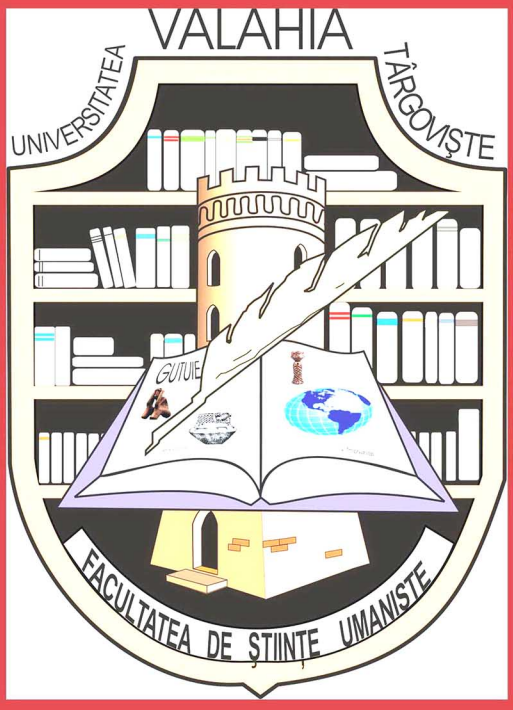
Ministère de l'Education Nationale
L'Université Valahia Târgovişte
Faculté de Sciences Humaines

ANNALES
D'Université "Valahia" Târgovişte



SECTION
d'Archéologie et d'Histoire
TOME XVII
Numéro 1

Valahia University Press
Târgovişte
2015

Sommaire

ARTICLES ET ÉTUDES

NOTES ET DISCUSSIONS

Ministère de l'Education Nationale
L'Université Valahia Târgovişte
Faculté de Sciences Humaines

ANNALES

D'UNIVERSITÉ VALAHIA TARGOVISTE

SECTION d'Archéologie et d'Histoire

TOME XVII
Numéro 1
2015

Valahia University Press
Târgovişte

Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire publie des mémoires originaux, des nouvelles et des comptes-rendus dans le domaine de l'archéologie préhistorique, de l'histoire du moyen âge, de l'environnement de l'homme fossile, de l'archéologie interdisciplinaire et de patrimoine culturel.

Revue indexée B+ par CNCSIS et B par CNCS - Roumanie

Indexée dans:

AWOL, FRANTIQ, LAMPEA, SCRIBD, DAPHNE

Tout ce qui concerne la Rédaction des *Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire* doit être envoyé à:mcarciumaru@yahoo.com, www.annalesfsu.ro

ISSN: 1584-1855; ISSN (online): 2285–3669

Sommaire

ARTICLES ET ÉTUDES

NOTES ET DISCUSSIONS

Annales d'Université Valahia Targoviste,
Section d'Archeologie et d'Histoire,
Tome XVII, Numéro 1, 2015, p. 7-50
ISSN: 1584-1855;
ISSN (online): 2285–3669

The occurrence of flint in north-eastern Romania in the context of local prehistoric habitations

*Mădălin-Cornel Văleanu**

* Moldova National Museum Complex, Iaşi - Museum of Moldova History; email: madalinvaleanu@yahoo.com

Abstract: *The occurrence of flint in north-eastern Romania in the context of local prehistoric habitations*. In the north-eastern part of Romania, along the Prut river valley, are known geological deposits which containing flint. Although there are many scientific books and studies about the geology of the region in which are presented aspects relateding to flint and its occurrence in the area, they do not provide the information required for a correct interpretation in relation with the use of these important natural resources by the prehistoric communities. Based on researches, the present study highlights a large morphological variety of flint occuring on the Prut Valley, in terms of its color and physical properties. It is also pointed that flint presence in the area is both in relation with the primary geological deposit, where it was formed from Cretaceous time, and with the layers in which it was later redeposed in respectively Badenian levels, in Quaternary-Pleistocene terraces and recent alluvial deposits.

Key-words: raw material, north-eastern Romania, Prut Valley, flint occurrence, prehistory

1. **Introductory aspects**

While reconstituting the existing natural framework in a certain moment or historical epoch is a difficult scientific activity, sometimes impossible to achieve without the help of modern technologies, highlighting the mutual relations and interactions between the natural environment and the prehistoric human communities presents a double difficulty: one related to the identification of the elements highlighting these aspects of the natural environment and the other related to the material endowment available to the researcher in his approach, allowing him to process the available data in order to obtain real information.

To what extent was the evolution of the human society, in one historical epoch or the other, marked by the variation of the factors of the natural environment, how did it adapt to the changes encountered, what were the behavioral modification allowing the adaptation to the new environmental conditions, how did the human communities modify the natural environment to their benefit, did man borrow from nature the ideas that lay at the basis of his spiritual manifestations, these are just a few of the questions that the researchers have tried to answer in time.

The geological makeup of the area is a major impact factor for understanding the interaction between man and the environment, because it represents the bedrock on which the geographic evolution of the region has been based, which generated the dispersion of the natural resources and their accessibility.

Certainly, the approach of these issues represents itself the subject of numerous researches and hypotheses still under analysis, which, even now, almost 150 years after their debut in the area analyzed by us are neither exhaustive, nor fully clarified or certain. However, next we shall approach these issues through the prism of our research area, namely from the perspective of the prehistoric habitations of the area[1]. For the prehistoric human communities were important those resources from the surface of the ground or

immediately next to it, yet their geographic distribution and their occurrence took place according to strict geological rules.

Just as interesting is the evolution of the acceptance of the term outcrop, because by comparison to the present sense the geologists have given it (large reserves, economic efficiency etc.), the outcrop of the prehistoric man represent more often than not local accidents or secondary concentrations, which sometimes have not even been noticed or described in the geological studies. Last, but not least, equally important is the superposition of the above-mentioned reality over the one related to needs of resources different for the modern man by comparison to the prehistoric man.

2. Geology of the region

To understand the general geological context of the region, in relation to our topic, namely the way of exploitation of the resources of this area by the prehistoric communities, next we shall present the most important elements. The data presented next are a synthesis of the main information from the specialized Romanian geological literature.

Fig. 1 - Physical map of Romania, with researched area.

Thus, from the perspective of the geological units, the area under analysis is situated in the north-east of the Moldavian Platform (Fig. 1, 2), one of the oldest continental platforms, partially representing the south-western margin of the East European Platform on the territory of Romania.

The Moldavian Platform comprises in its structure two components, different as origin and evolution: the bedrock and the sediment cover, erosion opening at the earth surface only a part of the formations of the sedimentary cover. The oldest geological deposits showing up at the surface of the ground are the Cenomanian and Badenian ones and are situated in the north-east of the region, in the riverside of Prut River, while in the rest of the Moldavian Platform only geological formations belonging to the Sarmatian are open (Fig.3-4).

