GeoJournal of Tourism and Geosites Year **V** no.**2**, vol. **10**, **November 2012**, pp**. 183-192**
ISSN **2065-0817**, E-ISSN **2065-1198** Article no. **10205-107**

PETROGRAPHIC RELIEF IN THE BUCEGI (PRAHOVEAN AREA) AND CEAHLAU MOUNTAINS (CENTRAL AREA) – THE ROMANIAN CARPATHIANS. SCIENTIFIC APROACH VS LOCAL LEGENDS

Răzvan OPREA
University of Bucharest, Faculty of Geography, Geomorphology-Pedology-Geomatic Department, 1 N. Balcescu Avenue, 010041, Bucharest, Romania, e-mail: opreaconstrazv@yahoo.com

Alexandru NEDELEA
University of Bucharest, Faculty of Geography, Geomorphology-Pedology-Geomatic Department, 1 N. Balcescu Avenue, 010041, Bucharest, Romania, e-mail: alexnedelea10@yahoo.com

Laura COMĂNESCU*
University of Bucharest, Faculty of Geography, Geomorphology-Pedology-Geomatic Department, 1 N. Balcescu Avenue, 010041, Bucharest, Romania, e-mail: lauracomanescu@yahoo.com

Abstract: In terms of geologic features both massifs, Bucegi (2505 m) and Ceahlau (1907 m) belong to the Oriental Group of the Romanian Carpathians being suspended synclinals. Another common feature is the petrographic formations forming the upper part of both massifs. Thus, the Bucegi Mountains are formed of a series of conglomerates and Cretacic sandstones (medium and superior Bucegi conglomerates, Babele and Scropoasa-Laptici sandstones) with either a massif or layered aspect and sometimes even flysch-like. These are generically referred to as the Albian molasse. In the Ceahlau Mountains there are conglomerates and sandstone-like intercalations their thickness varying between 10 and 30 m, generically referred to as Ceahlau-Zaganu conglomerates and sandstones. Such formations are generically known as flysch (Sinaia formations). The above mentioned formations generated really spectacular landforms under the action of recent geomorphologic processes. The resulted landforms first stirred the interest of shepherds who crossed the highlands feeding the flocks they tended to as part of the transhumance process, or of secluded monks who gave them quite suggestive names – Babele, Panaghia, Piatra Ciobanului, Piatra Sihastrului etc. – these names were later on used on the topographic maps. Long before any scientific approach (XIX-XX centuries) the local inhabitants imagined a series of legends. All these land forms of great scientific, aesthetic and historical importance and exploited as tourist objectives are currently included in larger Protected Areas such as: Bucegi Mountains Natural Park and Ceahlau Mountains National Park.

Key words: petrographic relief, Bucegi and Ceahlau mountains, geomorphosites, local legends.

* * * * * *

INTRODUCTION

In the course of time, with the development of human society, people have invested some landforms with scientific (Coratza & Giusti, 2005), aesthetic, cultural (Panizza &

* Corresponding author

Piacente, 2003), historical and economic value. These landscape features, which are extremely important for the deciphering of the planet's history (Panizza, 2001), are called geomorphosites.

Even though there is a tendency to associate geomorphosites with touristic spots, the two notions do not mean exactly one and the same thing, because geomorphosites have many specific elements, called values. Irrespective of their size, geomorphosites include two value levels: a central, scientific one and a supplementary one, the latter having multiple connotations (aesthetic, ecological, cultural and economic).

The inventory and the evaluation of geomorphosites aim at defining the geomorphologic patrimony of a territory and its associated cultural and historical assets (Bruschi & Cendero, 2005). It is apparent that such an approach is meant to encourage touristic activities (Pralong, 2005; Pralong & Reynard, 2005). But the synthesis of these efforts is the establishment of a global and educational value for the respective geomorphosites (Reynard et al., 2007). At the same time, as the impact of various natural processes and human activities may affect the quality of the site, these are taken into account, with the purpose of developing appropriate management techniques. The management activities usually include protection measures (enclosing the geomorphosites), institutional solutions (setting up protected areas), as well as various ways to capitalize the landscape (Comănescu, 2008).

This study seeks to draw a parallel between the scientific knowledge about the petrographic landforms in the Bucegi and Ceahlau Mts. and the peoples' perception of them, as it has crystallized over time. The latter is expressed especially by the cultural value (Panizza &Piacente, 2003), which unfortunately has a very broad meaning. In order to define it, one has usually to rely on four criteria: religious and symbolic importance, historical importance, literary and artistic importance and geohistorical importance. Of these four, we have paid a particular attention to the literary and artistic importance, as well as to the religious and symbolic one.

