

REPRESENTATION OF THE BANAT MOUNTAINS IN THE CARTOGRAPHIC DOCUMENTS OF THE 18TH CENTURY

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Abstract: *The Representation of the Banat Mountains on the Cartographic Documents of the 18th Century;* The study starts by a presentation of the main previous maps, older than 18th Century focused on the Banat Mountains. The research of the cartographic documents from the 18th Century, an important part of them unique, preserved in foreign archives, based on peculiar methods as selective, analytic and comparative lead us the monitoring the evolution of the mountain relief representation methods as well as the outlining of the specific oronyms from this region. It is paid a special attention to the most representative maps and plans from the 18th Century that present the Veteranii Cave and the capture of the Ponicova River.

Rezumat: *Reprezentarea Munților Banatului pe documente cartografice din secolul al XVIII-lea.* Studiul începe prin a enumera principalele hărți anterioare secolului al XVIII-lea pe care sunt reprezentați Munții Banatului. Cercetarea documentelor cartografice din secolul al XVIII-lea, în cea mai mare parte inedite, păstrate în arhive din străinătate, bazată pe metodele: selectivă, analitică și comparativă a permis urmărirea evoluției metodelor de reprezentare a reliefului montan cât și menționarea oronimelor acestei regiuni. Se acordă o atenție particulară celor mai reprezentative hărți și planuri din secolul al XVIII-lea referitoare la Peștera Veteranii și captarea râului Ponicova.



Key words: *cartographic documents, maps and plans, Banat Mountains.*

Cuvinte cheie: *documente cartografice, hărți și planuri, Munții Banatului.*

1. INTRODUCTION

The Banat Mountains represent the mountainous area bordered by the Mureș river, in the North, and the Danube in the South. It is situated South-West of the Romanian Carpathians, in the South-West of our country. Although the average altitude of the Banat Mountains is the lowest compared to that of the other mountains in our country, they have, however, stirred the interest of cartographers ever since the 12th century. The purpose of this paper is to give a brief presentation of the most important maps which appeared before the end of the 18th century. They are maps representing the Banat Mountains and the oronyms in the area, with special focus on the carstic landscape.

2. BANAT MOUNTAINS ON MAPS BEFORE THE 18th CENTURY

The first source mapping that mentions them is the Arab Sariff al Idrisi's map, dating back to 1154, on which are drawn, north of the Danube, mountains „Gebel Banuat”(Munții Banat), united at east with „Gebel Karka”(Munții Carpați). On Middle Ages' maps Banat Mountains are represented symbolically through a chain of mounds without being called, and their approximate location. For example, the mountains separating Banat from Transylvania and Romanian country are represented on Portulanu of Naples and Fra Mauro Camalduleb's Mapamond, painted in 1459 on the walls of San Michael di Murano church in Venice, found in copy in the Marciana Library in Venice.

On Nicolaus Cusanus' map, from 1490, south of Mureș are two chains of mountains: one north of town „Gron”(Gradiștea=Sarmizegetusa) meaning Poiana Ruscă Mountains and another from „Gron” to the Danube in the locality „Seuerin”(Severin), meaning Retezat-Godeanu Mountains. These mountains appear on the 1507 map of Nicolaus Germanus, in the eastern Banat called „Septem castra”, as well as on the 1513 map of the atlas published in Strasbourg by the same cartographer. On *Tabula Hungariae* map of Lazarus secretarius Cardinalis Stringen (1483-1526), edited by Apianus in 1528, the mountains that separate Banat from Transylvania start south of Mureș and east of Caransebeș and they go as far as the Olt River. In Abraham Ortelius atlas (1527-1598) printed in Amsterdam in 1579, on *Polonia et Hungaria Nuova Tavola* map of Jacobo Gastaldo, from 1548, is represented by mounds a mountainous region that starts east of Lippa (Lipova), continues east of Caransebeș and ends at the Danube, east of Orșova.

In the same atlas, on the *Hungariae Descriptio* map, drawn in 1570 by Wolfgang Lazius (cca. 1514-1566), a mountain range parallel to Temes fluvius (Timișul) and Danubius fluvius (Dunărea) drawn almost in a straight line separates Banat from „Dacia alpestris”, respectively Hațeg, also written Haczag vallis. The maps in the second half of the 15th century, the mountains are represented by mounds on which light falls from the south-west and the amount of color used is not intended to present geographic phenomena, but only to embellish the map. The map *Ungaria...* also belongs to this category, drawn by Joanes Sambucus (1531-1584), published in Amsterdam in the 1579 edition of Ortelius

atlas, on which are represented by the symbol of two mounds, the mountains of southern Banat. Then they appear on maps from the 17th century of Hulsius Levinus (1630), Guillaume Bleauw (1663), Nicolaus Sanson (1698), T. Danckerts (1660-1692), N. Visscher (1687) and others.