2.1. The bedrock of the Moldavian Platform. It represents a mobile geosynclinal stage, which has undergone intense geodynamic processes (orogeneses, metamorphism, magmatism), concluded by an orogenetic system, followed by several emergence stages that peneplainised the Orogen. By its lithology and age, the bedrock of the Moldavian Platform is similar to that of the

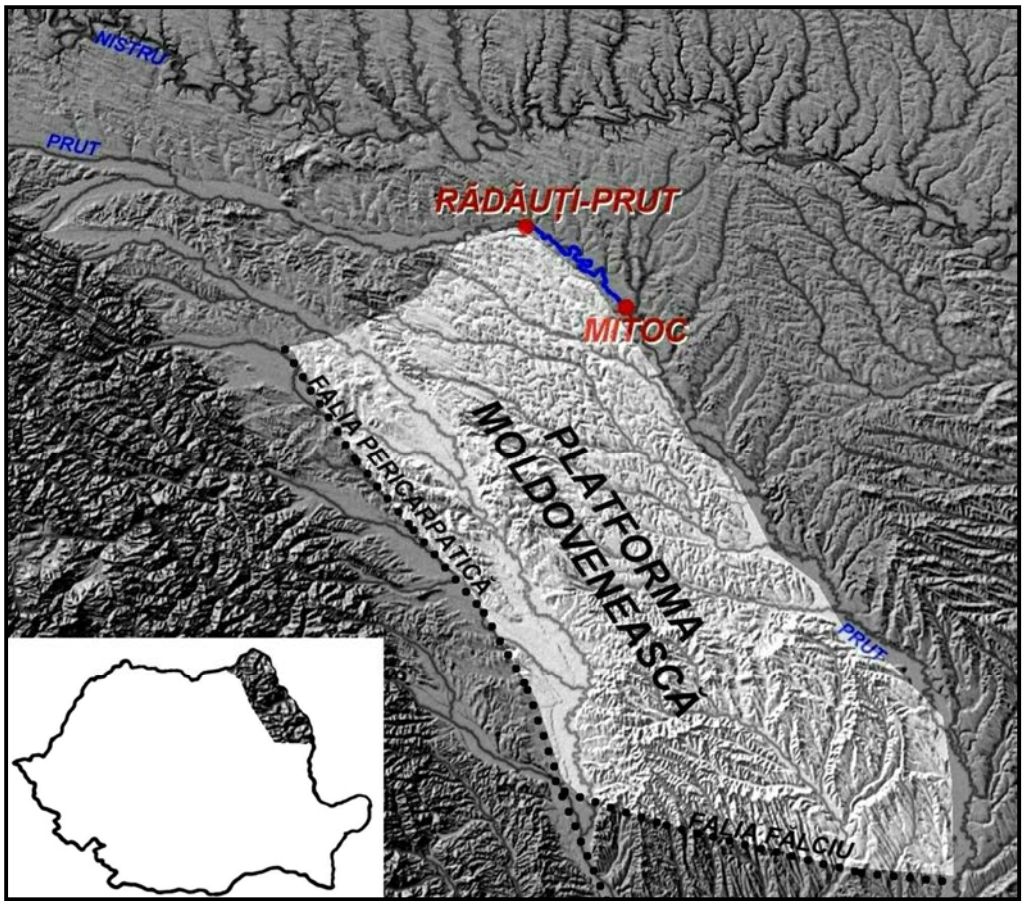


Fig. 2 - Map of Romania, with geological units.

Bug-Podolian sector.

The bedrock was reached only by deep drilling, being constituted of metamorphic and magmatic rocks, such as paragneiss and quartz-feldspar gneiss, basalt or pink granite with muscovite and biotite, some researchers attributing to it as well some lithological sedimentary formations made up of sandstones and clays.

The age dating indicates values between 1,280 and 1,448 million years (on biotite) or between 1,005 and 1,593 million years (microcline) and these represent the age of the last geodynamic movements occurred on the level of the Middle Proterozoic 1,600 million years ago, which affected the bedrock, and not on the level of the Early Proterozoic, which occurred much earlier, namely 2,300-3,000 million years ago.

2.2. The sedimentary cover of the Moldavian Platform. It is made up exclusively from sedimentary deposits whose thickness varies between 2,500 and 6,000 m, this being the result of three megacycles of sedimentation, interrupted by three emergence stages, yet there may be as well other short interruptions, general or only local.

The Paleozoic formations, attributed to the Upper Vendian - Devonian sedimentation megacycle have been reached only by numerous drillings, being deposited in facieses similar to those opened by the Dniester River at Soroca (Republic of Moldova). The Paleozoic appears almost uniformly on all the surface of the Moldavian Platform, with small variations of thickness, lithology and fauna content. In it, numerous sedimentation periods have been recorded, yet interrupted by the emergence ones.

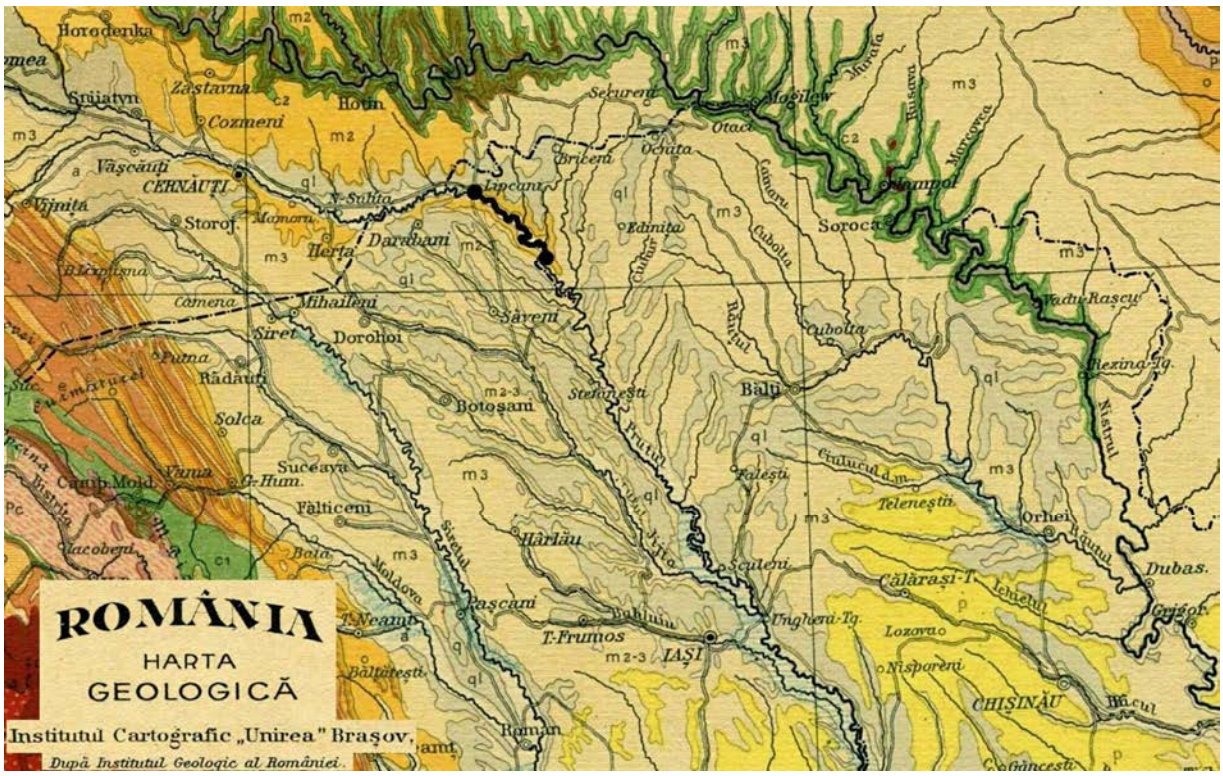


Fig. 3 - Extract from Geological Map of Romania at 1: 2,250,000, printed by Cartographic Institute *Unirea* Braşov (undated).