The study relies on several works, which have been mentioned in the reference section; at the same time, the interpretation of topographic maps (of scales 1:25000 and 1:50000), aerial photographs and geological maps of scales 1:200000 (Inst. Geol., 1968, 1975) has provided useful information. Likewise, field investigations have resulted in the mapping of the previously mentioned landforms.

THE STUDY AREA

From the geographical point of view, the Bucegi Mts. belong to the extreme east of the southern range of the Romanian Carpathians (Figure 1). They develop between the Prahova valley, on the east, the Cerbului valley to the northeast, the Ialomicioara and Bratei valleys, on the south, and the Bran platform, on the west.

The main features of these mountains are the massive relief (maximum elevation 2505 m in the Omu peak) and the steep sides developed on conglomerates, sandstones (on the east – the Prahova scarp) and limestones (on the west – the Bran scarp), with relative heights of more than 1000 m and castellated microrelief forms (crags and haystacks) created by the intense cryoclastism. The structural plateau of the Bucegi Mts. (lying between 1800 and 2300 m) is flanked on the east by a series of summits (Costila-2498 m, Caraiman-2384 m, Jepii Mici, 2143 m, Furnica-2103 m, etc.). This high plateau exhibits spectacular landforms developed on sandstones and conglomerates as a result of rill erosion, cryoclastism and aeolian erosion.

The Bucegi Massif is crossed by many marked and unmarked paths that connect the Prahova valley, on the one hand, with the Ialomita valley and the Bran area, on the other hand. Another important feature is the existence of many chalets and skiing tracks. The massif can be easily approached by car along the road that crosses the Paduchiosu pass heading for Piatra Arsa, as well as along the road climbing upstream the Ialomita

valley (Pietrosita – Pestera). Likewise, tourists access is facilitated by the ropeways connecting Sinaia and Cota 1400, Cota 1400 and Cota 2000, Busteni and Babele (at approximately 2200 m), as well as Babele and Pestera.

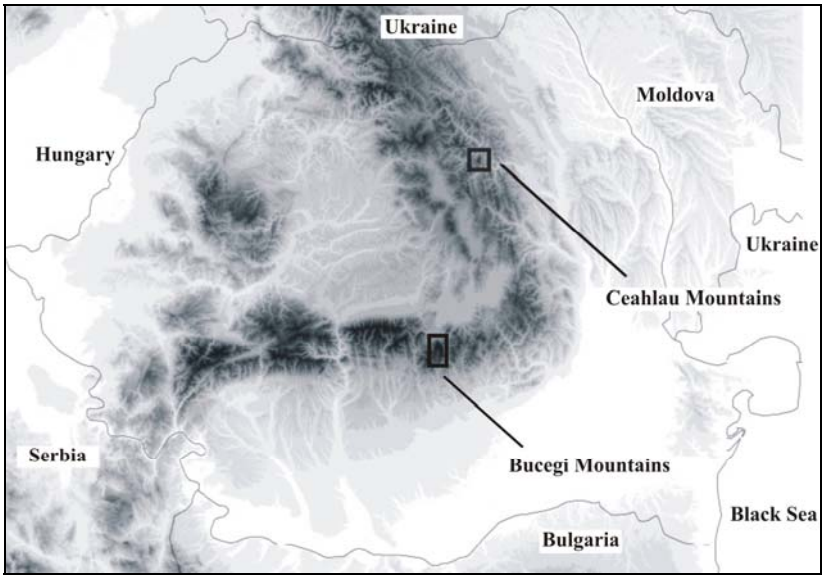

Figure 1. Location of the Bucegi and Ceahlau Mountains in the Romanian Carpathians

The exquisite natural potential was the reason for the setting up of the Bucegi Natural Park (Oprea, 2009), which was a necessary action, aimed at curbing the intense anthropogenic activities (tourism and shepherding) that had negatively impacted the sub-alpine and alpine environments.

The Ceahlau Mts. belong to the central section of the eastern range of the Romania Carpathians. This massif, which impresses through altitude and massiveness, towers over the lower regions bordered by the valleys Bistricioara (on the north), Bicaz (on the south), Pintic and Capra (on the east) (Figure 1).

The relief of this massif has been carved in conglomerates (here and there with sandstones intercalations). On top of it there is a structural and lithological plateau developed between 1500 m and the maximum elevation of 1907 m (the Ocolasu Mare peak). Above this level rises a series of outliers, such as Toaca (1900 m), Lespezi (1802), Batca lui Ghedeon (1844 m) and Ocolasu Mic, which have been left behind by the cryoplanation processes.

The scarps that tower the neighboring territories by hundreds of meters, more conspicuous in the catchments of the Izvorul Muntelui, Neagra and Schitu creeks (Ichim et al., 1987), show a minor morphology generated by gelifraction, with pinnacles, crags and strange looking isolated rocks.