The most detailed map of the Middle Ages, on which appears Banat, is that of Hulsius Levinus, *Danube Basin* from „Novus opus geographicum”, since 1630, on which is located „Porta Ferrea” (Portile de Fier ale Transilvaniei). The pass also appears in Hungarian translation „Vascapu”, on *Transylvania* map of Gerard Mercator (Kramer) (1512-1594), in Atlas Minor published by I.Hondius, at Amsterdam, in 1607. Late 17th century, the Banat became theater of war between the Austrians and the Ottomans, the subject of lifting map (maps and plans), which were kept very secret and therefore are kept in manuscript. On these Banat Mountains are more accurately represented. Among them, a real progress registers *Mappa della Transylvania ...* drawn in Sibiu, in 1699, by Morando Visconti, Italian engineer located in Habsburg service. The map is located in Cluj-Napoca University Library, special collections H 11/50 and in „Batthyaneum” Library from Alba Iulia.

3. BANAT MOUNTAINS ON THE MAPS AND PLANS OF THE 18th CENTURY

On the 18th Century maps relating to Banat, on the small and medium scale, scenery representation is poor - for objective reasons. Mountain massifs are represented very brief and indicative. Map scale does not allow for adequate detail, as a scientific method of representation was not known at the time and lack of elevation data. In the 18th century, the methods used to represent the scenery are: perspective method, using clustered mounds, chained or isolated, whose size increases with altitude and because of the occupied area, the maps became too crowded; and fill method, which are not drawn by the rules known today - first uniform, and to end proportional to the forms; they were aiming at ensuring suggestive perspective to the detriment of an objective one.

Free filling, with no mathematical value used since the 16th century by I. Honterus and Sebastian Munster to represent irregularities in the slopes of the mountains, continues to be used in 17th and 18th centuries, even on military maps on the Banat. The most detailed representation of the scenery is found on the military map of Elmpt: *Original – Aufnahmskarte des Temesvarer Banats...* kept in Kriegsarchiv, on (KA), Vienna, b.IX.a 577.

About hatching, it should be noted that they are drawn somewhat proportional to the heights they represent, without there being a scale of their own. Thus, proportionality facilitates deciphering both major relief units and details: of hills and plains abandoned valleys, terraces, the main water courses, etc.. Vertical illumination with the alternate shadow-and-light pattern helps represent the scenery. Valleys and plains are especially easy to see, on the extensive white interrupted by waterways near which are distinguished floodplains, terraces and fields interfluve. The same was reported by Anton Nastase on the Austrian military map of Wallachia and Oltenia in 1790 made under the leadership of officer Specht.

As annexe of the work in two volumes of Karl Gottlieb von Vindisch, *Geographie des Konigreichs Ungarn* appeared in Bratislava in 1780, there is a map of the Hungarian

engineer Samuel Krieger: *Regni Hungariae in suos Circulos et Comitatus divisi Tabula nova* (46,5x67,5 cm, scale 1:1,5 mil.), engraved by James Adam (1748-1811) - the original is preserved in the Österreichische Nationalbibliothek, more on (O.N.B) – a.B.9A17; K.A.: B.IX.a496; Universitätsbibliothek Wien, more on (U.B.) in I.132702. It is distinguished by the fact that the land represented in plan contains details of leveling (mountain lines – „Bergstriche”) - a method for small-scale maps which was then rarely used. This was noted by the German geographer Friedrich Anton Busching, when he says: „a beautiful map, where mountains are drawn horizontally and not as usual in perspective”. It is noteworthy, for the mountain landscape that in the maps of the early 18th century is given the first information on the names of the main peaks and passes. On the occasion of marking the border between Austria and the Ottoman Empire, after the peace of Karlowitz (1699), Count L.F. Marsigli (1658-1730) as president of the Austrian commission prepared a map of the border between Transylvania and Banat with the title of *Transylvania Geographica Mapp Banatu Temisvarensi Separates Exhibens Limites*. Map scale (1:43.200) is given in hours.