From a stratigraphic perspective, its deposits are attributed to the Upper Vendian, Lower to the Lower Devonian. After this sedimentation period follows a period of erosion/emergence of these formations, one of the longest of the periods of this kind (of about 240 million years), starting on the level of the Devonian and continuing during most of the Mesozoic. This removed the Paleozoic sedimentary deposits, realizing a peneplainisation of the zone, which, in the areas with limestones, also generated a karstic paleorelief.

Another sedimentation megacycle is the one that started towards the end of the Mesozoic, with the Cretaceous, and which continued, with numerous interruptions and discordances, produced by emergences, up to the level of the Middle Eocene, lasting about 80 million years. Probably there were stages when only certain areas were under the water, where a modeled paleorelief was generated, whereas in the areas situated above the water there was a hydrographic network oriented mostly NE-SW, in the northern half, and Cambrian, Upper Ordovician, Middle and Upper Silurian and
E-W, in the southern half. The existence of these paleoreliefs was highlighted by the interpretation of the data obtained from drillings and seismic investigations.

The oldest Cretaceous formations are those sedimented starting with the Valanginian, continuing with the Barremian-Aptian and Upper Albian and can be met only in drillings. Only the formations of the Lower and Middle Cenomanian are open by erosion at the surface of the ground, being met in the north-east of the Moldavian Platform, especially in the banks of Prut River. Situated transgressively over the Aptian deposits in the north and in continuity of sedimentation in the south of the Moldavian Platform, the evolution of these deposits was marked as well by the presence of a marine transgression over the whole platform, occurred on the level of the Lower Cenomanian and which lasted until the Middle Cenomanian.

The Cenomanian deposits are made up of a

lower level, with microconglomerates, sandstones with phosphates, sands and glauconitic sandstones, up to 80m deep, which have not been opened by erosion, and an upper one, opened by erosion, made up of chalky limestones with siliceous concretions, up to 10m thick. This upper level of the Cenomanian, with siliceous concretions, is the first geological level of interest for the archeological research, as we shall see.

Another level of the Cretaceous, the

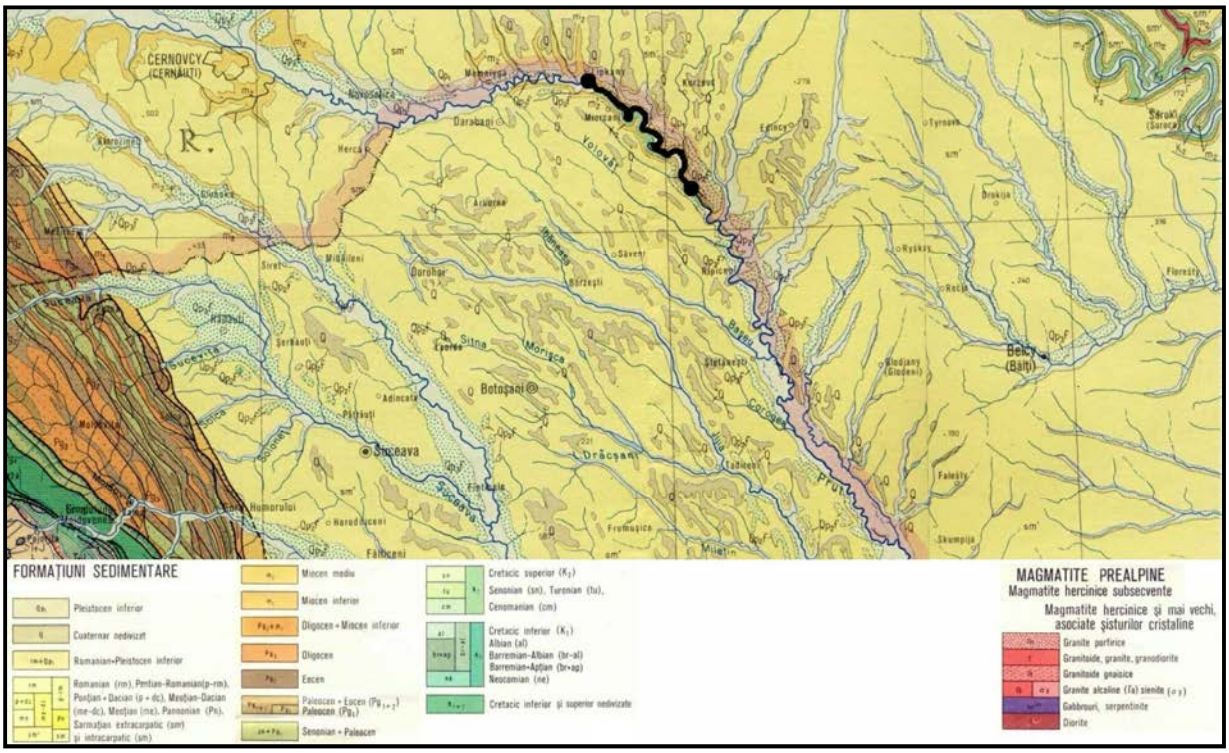


Fig. 4 - Extract from Geological Map of Romania at 1: 1,000,000, printed by the Geography Institute, 1978.

Senonian, was reached by a series of drillings and is met only in the west of the Moldavian Platform.

The deposits attributed to the Neozoic start with a series of lithological formations met only in drillings, which can sometimes be up to 100 m thick, and whose age has not been fully elucidated so far, being attributed to the Paleocene and to the Eocene.

With the Badenian starts the last sedimentation cycle, called the *Upper Badenian - Meotian*, whose duration was the shortest, namely 7 million years. It begins with a series of sedimentary formations deposited transgressively over the previous ones. According to some authors, on the level of the Middle Badenian, and according to other authors, later on, during the Upper Badenian, a marine transgression occurred, comprising the whole present area of Moldova and leading to the depositing of a larger volume of sediments whose thicknesses are higher in the west, of maximum 450m, separated into three distinct lithological units reflecting the evolution of the sedimentation.