Like the Bucegi massif, this mountain unit also experiences an intense touristic flow, which explains the high density of paths. But unlike the former, the chalet network is not so well represented and the ropeways are missing. Consequently, the access in the high part of the massif is done by foot.

Pastoral life is also rich and its origins are lost in time. The great diversity of ecosystems, their exquisite scientific value and the variety of landscapes threatened to suffer a severe impact by anthropogenic actions, are the reasons that imposed the creation of the Ceahlau National Park (Săndulache, 2009).

RESULTS AND DISCUSSION

Geological and geomorphological outlines

The Bucegi and Ceahlau Mts. have a lot in common. Both massifs are suspended synclines, with similar petrographic structure, which show relatively flat plateaus surrounded by impressive scarps. The specific character of the Bucegi Mts. is given by the presence (in the high part and on the eastern scarp) of massive or stratified Cretaceous conglomerates and sandstones, occasionally with flysch character (Patrulius, 1969). These generically called Albian molasse deposits also include the medium and upper Bucegi conglomerates, the Babele sandstones and the Scropoasa-Laptici sandstones.

The Ceahlau Mts. are made up of conglomerates (deposited in a 500 – 600 m thick layer), with sandstones intercalations (10 to 30 m thick), which are called the Ceahlau-Zaganu conglomerates and sandstones (Mutihac et al., 2004). These Thitonic-Neocomian strata belong to the flysch deposits (the Sinaia strata). The conglomerates and sandstones underlying the Bucegi and Ceahlau Mts. show intercalations of calcareous klippes.

In the course of time, the geomorphologic processes (frost weathering cryoclastism, aeolization, nivation, and rill erosion) have led to the creation of a spectacular micromorphology and, consequently, many resulted landforms have begun to be considered geomorphosites. In the Bucegi Mts., there are several peaks that fall in this category: Omul, Mecetul Turcesc, Coltii Morarului, Portita Caraimanului, Stanca Sf. Ana, Babele, Sfinxul and others. Of the latter, the most well known are the sphinx-resembling rocks, the rock pedestals and the mushroom rocks found on the Babele and Omu, but also on the Costila, Vanturis and Piatra Arsa ridges. The mechanism that has contributed to their formation will be briefly discussed below (Figure 2).

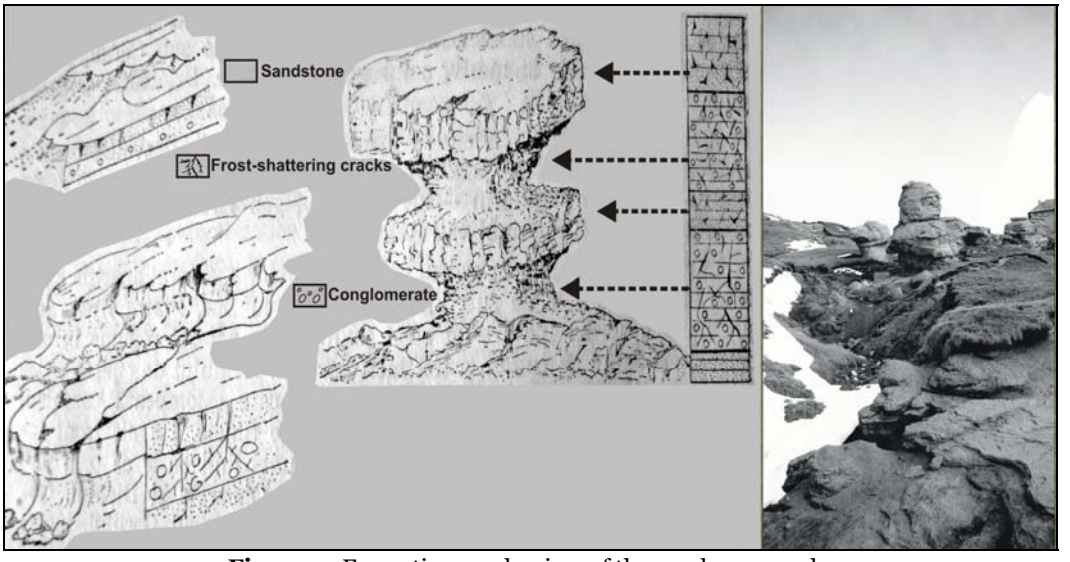

Figure 2. Formation mechanism of the mushroom rocks

The shaping of mushroom rocks is put to the account of Pleistocene periglacial processes (Velcea-Micalevich, 1961). At the beginning, the rill erosion, possibly intensified by a pluvial stage of an interglacial phase, carved flowing ruts in the harder shield made up of sandstones and microconglomerates. The weathering process was subsequently continued by differential cryoclastism, which affected to a higher extent the conglomerates (Figure 2). Simultaneously, wind exerted a strong

corrasion on the exposed surface. Thus, the present cryonival shaping processes have found a favorable ground.