The 4-sheet map was completed at 5th of March 1701, and bears the signature of Count Marsigli, and the original map is at K.A.B.IX.c.743. It is rich in toponyms. Only on the paper that represents the Bistra row, are mentioned: *Muraru Peak, Cracul Buciumilor, Gropan, Tăul Buciumilor, Cornul Buciumilor, Râpi, Coasta Pietrelor, Obârșia Stânișorii, Coasta Mare*; river names and valleys like: *Bistra valley, Marga Hațegului, Marga Mărgii, Strâmba Valley, Losnicioara Valley*, and the Iron Gates of Transylvania is written in latin: *Porta Ferara*. As you can see all toponyms are Romanian, and the writing is German. Interestingly, toponyms occur in the correspondence of Count Marsigli. As a member of the committee coordinated by Count Marsigli, J. Christoph Muller realized the map *Mappa Geographico-Limitanea...*(1701-1706) (K.A.:B.IX.c.634), where next to Muraru peak (*Murariu*)wich is the border between Banat , Transylvania and Țara Românească, and written also in latin “ Confinium Tripli Transylvano Valachio Temisvarinum”, we find more toponyms like *Oslea Călugăreasca, Prislop, Temișanu, Nedee* etc. Also based on measurements collected during his collaboration with Count Marsigli, Chr. Muller published in Vienna in 1709, a very detailed map of Hungary. This map indicate exactly swampy areas in Banat and also many Romanian toponyms like: Murarul mountains, Bucsun mountains, Godeanu mountains, Țarcu mountains etc.

The title of the map is: *Augustissimo Romanor Imperatori Josepho... mappam hanc Regni Hungarie propitiis elementis cum adjacentibus regnis et provinciis*. It has also 4 sheets and the map scale is 1: 550000, Österreichische Nationalbibliothek, Vienna, K.D. 98747. This map is very important for the early eighteenth century, it is considered to be the first modern map of Hungary and also includes Romanian Countries. It remained true for more than half a century, being revised in essential parts in 1769 in the new map called *Mappa Geographica Novissima Regni Hungarie...* printed in Vienna. The new map has 12 sheets, and it was made by Ignaz Müller (Romanian Academy Library, map cabinet, D. XV. 59).

District maps of Banat give us very little information about the names of the main mountain ridges, which are outlined by light hatching only in border area. On the District map of Lipova and Faget dating from the years 1718-1719, called *Mappa von dem Lippovaer und Facseter District...*(1:144.000, 1 sheet, K.A.:B.IX.a.630), is mentioned in Poiana Ruscă mountains only Măgura berg, and the *District map of Orsova and Almaj* dating from 1724, called *Mappa von dem Orsovaer und Allmaser District* (1: 122000, 1

sheet, K.A.B.IX.a.626) mentions only Domogliat (Domogled). *The District Map of Caransebes and Lugoj* dating from year 1723, *Mappa von dem Caransebes und Lugoscher Disctrict...* (1:144.000, 1 sheet, K.A.IX.a.626) mentions Sarkul (Țarcu mountains), Mick (Mic mountain), Morarul mountains, and in Poiana Ruscă mountains it mentions: *Ruska, Micklos and Măgura Lesni*.

The map drawn by Mercy dating from the years 1723-1725 (K.A.B.IX.a.554) mentions the following toponyms: *Ruska, Măgura Lesni berg, Micklos berg* in Poiana Ruscăi mountains, *Semenik and Gosna* in Semenic mountains, and *Kirbolesse* (Cherbelezu peak 1102m) and *Kirschia* (Carsa Mare peak 1167m) in Almaj mountains. To these mountain peaks, is added on the map of Banat, from 1761 Temesvar Bannat abgetheilet in seine District und Process (K.A B.IX.a 563), in M. Poiana Ruscăi: *Diaman Berg, Kapulin Berg and Kischera Berg*; in M. Semenic: *Rotunda Berg*; in M.Aninei: *Csuka Berg*, in M.Locvei: *Schibovizer B. And Cresco B.*, in M. Almajului: *Wokina B., Gernic B.*; in M. Godeanu: *Dubrivir B.* (Dobrii Top ,1928m), *Tutila* (Tucila); in M. Cernei: *Yellow Rock, Cupanu B. and Camena Rock and Ielencz Mik* (Little Inlatau) in M. Mehedinți. For identifying names of peaks and mountain peaks, the largest contribution is brought by Elmpt maps from 1772 (KA: B.IX.a 577) and 1773 (KA: B.IX.a 578), on which are mentioned about 60 toponyms. Of these, over 90% exist even today. Even if it lacks toponyms, the map without author, with the title: *Charte vom Bannat*, dated 1784, can be considered the most suggestive representation of Banat scenery at the end of the century. It uses a method which is a reminiscence of the current physiographic method. Semenic Mountains are very expressive represented as a dorsal oriented north-northeast to south-south-west, well individualized, framed by the Timis tectonic corridor to the east, separating them from, Mountains Tarcu; Almajului depression to the south with a sinuous path that separates them from Almajului mountains and valleys Barzava and Poneasa to the west of Anina Mountains west.