The first of them, known as the infra-anhidritic (detrital) formation, represents the lower horizon that marks the transgression of the Badenian, with thicknesses of up to 130m, made up of sandstones and sands, with intercalations of marls and limestones. One should note that the deposits made up of sandstones contain reworked flints from the Cenomanian deposits, which in certain areas gradually become flint agglomerations, which have been opened by erosion in the banks of Prut River.

To the west, in between Rădăuţi-Prut Commune and Crăiniceni Village, there appear, but only in drillings, deposits formed of coarse sandstones with flints, which then, towards Suhărău begin to get separated, in the lower part in deposits of sandstones with flints, and in the upper part in conglomerates with flints (as one can note in between Teiasa and Bajura) and white sands of Alba-Miorcani. In the area of the Hudeşti deposit, the drillings have brought to light white sand deposits containing in their basis flint agglomerations, but which have not been opened by erosion. The flint agglomerations found between Teiasa and Bajura are caught in a fossiliferous limestone which appears as a conglomerate with passages to microconglomerates and then to white sands, but they do not come up to the surface either.

A second lithological unit of the Badenian, the anhidritic (evaporitic) formation is made up of anhydrite and gypsum, with some intercalations of clays, marls, limestones and even tuffs of a volcanogenic-sedimentary nature, and its thicknesses range between 30 and 60 m, which denotes the fact that there were also areas that were emergenced. According to certain authors, in this formation, met only in drillings, along the present line comprised between the localities Păltiniş – Hudeşti – Ibăneşti, one can meet grey-yellowish limestones, sometimes arenaceous, accompanied by rare fragments of flints (coming from the lower horizon) or a series of siliceous agglomerations and flints, coming also from the lower horizon, which were deposited over lagoon deposits.

The third lithological unit, the **supra-anhidritic formation** (clay-marl-limestones), concludes the Badenian succession and is made up of clays and grey marls, arenaceous limestones, whose total thickness is maximum 250 m. In the north-east of the Moldavian Platform, due to the low thickness of the sea, a series of sandy limestones with *lithothamnium* have been deposited, with thicknesses of 10-20 m, as one can note in the geological formation showing up at the surface in between the communes Crasnaleuca and Rădăuţi-Prut, while from here towards Suhărău, they are replaced by calcareous marls with *lithothamnium*.

Geological formations belongig to the Sarmatian are met the most often, as they appear at the surface throughout the area of the Moldavian Platform, even though a part of them can be found as well deeper, in the margin of the Orogen or even caught beneath it.

Lithologically, during the Sarmatian, there has been an accumulation especially of clays, siltites, marls, sands and secondarily sandstones, oolitic limestones, sandy-limestones, tuffs etc., whose thicknesses vary in between 800 m in the east and 2600 m in the west, distributed geochronologicaly on all the four sub-tiers of the Sarmatian, namely: Buglovian, Volhinian, Basarabian and Chersonian. Although these deposits have been investigated thoroughly, for more than a century, being the object of numerous studies, communications and specialized works, there are still interpretations on certain aspects, which differ from one researcher to the next.

Regarding the description of the geological constitution of the Sarmatian formations, we shall content ourselves with reminding the fact that on the level of the Buglovian, on a narrow band, parallel to the Prut river, in between Mitoc and Ştefăneşti, and from here, down to the south, up to the vicinity of Iaşi (as it has been highlighted by drillings), bioherms have formed, made up of tubicolous worms, which represent the southern extremity of a large area, which starts in Brody region in Podolia, and appears as a belt. Bioherms – shapes as lentils up to 2km long, 50-100m wide and 40-60m high, suggest the existence of a heightened shoulder dating since the Badenian, with shallow waters. These bioherms have also been highlighted in the area situated at the east of the Prut.

With the Meotian, the last level of the Miocene, the sedimentation on the Moldavian Platform comes to an end; after it, the waters withdraw southwards, on the Platform of Bârlad, where sedimentation continued as well during the Pliocene.

The Quaternary deposits conclude the geological succession, being represented, principally, by terrace deposits, accompanying the hydrographic network, and loessoid deposits.

3. The geographic framework of the area

The Moldavian Platform, as a structural unit, represents the geological support of the Moldavian Plateau. The relief modelling in the zone of the Moldavian Plateau began with the Mio-Pliocene emergences that have given birth to the Carpathian Rivers, and to Siret and Prut, which later on

developed southwards, following the withdrawal of the coastline.

Due to the Pliocene and Quaternary emergences movements, the activity of the running waters became more intense, and, correlated with other geodynamic processes (slope processes, erosion-sedimentation processes etc.), has led to the destruction of the old plains of marine storage and to their replacement by a derived relief, predominantly sculptural, with a hilly aspect. It is marked by the particularities of the geological substratum and by the geological structure mainly of monocline, which favored the appearance of the asymmetry of the relief forms.

The Moldavian Plain represents the north-eastern part of the Moldavian Plateau, being marked by a relief whose absolute average altitude is situated around 150-200 m, namely 200 m below the neighboring geographic units from the west and from the south.

Covering an area of around 8.000 km square, it neighbors the Plateau of Suceava in the west. In the north and in the east, the limit is given by the Prut River, marking the state frontier between Romania, on the one hand, and Ukraina and the Republic of Moldova, on the other hand. Yet, this represents a political limit and not a geographic one, because to the hilly Plain of Jijia, subunit of the Plain of Moldova, corresponds a similar unit on the other side of the boundary, namely Stepa Bălţilor. To the south, the limit between the Plain of Moldova and the Plateau of Bârlad is given by a high relief tier, also known in geographic literature as the *Coasta Moldavă* (*Moldavian Coast*).

At the surface, in the Plain of Moldova, the erosion opened a series of geological deposits, whose features have been presented previously. The absolute maximum altitude of the relief in the Moldavian Plain reaches the level of 270 m, only on Bodron Hill, west of Mitoc and here and there goes over 250 m. The lowest absolute altitude is recorded in the river plain of Prut, east of Iaşi, namely 32 m.

The topography consists of hills, it is dominated by forms of obvious asymmetry, showing steeper north and northwest slopes and south and southeast slopes with moderate slopes with low inclination . In this unit, the structural forms of relief are few and poorly represented, and one can find only a few *cuesta* on the right side of the Jijia River, in between Corlaţeni and Mândreşti, on the right side of the Başeu, in between Săveni and Vlăsineşti, continued southwards by those in between Hăneşti and Mihălăşeni, on the southern flank of the river Sitna in between Dracsani and Hlipiceni, Miletin Coast and Jijioarei Coast (Gârla Morii), continued eastwards by the alignment Larga Jijia - Popricani - Victoria from the sector of Lower Jijia and the Coast of Bahlui and Bahluiuleţ. To these, one can add as well some areas with secondary *cuesta*, whose appearance differs from that of the opposite slopes.

On top of the hills, bridges or interfluves, loessoid Quaternary rocks have been deposited, on top of which there are mainly chernozems affected by weak and moderate erosion processes. Pluviodenudation and ablation are the main factors degrading the land in the areas with slopes whose inclination goes over $6\text{-}7^0$.