The described evolution may be easily noticed on the structural surface of the Babele and Costila Mts. Here, the sheet erosion has generated a series of rills, oriented on a west-east direction, conformal to the slanting structural surface, which have continuously deepened (reaching about 0.5 m deep) until cut through the sandstone shield and reached the conglomerates, where have begun to enlarge. The bed of these rills is frequently covered with sand proceeded from the erosion of the overlying sandstones. As we have seen previously, an important part in the morphology of these formations is played by the higher hardness and the lower degree of perviousness of the sandstones, especially of the strongly cemented and quartzitic ones, in comparison with the conglomerates. At the same time, the differentiations in shaping also depend on the conglomerate types (calcareous conglomerates, conglomerates with crystalline elements). In the scarp areas, the different hardness of these formations has resulted in the appearance of structural benches.

In the Ceahlau massif, like in the Bucegi, the upper plateau corresponds to the structural surface of the syncline, whose southern extremity includes the maximum elevation, which is the Ocolasu Mare peak. The dominant plateau-like ridge unfolds on approximately six kilometers, having a maximum width of one kilometer (Ichim et al., 1987). The plateau is towered by the pyramidal Toaca peak. The high plateau is bordered by conglomeratic scarps, which are 200-300 m higher than the peripheral relief steps and show a castellated relief, with pinnacles, columns and haystack-like rocks (Panaghia, Dochia, Turnu lui Butu si Ana, Claile lui Miron, Piatra Lacrimata, etc.). Here and there, the scarps show structural benches, similar to those in the Bucegi Mts. (as is the case of the Politele cu Crini).

The ridge appearance differs in the southern half in comparison with the northern one (Dieaconu & Săndulache, 2008). Thus, in the south, the suspended syncline is more conspicuous, being highlighted by large structural surfaces (Figure 2). In the north, the strata arrangement is not visible in the landscape. Instead, one can see residual landforms, such as pinnacles, pyramids, spurs and ridges.

The geomorphosites by Bucegi Mts – between legend and touristic capitalization

In the beginning, these rocks resembling enigmatical graven images inflamed the imagination of the shepherds who used to graze their sheep on the alpine meadows. Later on, the tourists who came to admire the beauties of the mountains, enchanted by the view, tried hard to decipher, as we often do with the clouds in the sky, the resemblance of these stones to the creatures living on earth. Subsequently, the names given by them to these strange landforms have started to be used on maps. In the following, we will focus on some interesting aspects from both study areas.

These names have perpetuated thanks to the development of touristic activities. It is worth mentioning that the growing interest for mountain ascents has contributed to the set up of the first associations and clubs dedicated to these activities (F.R.A.E., 2007), which have built chalets, created paths, opened new routes and marked the itineraries. Thus, in 1880, in Sibiu town, the Carpathian Association of Transylvania (Siebenburgische Karpaten Verrein – S.K.V.) came into existence and shortly after a branch was set up in Bucharest (1922).

In 1893, with the support of the Archimandrite Nifon, Abbot of the Monastery of Sinaia, the Sinaia Carpathian Society was created. In 1903, followed the Tourist Society of Romania (S.T.R.), with some outstanding personalities among its members (Simion Mehedinti, Gh. Munteanu Murgoci, etc.), which merged in 1931 with the

Romanian Touring Club. In 1920, was set up the Travellers Inn Society (having Mihai Haret and Bucura Dumbrava among its founding members), whose activity was continued starting with 1926 by the Romanian Touring Club, set up the same year in Bucharest. Likewise, in 1929 came into existence the Travellers Association in the Romanian Mountains (A.D.M.I.R.).

Omul (the Man), the highest peak (2505 m) in the Bucegi massif, is made up of a conglomerate rock. Near the rock that lends its name to the whole massif, the Siebenburgische Karpaten Verrein (S.K.V.) built in 1888 a chalet, which was named "*The Rock House at the Omu peak*" (Epuran, 1964). This certifies the Omu name is earlier than the year 1888. As a matter of fact, I.A. Vaillant, a French teacher and publisher, mentioned in his work entitled "La Romanie", printed in 1844, that he and purveyor Anghlescu had made a trip along the itinerary Sinaia – Varful cu Dor – Pestera – Babele – Omul (Urechia, 1926).

