have to cross, at least for the time being, to many borders.

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