Relief accumulation is represented by terrace deposits, horizontal or slightly sloping bridges and floodplains. The terraces that have been well represented and studied in this geographical unit have some peculiarities. The hierarchy and the development of the hydrographic network, supported by the presence and number of terraces, highlight the leading role played by the river Prut its formation.

Thus, Trifeşti and Probota sector of the Prut River presents seven high terraces with absolute altitudes that reach 150 m, while Jijia and Sitna, in their lower sectors have respectively 5 and 4 terraces, with maximum altitudes of 140 m. An exception is Bahlui River, which has 8 well preserved terraces, whose lengths can reach 6-7 km, an argument in favor of the fact that there were also higher areas that have simply been destroyed by erosion.

The terraces are made up of Carpathian gravels in their basis, as in the case of the terraces of Prut, with loessoid sands and rocks, with thicknesses ranging between 3 and 20 m. Regarding the age of the terraces, the specialists consider that the terraces with altitudes over 140 m can be Pliocenic, those with altitudes ranging between 100-140 m were formed during the Lower Pleistocene, those situated at 50-70 m are formed in the Middle Pleistocene, and during the Upper Pleistocene were deposited the terraces of 30-40 m.

The main river gathering the waters of the area is the Prut, whose riverside may range

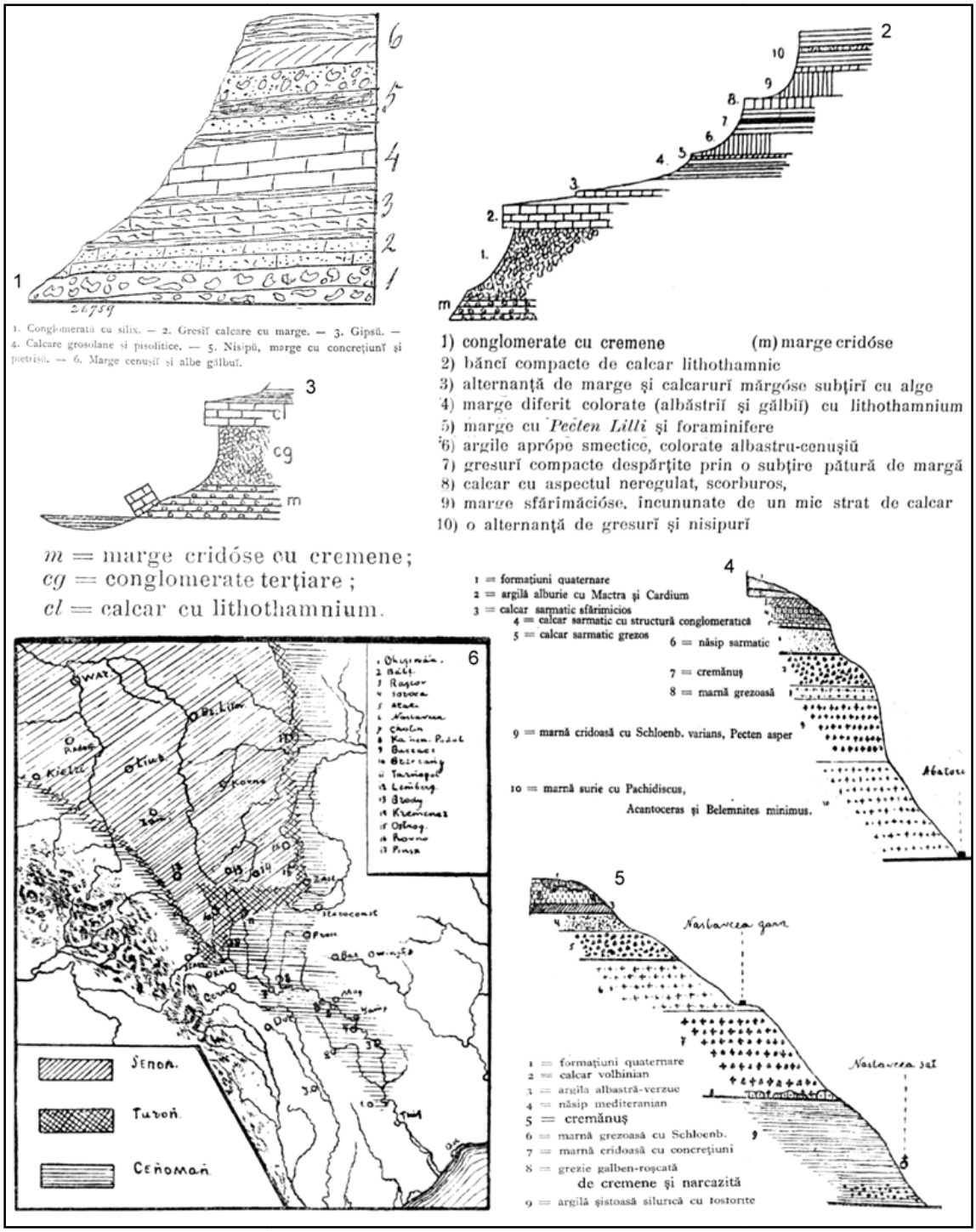


Fig. 5 - Geological profiles from region: 1. Gr. Ştefănescu, 1888, fig. 3; 2. I. Simionescu, 1902, fig. 6; 3. I. Simionescu, 1902, Fig. 1; 4. J. Văscăuţanu, 1923, fig. 2; 5. J. Văscăuţanu, 1923, fig. 1; 6. J. Văscăuţanu, 1923, fig. 3.

between 3 and 7 km in width, but which also has narrow sectors, such as those in between Rădăuţi Prut and Stefăneşti, compared in the geographic literature with some small keys, considering the upstream sector and the downstream sector.

4. A *literature review* on the occurrence of flint in the north-east of Moldova

The first scientific paper that describes in a comprehensive manner both the geological structure and the presence of flint along the Prut Valley and the existence of prehistoric settlements here is the one published in *Anuarul Biuroului Geologicu* (*Annuary of the Geological Bureau*), year III - 1885, no. 1, printed in 1888, signed by Gr. Ştefănescu and entitled *Relaţiune sumară asupra lucrărilor Biuroului Geologicu in campania anului 1885* (Short Relation on the Works of the Geological Bureau during the 1885 Campaign).

Thus, referring to the situation of the Quaternary deposits of Dorohoi, page 20 of the paper, it is mentioned that „in the Prut riverside, at Metocu, were found, on less than two meters from the surface, several worked flint, evidence of a prehistoric settlement"(„în malul Prutului, la Metocu, amu găsitu, la mai bine de două metre de la suprafaţă, mai multe silexuri lucrate, indicele unei staţiuni preistorice")[2].