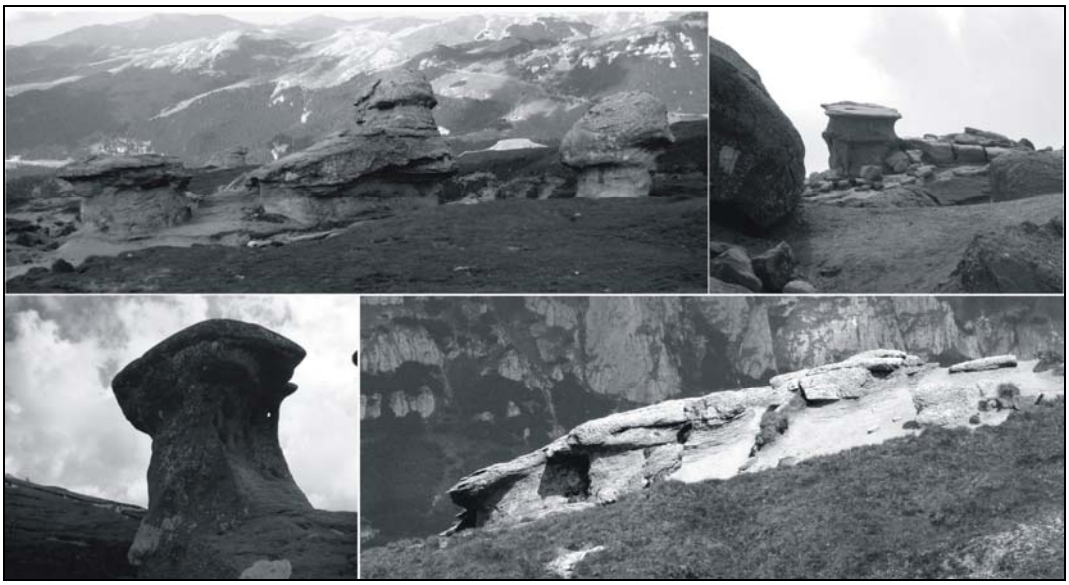

Figure 3. The rock pedestals and the mushroom rocks on the Bucegi plateau
(Source: Velcea, Savu, 1982)

Babele (the Old Ladies) are spread on a larger area. They may be either isolated or grouped in clusters (Figure 3). The most representative ones are those situated in the vicinity of the chalet Babele (with heights of 4 to 6 m), in the perimeter of the Baba Mare peak (2292 m), that is in the central-northern part of the Bucegi massif, and the isolated rock lying in the proximity of the Sphynx (2216 m altitude). The Babele, which have a north-south orientation, are bordered on the east by the Jepilor Valley and on the west by the Sugarilor Valley. The toponym Babele seams to have crystallized in the shepherds' memory in ancient times, being subsequently assumed by the people, once the tourism in the Bucegi Mts. began to flourish (the end of the 19th century and the beginninng of the 20th century) (Figure 3).

Beside the above reference to Vaillant's trip, it is worth mentioning the "*Peles Marchen*" tale collection accomplished by queen Elisabeth of Romania and published (under the pen name Carmen Sylva) in Leipzig in 1882 and reprinted several times afterwards (Coloşenco, 2000). This work revealed the names Cetatea Babei and Omul (Carmen Sylva, 1884), which points at the fact that the queen was probably familiar with these places from the tales of King Carol I, who in the summer of 1880 had taken a trip on

the Bucegi plateau together with other people, including the botanist D. Brandza (1868 – 1934). Later on, the king gave an account of his trip to M. Haret, who included the text in his monography about the Peles Castle, published in 1924.

Sfinxul (the Sphynx) is a boulder 12 m wide and 8 m high, which in the upper part is made up of sandstone microconglomerates and in the lower part by conglomerates with blocks of Jurassic limestones and crystalline rocks. The Sphinx profile that can be seen on the northern side (Figure 4) of the rock has been shaped by the detachment of weathered blocks.