Except this general issues, we see some details such as: extending ridges called talve, towards D. Almajului; structural erosion controls, from the perimeter of the peaks Semenic and Gozna Rock. Almajului Mountains, appear to be made of extended hills with rounded or sharp spine, branched and tortuous because of interlocking rivers origin. Locvei mountains are represented by a main peak in the west, arched, with the opening to the Danube, which ends in the locality Bazias, a secondary peak is located south of valley Radimna. These ridges are fragmented by short and narrow valleys in secondary peaks, directed either towards the Danube, or to Nera. In the limestone area north-east of the Locvei mountains, large peaks are represented.

In Aninei Mountains, there are a number of peaks and plateaus separated by deep valleys that succeed each other from west to east. As a distinct unit across the mountains Dognecei, there are two main peaks, almost parallel with the north-south direction, separated by namesake river, of which the western peak is more developed with some ramifications. North of the Barzava valley and west of the Ezeris village, there are the isolated Arenisului Mountains.

The Poiana Rusca massif is best individualized. The map outlines the characteristic of divergent fragmentation, radial valleys, dividing it into extended ridges, going in all directions, and in the contact area with the hills, depressions of contact are well represented parallel with ridges of hills: Fardea – Gladna, Luncani, Farasesti, Barna – Drinova. Equally precise, are the representations of the following mountains: Țarcu, Cernei, in part, Godeanu and Mehedinți, which is on the territory of Banat. On Elmpt's map, since

1772, *Small Mountain* (Muntele Mic) is well represented, it is also a foothold in drafting the map. In Cerna mountains, we can distinguish Cornereva depression, which is flanked to the east and south by a main peak (peak Vlașcu), oriented south-south-west-north-north-east and west of another smaller peak, (peak Cornereva). The Cerna Valley, with its limestone slopes (well suggested on the map), separates the Mehedinți Mountains from the Cerna Mountains. The latter, have linear character, and a steep slope to the valley of the Cerna river.

4. THE REPRESENTATION OF CARSTIC LANDSCAPE IN THE BANAT MOUNTAINS

The presence of limestone in the Banat mountains lithology generated a typical karst landscape, which was highlighted in cartography. Special attention enjoys the Veterans Cave from the Danube gorge, in Cazanele Mari (Ciucaru Mare) near Dubova. It is known as Piscabara, while veterans and local residents call it the Cave from Pânza Curii, or cave Maovăț. It is a middle cave, with a total length of 87m, slightly upward, fossil, developed on the intersection of joints in laminated limestones belonging tithonic-neocomian, following the action of water infiltration.

in their lives together with their circle of acquaintances.

5. SPATIAL STRUCTURES DETERMINATED BY THE ROMANIAN MIGRATION IN LONDON AREA

As for the phenomenon of Romanian immigration in the London metropolis and the effects it has on the local area, it falls into the category of structures created by short-term migration, although especially after January 1 2007, the Romanian migration towards this European city experienced quite significant rates.

Is well outlined in Figure 4 that Luton airport, located in the north-west of London, which makes the connection between London and the Romanian airports Bacau, Bucharest Baneasa, Timisoara, Sibiu, Cluj Napoca and Tirgu Mures, had the highest passenger traffic (certainly most of them Romanian), in number of 402,652 in 2010. This can be explained on one hand, by the large presence of Romanian immigrants in the northwest of London, and on the other, by the fact that the airline that links Romania of the United Kingdom, practices the lowest prices. The number of passengers for Luton airport has seen a steady growth since 2007.

Archaeological excavations in recent years prove that it has been known since prehistoric times, then by the Dacians and Romans, and in the 13th century, the cave and its surroundings reinforced with stone walls, were part of the defense system of the fortress Pech (Peth) . The fortress, mentioned in documents, in the year 1439 (castrum Peech)(Suciu C.,1968), appears on maps in the next centuries with different spellings: „Pech” (N.Germanus, 1507) and 1513, „Pethi” (A.Ortelius,1532), „Petis” (W.Lazius, 1570), „Pedit” (I. Sambucus,1579), „Peks” (G.Mercator, 1607), „Pez” (H.Levinus, 1630), and „Pez” (N.Visscher, 1687). As evidence, on the 1692 plan, appear at letter H traces of old masonry, at I, remains a Greek oriental rite church, and at L, the ruins of an ancient fortress.