Next, describing the miocene rocks, at page 34, the author mentions that „at Hudeştii Mici or Miorcani can be seen below these pisolitic limestones in Prut riverside at Văraticu village and at Izvoare, berween Hudeşti and Miorcani[3], a conglomerates deposit composed of many fragments and nodules, some of them quite large, of flint *piromaticu (untranslatable word)*, generally gray, cemented with gray *margosu (untranslatable word)* clay" („la Hudeştii mici sau Miorcani se vede sub aceste calcare pisolitice în malul Prutului la localitatea Văraticu şi la Izvoare, între Hudeşti şi Miorcani", unu depozitu de conglomeratu formatu din numeroase fragmente şi nodule, din care unele destul de mari, de silex piromaticu, în generalu vânătu, cimentate cu argilă margosu vînătu") (Fig.5/1), but the stratigraphy is, however, not complete in the profiles analyzed.

In the work published in the year 1897, in no. 1-2 of *Arhiva Societăţii Ştiinţifice şi Literare* (The Archive of the Scientific and Literary Society) of Iaşi, entitled *Crida superioară şi calcarul cu lithothamnium pe malul Prutului (jud.Dorohoi)* (*The Upper chalk and the limestone with lithothamnium on the riverside of Prut (Dorohoi County)*), I. Simionescu describes the geological outcrop situated upstream from Mitoc village, in the point called *Cotul Mic*, where, along an abruption of a few meters from the right side of Prut, he observes a geological series made up of „yellowish-white unlaminated chalky marl" ("marne cridoase de culoare albă gălbuie şi nestratificată") by whose destruction the "rounded flint aligned in parallel series" ("cremenele rotunzite aşezate pe rânduri paralele") become "free and are taken away by the water"[4], contributing to the formation of the alluvial deposits of the region. In the upper side, over this marl, there are limestones with *lithothamnium.*

The same types of geological formations are present, according to the author, on the left side of Prut, "*on a large area, from Teţcani Village up to downstream from Badraz"*. The author identifies in the marl, by microscopic analysis, foraminifers and broken shell fragments, affirming that this rock continues the formations occupying a large area in "*Eastern Galitia and in Russia"*, concluding by attributing the cretaceous age to these deposits.

In the study published in 1902, entitled *Constituţiunea geologică a ţărmului Prutului din nordul Moldovei* (*Geological Structure of the Riverside of Prut in Northern Moldova*), based on more detailed research works, for which he expresses his gratitude for the support offered to Dr. C. I. Istrati, Minister of Education, I. Simionescu details a series of aspects regarding the geology of the region, even from the beginning of the article, at pages 5-6, where he mentions that between Rădăuţi and Mitoc, "flint beads easy peelable are covered with thik lithithamnic limestone layers; that beads are often covered by a flint conglomerate whose elements are little cemented so that they break loose under the action of frost and defrost", as is the case met downstream from "*Miorcani and in the area of Cotul Zamca"*[5] („margele cu cremene uşor de desfăcut sunt acoperite cu bănci grase de calcar lithothamnic; ca margele sunt de multe ori acoperite de un conglomerat de cremene a cărui elemente sunt puţin cimentate aşa că se desprind sub acţiunea îngheţului sau dezgheţului", cum este

cazul întâlnit „în jos de Miorcani şi în dreptul Cotului Zamca") (Fig.5/3).

The author also describes a series of tertiary outcrops along the Prut Valley, beginning with those in the area Mamorniţa, Herţa, Darabani and up to Rădăuţi-Prut, without mentioning the presence of any flint elements.

Continuing the description with the zone south-east of Rădăuţi (p.11 and the next), "*where the Prut suddenly turns towards Sirăuţi Village in Bessarabia"*, and where one can find the oldest geological levels of the region, the cretaceous ones, "represented by greyish-white chalky marl in thin layers and rich in flint pebble, arranged in regular lines", over which there are the tortonian deposits. The author mentions that the stratigraphic series is concluded by the limestones with *lithothamnium*, where, "not rarely, one can notice rounded flint", as it happens in Pădurea Stânca and also that these strata reappear "beyond Văratic Rivulet (Pichet 45 bis)".

Lower downstream, in between Văratic Rivulet (Pichetul 45) and Cotul Zamca, the author describes that in between the chalky bead and the limestone with *lithothamnium* is "intercalated an important conglomerate layer, made up only of slightly rounded flint", with calcareous cement, layers opened as well by Miorcani Rivulet, next to its confluence with Prut. The same series is also encountered southwards, up to the point called *Stadola lui Văsescu*, the author mentioning again the presence of rounded flint in the basis of the limestone with *lithothamnium*[6].

I. Simionescu also describes other outcrops near Crasnaleuca (p.12 and the next), like the ones situated in the middle of Cotul Zamca or the ones from Pichetul 51 bis[7], also presenting a stratigraphic profile (Fig.5/2), where there appears the same stratigraphic series, over the marls appearing conglomerates with flint, a series met as well at Ghirenii lui Curt or lower downstream at Mitoc, and up to Pârâul lui Istrati. This is the southernmost point where one can find both cretaceous marls and limestone with *lithothamnium*.

Towards the end of the article, in the conclusions on the stratigraphy of the area, regarding flint from cretaceous white marls, I. Simionescu mentions that flint has various dimensions, usually "as big as a fist, rarely as big as a head", and various shapes, and irregular surfaces, their color being blackish-dark blue, and their surface altered, almost always white; he also mentions the pre-historic levels noted by Gr. Ştefănescu, which he noticed as well at Mitoc (p.15). Interesting is the fact that he cannot indicate the level of the Upper Cretaceous to which these strata of marls with flint belong, mentioning that in Galitia these limestones can be found in all the three levels of the Upper Cretaceous, while in northern Bessarabia "chalky marls containing much flint" are placed over other marls.

On the conglomerate with flint appearing in-between Rădăuţi and Mitoc (p.18 and the next), up to 5 m thick, made up of rounded pieces, the author affirms that the material highlights "the beginning of the tertiary marine transgression" and that it" was certainly taken from the cretaceous marls", showing that between this level and the limestone it stands on there is "a close connection", as it is proven by the rounded flint pieces included in the lower area of the limestone layer; he mentions that the age of the conglomerate is lower Tortonian.

At the same time, he also refers to the profile in-between Ivăncăuţi and Cuzlău published by Gr. Ştefănescu, mentioning that although the gypsum layers lie over the layer of conglomerates with flint, the two geological levels are synchronous.

As a general conclusion, I. Simionescu shows that north-eastern Moldova has great geological affinities with the situation present in Bessarabia, Podolia and Eastern Galitia (p.24 and the next), representing the southern extension of the "Russian land", also figuring a model of geological evolution of the region, in which he mentions that after their formation the cretaceous deposits were eroded by "running waters", which generated "an irregular surface", an aspect noticed "in many places in Galitia". The tertiary transgression led to the invasion of the area by marine waters, which initially triggered the erosion of the cretaceous deposits, "heaping up the remaining flint into a conglomerate that would indicate the shoreline" ("îngrămădind cremenele rămase într-un conglomerat care ar indica linia ţărmului").