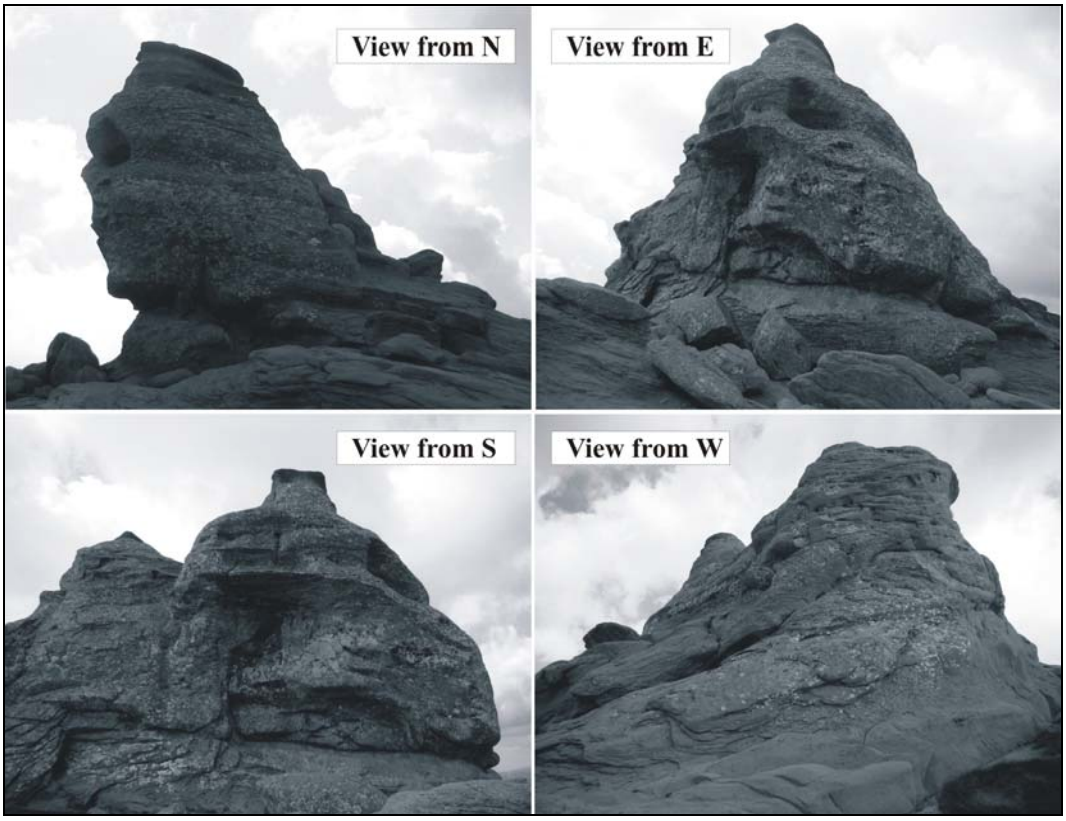

Figure 4. The physiognomy that made famous Sphinx of Bucegi can only be seen from N

Its bizarre appearance stirs the imagination especially as it is the same height as the Sphynx of Gizeh. The name of Sphynx does not appear in the above mentioned tales. As a matter of fact, it is a scholarly name, borrowed from Greek and Egyptian mythologies, meant to atract the tourists. It is likely that this name ens xriched the Bucegi massif's toponymy in the period of intense touristic interest (F.R.A.E., 2007) from the first decades of the 20th century. However, even though the first pictures of this rock date back to the years 1900 (www.eco-bucegi.eu), the first postcards showing it appeared only in the fourth decade of the 20th century.

Mecetul Turcesc is a calcareous olistolite lying under the Obarsia Mountain, at the headwaters of the Ialomita River. The toponym Mecet is derived from Turkish language, meaning a smaller mosque or its related cemetery. The name itself has a legendary origin being related to the fled of Mihnea Voda (in the year 1510) over the mountains, in Transylvania, with a group of Turks at his heels. Coltii Morarului (castellated crags lying

along the Morarului Ridge) and Portiţa Caraimanului (tectonic window situated on the Braul Portitei in the Caraiman Mountain) were mentioned in the Nestor Urechia's travel diary in the summer of 1913 (Urechia, 1926).

Sfânta Ana rock is a calcareous olistolite standing approximately 500 m above Sinaia city. At the end of the 19th century, several hermitage cells existed in this area (Măgureanu, 2000). The name of Sfanta Ana comes from an old hermitage built in 1453 around the respective rock, approximately five kilometers away of the present Sinaia monastery, which was erected in 1695 (Magureanu, 2000).

Over the years, various hypotheses regarding the rock formations on the Bucegi plateau have been issued. Thus, historian Nicolae Densusianu, in the chapter „*Cyclopean altars of the Caraiman Mountain*" from his book entitled „*Dacia preistorica*" (first appeared in 1913), considered these natural monuments to be the remnants of old prehistoric altars (Densuşianu, 2002). All these are connected to the so-called Kogaionon, the Dacians' holy mountain, mentioned in the ancient writings of Strabo (1st century B.C. – 1st century A.D.).

The geomorphosites by Ceahlau Mts- in mythology, literature and iconography

The first journeys to the Ceahlau Mts. recorded in writing are (F.R.A.E., 2007): in 1809, Veniamin Costache, Metropolitan Bishop of Moldavia, climbed the mountain accompanied by a group of people; the following decades, other personalities of the epoch, namely Mihail Sturdza, Voivode of Moldavia, in 1835 and Gheorghe Asachi in 1838 made trips to this area, too. Like in the case of the Bucegi Mts., most of the names of these rocks were given by the shepherds a long time ago (prior to the 19th century).

Figure 5. Toaca Peak (on the left) and Panaghia Rock (on the right) – Ceahlau Mountains

The most well known are Toaca, Panaghia (Figure 5), Dochia and Turnu lui Butu si Ana. Toponyms like Turnu lui Butu şi Ana, Toaca, Panaghia were first mentioned documentary in 1641 in a donation act issued by ruler Vasile Lupu to the benefit of the Silvestru Hermitage (Dieaconu & Săndulache, 2009). Toaca (Bell Board), pyramid shaped peak rising 100 – 150 m above the upper plateau of the Ceahlau Mountains. According to folk tradition, the name origin dates back to the times of the battles between Dacians and Romans. In his travel notes from the first half of the 19th century, Gh. Asachi mentioned the presence up in the mountains of a bell board, which was used to call the hermits to prayer.