The cave itself is mentioned on the map, in 1678 by Gerardus Valk(1652-1726), and Leonardus Valk(1675-1746), the *Charta Principatus Valachiae Moldaviae et*

Transylvaniae as the „Piscabara” (B.A.R.D.V.9). An important strategic point for the imperial army in control of navigation on the Danube (marked on all contemporary military maps) and directly involved in the Austro-Ottoman conflict in the years 1692 to 1788, the cave has been the subject of several map lifting. What follows is referred to as the most representative plans and maps presenting the cave with its surroundings, plans which are in the War Archives in Vienna (KA). The *Plan der Veteranischen Hohle mit Umgebung* (Veterans Cave Plan with surroundings), dated 1692 (K.A.:H.III.c 185) deserves special mention (Figure 1.). Location map of the cave was prepared by officers subordinate to the Austrian general Frederico Veterani and is probably the oldest plan of a cave in the world. The explanations of the legend written in French are denoted by the letters A to R, letters that are found on the plan. The scale is in steps (1:5000), (1 step = 0,7584 m), and some distances from the plan are measured in toisen (1 toisen = 1,94903 m). The scenery is represented by perspective drawing. Ciucaru Mare Mountain (318 m) is suggestively represented, with the slope of limestone called Pânza Curii. At the foot of the southern slope, overhangs the mountain is noted with the letter A, the land that collapsed in the Danube and with the letter N, an opening that passes under the mountain about 500 steps (approx. 375 m) and is known as the Ponicoava Mouth Cave. The first description of the cave called Piscabara, including fortification system plan are published in 1740 by A.F.Marsigli. Battles for the conquest the Veterans Cave, by Ottoman troops in 1788, required the development of new plans and maps. The plan from 1788 *Die Veteranische Hohle* made on the scale of 1:15 000 (K.A.:H.III.e.2950), shows vertical landscape lighting technique. The, Dubova basin and the limestone plateau of Great Ciucarul are marked there.

In dramatic battles between the Ottomans and Austrians in 1692, more than 2.000 Ottoman soldiers died, which is why, a cliff above the cave was named the „Rock of Blood” (*Blutstein*), and the whole massive is called on this plan (Ciucaru or Mount with rock of blood). Ponicoava river, divides the Great Ciucaru from the height Răduța Glade. On the plan are the Ponicoava Keys, short, very tight and wild, the place where the river disappears in the cave Ponicoava Mouth, which after a cross of about 600 m, come out to the Danube. Currently, the opening is on the shores of the lake, entering the cave more or less depending on the water level. On the map sheet, there is a plan of the cave, and two of its structures in the hall. Another plan with the title *Prospect Der Gegend um die Wereranische Hohle* (K.A.:III e 2958) without scale and author, all dated in 1788, is a beautiful panoramic sketch of the area where „the point of view” is situated at a lower altitude close to the Danube on the Serbian bank. For this reason, the sketch contains a region less vast in depth, but rather stretched along the Danube. On the sketch are represented the localities Dubova and Plavișevița. The Plavișevița village is now moved to a new location near Dubova. For the accuracy and beauty of cartographic representation, the following works deserve to be mentioned: *Situations Plan der Veteranische Höhle* (Figure 1), done all at the same scale 1:12.000 by Franz Zeilinger in 1791, to which is attached the cave plan, and two longitudinal sections (K.A.:H.III.e.2954). Scenery representation on both maps is correct, the authors using the principle of vertical illumination; as methods of representation on the first map is hatching, and the second, the shading method is used with great talent by Franz Zeilinger. The steep limestone of Ciucaru Mare, and of the Massif Știbaț (Stirbač), of Serbia, is very suggestively represented and other elements as the region’s topography.