The geological researches in the region become much more intense after the year 1920. An interesting work on the cretaceous deposits in northern Bessarabia is published in the year 1923 by J. Văscăuţanu, who describes the situation met in several geological outcrops. In the first of them, situated in Naslavcea Village (Fig.5/5), the author

notices the presence of a thick layer, "of 4-5 m of black flint cemented with chalky marl" ("de 4-5 m de cremene neagră cimentată cu o marnă cridoasă"); this flint has a "scaly surface with an irregular outline, rugged or alveolar" („ce prezintă solzoasă cu contur neregulat, colţuros sau alveolar"), coming out easily from the "chalk matrix". Comparing these rocks to those met in the riverside of Prut, the author affirms that the age of these formations "is the basis of the Mediteranean, a material taken from the cretaceous layers".

A second outcrop is situated in the eastern margin of Soroca, next to a confluence of a valley with the Dniester (Fig.5/4). Here, J. Văscăuţanu describes under a level with sand, "a 3-4 m thick layer of flint, identical to that of Naslavcea" („un strat de 3-4 m de cremănuş, identic cu cel de la Naslavcea"), and under them a thin layer of silstone and a 10-12 m thick layer of chalky marl, which under the impact of erosion look like columns and towers.

The author mentions that this chalky marl includes two horizons. The upper horizon present in the upper part of the marl is made up of "flint concretions, lying along an almost straight line" ("concreţiuni de cremene înşirate pe o linie aproape dreaptă"), regarding which a microscopical analysis highlights the mineralogical structure and also the presence of fossils, a fact that, according to the author, would highlight "a phenomenon of metamorphosis of the marl into flint" ("un fenomen de metamorfozare a marnei în cremene"). Fossils present in this horizon, according to the author, would indicate the middle Cenomanian.

The author mentions that these formations observed at Soroca appear as well downstream, up to the point *În Cot*, after which they disappear, although some researchers affirm that they can be met up to the area of Rezina Town, where they appear at 1/2 m over the level of the Dniester. At the same time, the author mentions the fact that, in Bessarabia, cretaceous layers are present both on the riverside of Prut, in between Lipcani Village and Bădragii Noi, along a distance of about 30 km (referring to the 1897 study of I. Simionescu), but also in the points " Bălţi, Ezăreni and Mireni, Kishinev County, where drillings have crossed thick beds of flint and chalk" ("Bălţi, Ezăreni şi Mireni, judeţul Chişinău, unde făcându-se sondaje s-a trecut prin păturі groase de cremene şi cridă").

At the end of the study, the author presents a general map of the east-carpathian area (Fig.5/6), highlighting the distribution of the geological deposits; he affirms that in Podolia, the level of white marl with flint would have been attributed to the Turonian and Senonian, cf. E. Dunikovski in 1884, yet this opinion would have been reviewed later on by G. Ratkevici in 1891, who attributes a Cenomanian age to the marl, sand and flint levels, present "south of the line separating the tributaries of Dniester from those of Bug". J. Văscăuţanu (1923) also mentions a geological profile similar to that of Soroca encountered along Uşiţa Valley.

Interesting is also the work entitled *Geologische Beobachtunngen uber das Miozan zwischen dem Siret und dem Nistru in der Bukowina und in nordlichen Bessarabia* published in the year 1929 by Gh. Macovei and I. Atanasiu who note that in the north of the Moldavian Plateau, the Tortonian is represented by two distinct facies. The podolian facies is characterized by low-depth marine sedimentary rocks with gyps, limestone, sandstone, silliceous agglomerations, while the pre-Carpathian facies is marked by a dominance of clay-marl rocks, slightly arenaceous.

Another work important for the knowledge and the description of the flints in the region is the study entitled *Etude micrographique des roches siliceuses du Cretace du la Valle du Nistru*, published in 1938 by M. Filipescu. He makes microscopic analyses on samples coming from the cretaceous deposits of Naslavcea and Răspotinţi (Hotin County), distinguishing five forms of presentation of the silica:

- siliceous spongolite (*aff. gaize cherteuse - Cayeux*), present at Răspotinţi, are in fact siliceous accidents like *chert* type in which 50% of its mass is comprises of sponges spicules;
- Globular opal in the mass of chalk, in which silica in the form of opal it reaches a percentage of 53% of the rock mass weight;
- Concretions of globular opal in chalk;
- Powder silica with flint nodules, available white chalk, flawed, in which there are gray flint nodules. Microscopic analysis revealed the presence of foraminifera sponges spicules in silica in the form of chalcedony, that makes up the flint.