Panaghia is a tower-like conglomerate rock, 100 m high, lying on the northern side of the Toaca peak, in the Ceahlau Mts., at an elevation of 1868 m. The Greek name shows the rock has been dedicated to the Virgin Mary, like the one that is found at Mt. Athos.

Dochia is a conglomerate rock on the eastern side of the Ceahlau Mountains (1230 m altitude) wich inspired many legends. A ballad of the rock was published in 1838 by the scholar Gh. Asachi. The ballad goes that Dochia (Decebal's daughter) and her sheep were petrified in order escape from the Romans who were chasing them. Dochia was also mentioned by the ruler and scholar Dimitrie Cantemir in his book "*Descriptio Moldaviae*" (Cantemir, 1997). Turnu lui Butu si Ana is a tower-like conglomerate rock in the Ceahlau Mts., which stays at the origin of some legends. One of these was written down by the scholar Gh. Asachi in first half of the 19th century.

The great humanist scholar Dimitrie Cantemir (1673 – 1723), ruler of Moldavia, in his work Descriptio Moldaviae, commisioned by the Berlin Academy and written between 1714 and 1716, refered to the mountain areas of his country, including the Ceahlau, apparently quoting other people's accounts. However, he was the first who represented this massif on a map, which was in fact the first map of Moldavia.

Metropolitan Bishop Veniamin of Moldavia, at the time when he was retired to the Monastery of Neamt, made in 1809 a trip to the Ceahlau massif, reaching its plateau. With that occasion he blessed a spring, which is now called Fantana Mitropolitului (Dieaconu & Sandulache, 2008). In his turn, Prince Mihail Sturdza made a journey in 1835, being accompanied among others by Metropolitan Bishop Veniamin. He erected a cross on the top of the Toaca peak, which was mentioned six decades later in the traveler notes of Julius Romer, a Saxon from Transylvania living in Brasov city, who had visited these places in 1891. Gheorghe Asachi (1788 – 1869), a Moldavain scholar and politician, fond of mountains and folklore, also climbed the mountain and published in 1838 his travel notes (Asachi, 1989). With the occasion of that trip he collected a nice legend about Dochia and Traian (Dieaconu & Săndulache, 2008).

CONCLUSIONS

This paper has intended to present a series of geomorphosites from two mountain massifs of the Romanian Carpathians, which have deeply penetrated the Romanian consciousness and which have been intensely studied and trodden especially in the last 150 years. The approach has followed two directions, the scientific perspective and the people's perception, pointing out some interesting elements that may be further developed in future studies.

Both the Bucegi and the Ceahlau massifs have attracted over time people's attention. The shepherds who used to graze their sheep in these massifs were the first to notice these strange landforms, which they used at first as reference points for their tracks, giving them suggestive names and weaving legends around them. These elements have then appeared in various traveller notes or in the literary works of the 19th century. In the second half of the 19th century and in the first decades of the 20th, the scientific interest for these mountain massifs grew and touristic activities in these areas intensified. Beside the mentioned petrographic landforms, some of them also influenced by the structure, other reasons for setting up the Ceahlau National Park in 1990 and the Ceahlau Natural Park in 2003, were the great variety of ecosystems, their exquisite scientific value, and the diversity of the landscapes threatened to be degraded as a result of human impact intensification. However, concerns for the protection of natural environments of these massifs had existed long before (in the Bucegi since 1921).

This has been beneficial, because the promotion of these massifs has brought them early to the attention of public opinion, while other areas in Romania have continued to suffer intense athropogenic pressure of tourism activities. A great problem has been the development of a dense and chaotic network of mountain paths, which negatively impacted the sub-alpine and alpine environments. For instance, touristic maps of the Bucegi Mts. show for the plateau area, where landforms like

pedestals and mushroom rocks are concentrated, many marked paths totalizing a length of 52 km. In fact, the situation is much worse, as the paths and the road that climbs to the mountain plateau totalize approximately 95 km, figure that represents the length measured in the field taking into account all the existing tracks and shortcuts (Oprea, 2005).

Aknowlegments

The study was supported from the project PN II IDEI no. 1933 financed by NURC, managed by dr. Laura Comănescu, University of Bucharest, Faculty of Geography.