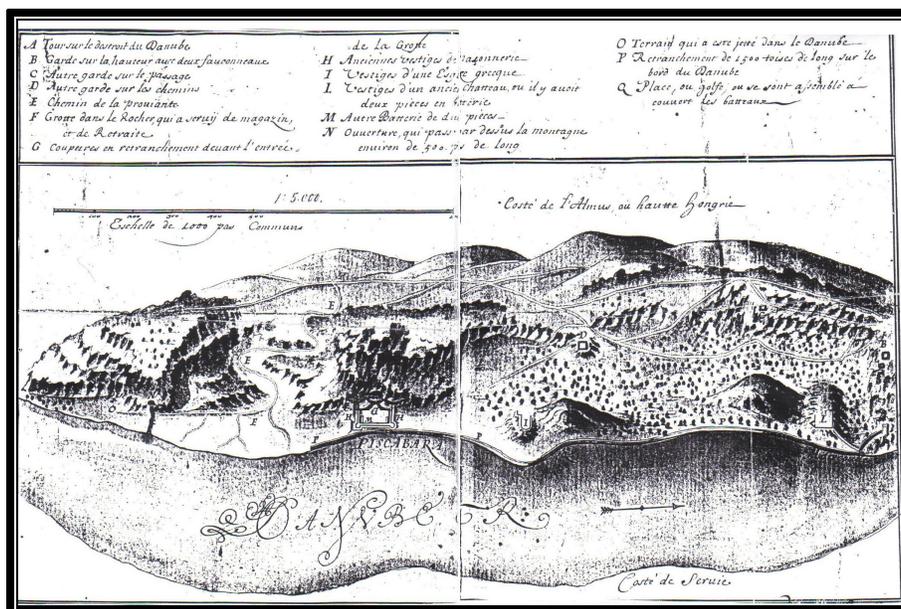


Figure 1: *Plan der Veteranischen Höhle -1692 (Planul Peșterii Veteranii -1692) (KA:H.III.c.185)*

From comparing the cave plans annexed to these maps, combined with contemporary description of the Griselini Francesco (1717-1784) Italian traveler, with the plan and the current description (St. Negrea and collab.-1962), results the following considerations:

- cave entrance at 2.7 m at f.griselini, barely 4 feet deep (1.25 m) and 2 feet wide (0.63 m) hidden by trees, located at 73 m altitude, to the maximum Iron Gates lake (water going up to the entrance walls) leads us through a short gallery in a large room, 28 m wide, 37 m long and 20 meters high;
- this room is lit by an oval opening to the right, to 11 m from the entrance, which in F. Griselini's map has a diameter of approx. 8 feet (2.50 m);
- to the west emerges a gallery, which clogs up by clogging the concretions, and to the north, there is a very narrow pressure tunnel and slope, having at the end, a small tank of water. On the plans of the 8th century, they are not mentioned, nor does F. Griselini report them;
- concretions are few, ordinary and destroyed (in the time of Griselini they were beautiful, which led the scientist to assign the cave a natural origin).

Given the importance and beauty of the region where the cave is located, it was in the attention not only of military cartographers, but also of designer artists. We mention Gegend bey der Veteranischen Hohle (Veterans Cave region) from the album *Zwei hundert vier und sechzig Donau – Ansicht nach dem Laufe des Donaustromes von seinn Ursprunge bis seinen Aussflusse in das Schwarze Meer*, printed in Vienna in 1826 under the care of

Adolph Kunicke. At the tributaries of the Danube from the gorges, an interesting problem of capturing presents Poncova brook, reported in 1979 by Sencu V.

On the map of district Orșova, since 1724, Poncova brook flowed through Priests Meadow break to Danube, receiving as a right tributary, Ogașu Turks. At all plans of Veterans Cave from 1788, Poncova brook is represented with the current course through the cave with the same name, flowing into the Danube. The only exception is the plan published in *Geschichte der Veteranischen Hohle* work, published in Vienna in 1788, on which the brook on his way to the Danube flows both through Priests Meadow break and the homonymous cave. The moment of capture is represented. It follows that this capture was made in the 8th century. *Thieves Cave*, near Herculane, known by locals as the Robber Hole or Thieves Hole is described by F. Grisellini who on a plan of Herculane, gives an external and internal view of this.

6. CONCLUSIONS

In conclusion, we can say that the representation of Banat Mountains on the cartographic documents from the 8th century, made some progress, passing from the knolls symbol whose surface, overburdened the map to hatch drawn uniformly at the beginning of the century and towards the end of the century, in proportion to the forms of scenery, without representation based on a scientific principle. Although it was invented in 1771 by M. Boniface Ducarlas, the contour method that will solve the problem of surveying, is used in the second half of the 19th century to achieve the map of France. Mountain names are preceded by the letter „M” short of „Mons”, „Montana”, „Monte”, „Mountain”, „Munte” or appellation „Berg” in German translation.

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