REFERENCES

Asachi, G., (1989), *Itinerar sau Călăuzul la Pion*, in "Călători români paşoptişti", Ed. Sport-Turism, Bucureşti, p. 67.
Bruschi, V., M., Cendrero, A., (2005), *Geosite evaluation; can we measure intangible values?*, Il Quaternario, 18 (1), 293-306.
Cantemir, D., (1997), *Descrierea Moldovei*, Ed. Litera, Chişinău, 256 p.
Carmen, Sylva, (1884), *Povestile Peleşului,* Ediţiunea Ministeriului de Culte şi Instrucţiunii Publice, Bucureşti, 236 p.
Coloşenco, M., (2000), *Postfaţă*, in Carmen Sylva, "Poveştile Peleşului", Ed. Saeculum I.O., Bucureşti, p. 155-158.
Comănescu, Laura, (2008), *Inventarierea geomorfositurilor*, Comunic. de Geogr., vol. 12, Ed. Univ., Bucureşti, p. 17-23.
Cortza, P., Giusti, C., (2005), *Methodological proposal for the assessment of the scientific quality of geomorphosites*, Il Quaternario, 18 (1), 307-313.
Densuşianu, N., (2002), *Dacia preistorică*, Ed. Semne, Bucureşti, 1152 p
Dieaconu, D., Săndulache, I., (2008), *Ceahlăul – realitatea unui mit*, Ed. Cetatea Doamnei, Piatra Neamţ, 189 p.
Epuran Gh., (1964), *Ghidul cabanelor*, Ed. Uniunii de Cultură fizică şi Sport, Bucureşti, 287 p.
F.R.A.E., (2007), *Începuturile practicării alpinismului pe teritoriul României, apariţia primelor asociaţii şi cluburi sportive*, http://www.fralpinism.ro
Haret, M., (1924), *Castelul Peleş. Monografie istorică, geografică, turistică, pitorească, descriptiva*, Ed. Cartea Românească S.A., Bucureşti, 100 p.
Ichim, I., Poghirc, P., Apopei, V., Rădoane, N., Rădoane, M., (1987), *Munţii Bistriţei*, in Badea L. (eds.) "Geografia Romaniei", vol. 3, Ed. Academiei, Bucuresti: p. 139-155.
Măgureanu, N., (2000), *Mănăstirea Sinaia*, Ed. Athena, Bucureşti, 209 p.
Mutihac, V., Stratulat, M., Fechet, R., (2004), *Geologia României*. Ed. Did. şi Ped., R.A., Bucureşti, 248 p.
Oprea, R., (2005), *Bazinul montan al Prahovei. Studiul potenţialului natural şi al impactului antropic asupra peisajului*, Ed. Universitară, Bucureşti, 164 p.
Oprea, R., (2009), *Parcul Natural Bucegi*, Rev. Terra LVIII-LIX, Ed. CD Press, Bucureşti, p. 203-208.
Panizza, M., (2001), *Geomorphosites: Concepts, methods and examples of geomorphological survey*, In: Chinese Science Bulletin, 46: 4-6.
Panizza, M., Piacente S., (2003), *Geomorfologia culturale*, Piatogora Editrice, Bologna, 350 p.
Patrulius, D., (1969), *Geologia Masivului Bucegi şi a Culoarului Dambovicioara,* Ed. Academiei, Bucureşti, 321 p.
Pralong, J.-P., (2005), *A method for assessing tourist potential and use of geomorphological sites*, Géomorphologie: relief, processus, environnement, 3, p. 189-196.
Pralong, J.-P., Reynard E., (2005), *A proposal for the classification of geomorphological sites depending on their tourist value*, Il Quaternario, 18 (1), p. 315-321.
Reynard, E., (2005), *Géomorphosites et paysages*, Géomorphologie: relief, processus, environnement, 3, p. 181-188.
Reynard, E., Fontana, G., Kozlik, L, Scapozza, C., (2007), *A method for assessing «scientific» and «additional values» of geomorphosites*,. Geographica Helvetica Jg. 62, Heft 3, p. 148-158
Săndulache, I., (2009), *Parcul Naţional Ceahlău*, Rev. Terra LVIII-LIX, Ed. CD Press, Bucureşti, p. 178-184
Urechia, N., (1926), *Vraja Bucegilor*, Ed. Cartea Românească, Bucureşti, 233 p.
Velcea-Micalevich, V., (1961), *Masivul Bucegi. Studiu geomorfologic*, Ed. Academiei Române, Bucureşti, 151 p.
Velcea, V., Savu, Al., (1982), *Geografia Carpaţilor şi a Subcarpaţilor Româneşti*, Ed. Didactică şi Pedagogică, Bucureşti.
*** Inst. Geol., (1968), *Harta geologică a României, 1:200000, foile Topliţa şi Piatra Neamţ*, Bucureşti.
*** Inst. Geol., (1975), *Harta solurilor Romaniei, scara 1:200000, foaia Braşov*, Bucureşti.

Submitted:	Revised:	Accepted and published online
07.05.2012	22.09.2012	27.09.2012