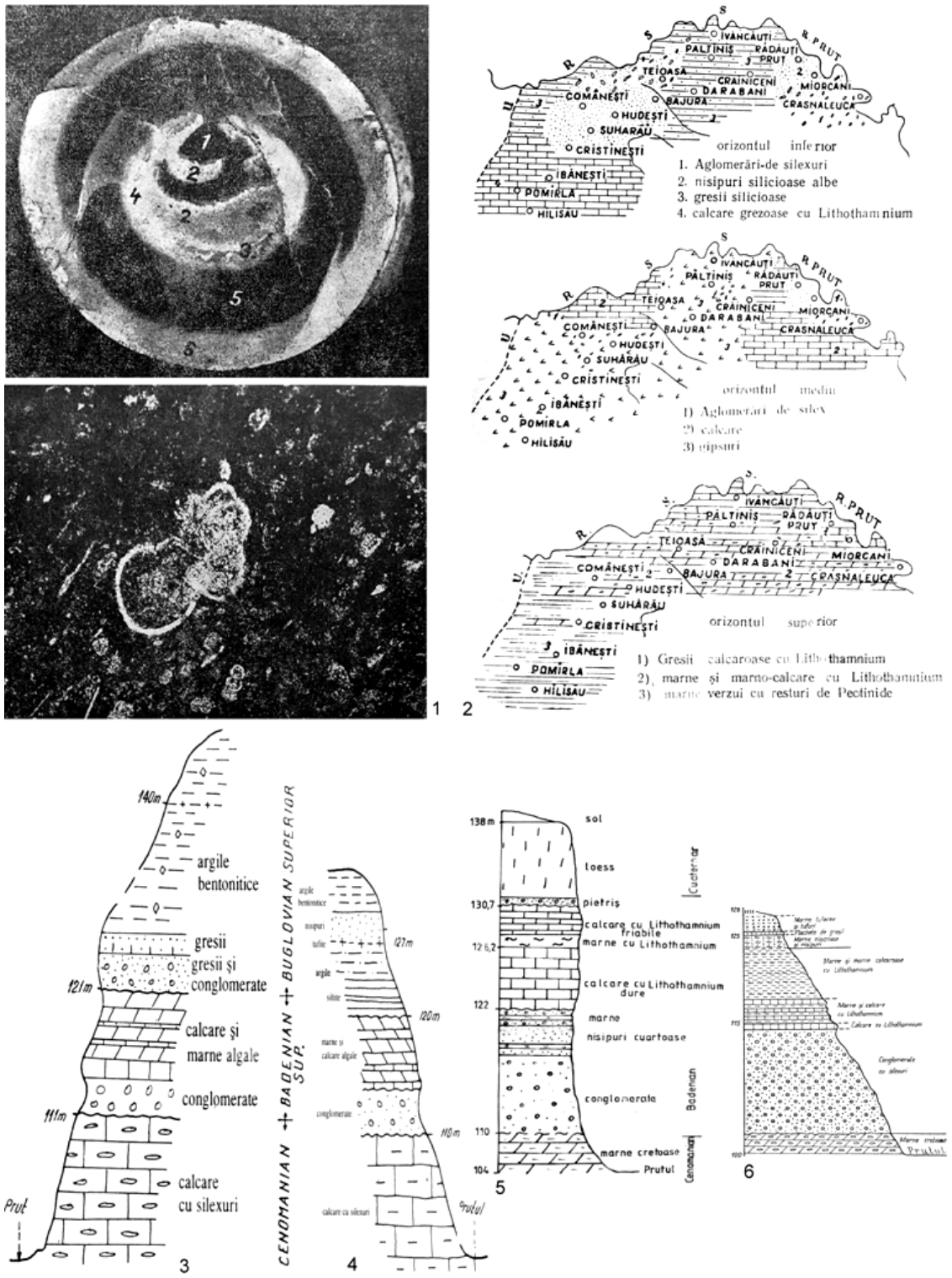


Fig. 6 - Geological profiles from region and sections from flint pieces published by: 1. N. C. Albu, C. Gheorghiu, I. Popescu, 1960, fig. 3-4; 2. Gh. Bâgu, 1965, fig. 1- 3; 3. L. Ionesi, 1984, fig. 7; 4. L. Ionesi, 1984, fig. 8; 5.Claudia Cirimpei, 1985 (Mirocani area); 6. E. Nicorici, Bica Ionesi, 1978, fig. 1.

- Flint. For the analysis the author has provided one sample of this type, yellow-brown, without specifying where they came from, in which composition he observed the foraminifera and sponge spicules, catched in chalcedony that makes up the fundamental mass of flint.

The author tries to explain the modalities of formation of the siliceous rocks under analysis, on the basis of diagenesis processes on the seafloor, "where sediments were in the form of mud, water-logged" ("unde sedimentele se aflau în stare de noroi, îmbibate de apa mării").

In the study published in 1929 by N. N. Moroşan entitled *Noi contribuţii preistorice asupra Basarabiei de Nord* (New Prehistorical contributions about Northern Bessarabia), the author refers only once to the presence in the area of geological outcrops including flint, in-between Cuconeştii Vechi and Corpaci, mentioning that the tools made of flint, black of bluish, correspond as "structure to the flint concretions present abundantly in the region", this meaning according to the author that the tools were manufactured *in situ*, and were not brought from other areas. Although in 1938, N.N. Moroşan publishes an ample volume on the Paleolithic of NE Romania, he does not approach the issue of the geological outcrops in which flint appears in this area.

The study published in 1960 by N. C. Albu, C. Gheorghiu and I. Popescu, entitled *Depozitele sedimentare de la Rădăuţi-Prut* (Sedimentary Deposits from Rădăuţi-Prut), presents new information on the issue of the appearance of flint in the region, describing a series of geological profiles from this area.

One of these profiles is also the most complete, being situated in-between Rădăuţi-Prut and Miorcani, in the sand quarry. Here the authors mention that the cretaceous deposits represented by milky white chalky limestones present numerous siliceous accidents with choncoidal fracture, evenly distributed in the mass of the rock, of a whitish-grey color that laterally turns to a yellowish-brownish color.

Over them, there is a level of tortonian sands with flint nodules, which shows large lithological facies variations, from one point to another. Flint nodules described by authors, are different in size, sizes between 2 and 18/12 cm, and morphology. The most common forms are ovoid, elliptical, rarely spheroidal, sometimes rod-shaped, very rolled or covered by a whitish crust. However, appear also irregular shape,with the intricate structural aspects, because different mineralogical structure of silica.

Flint nodules color ranges from gray - black , gray- intensive to a pale gray, almost milky. Some samples have several shades of colors, like in Fig.6/1). It shows different flint rings of white milky color and dark gray. In its mass were identified sponges spikes, and rare fragments of radiolarians, and unidentified forms of foraminifera, globigerina (Fig.6/1).

The authors state that the analysis of the sand from this level revealed that consists entirely of very rolled flint grains (due to mechanical actions), rare angular. Also, it also notes the presence of a level of marl and limestone-chalk, with flint nodules, in the Rediu drilling, and a relatively homogeneous lithology of flint conglomerates horizon and siliceous sands between Rădăuţi-Prut and Miorcani.

At the end of the study, the authors analyze the conditions that have led to the formation of the geological deposits of the region, with a focus on the manner of accumulation of conglomerates from flints and siliceous sands.

Based on data obtained from geological drilling, Gh. Bâgu published in 1965 the study entitled *Variaţii litofaciale ale formaţiunilor tortoniene din nordul Moldovei, în comparaţie cu cele din vestul U.R.S.S. şi a R.P. Polonă* (*Lithofacial variations of Tortonian formations in northern Moldova, compared to those of western USSR and P.R.Poland*), presenting in details the structure of the three horizons (inferior, middle and superior), both as petrography and as fauna. In the illustration of this study, the author presents three figures with the occurrence areas of these geological horizons, mentioning the presence of certain areas in which, also by drilling, flint has been detected (Fig.6/2).

The author mentions that in the lower horizon, they are either under the form of sands with flint or conglomerate with flint, between Miorcani and Rădăuţi-Prut, or under the form of coarse sandstones with flint, between Rădăuţi-Prut and Crăieniceni, or under the form of fragments of rolled flint, which in their upper area turn into conglomerate with flint attached in a fossil matrix,

between Teioasa and Bajura. In the sector Păltiniş, the accretions of flint in this horizon form a promontory, a hypothesis later on confirmed by finding in a geological drill in this horizon of a fragment of an *Anchiterium aurelianense* mandible, south of Rădăuţi-Prut.

In the middle horizon, the author mentions yellowish-grey limestones, in patches arenaceous, with fragments of flint pebble, without indicating the place of their occurrence. In the sector Hudeşti-Ibăneşti, massive flint accretions or rounded fragments replace the gypsum and limestones, the typical case being met in the drills of Rediu-Crăieni and Suhărău area, while the situation determined in Teioasa, Hudeşti and Comăneşti suggests the existence of a semicircular promontory on the level of this horizon, opened northwards. In this horizon, and also by drills, at Păltiniş, accretions of flint formations have been highlighted, coming from the lower horizon degradation and deposed over a gypsum layer.

The presence of flint in the upper horizon is no longer signaled by the author.

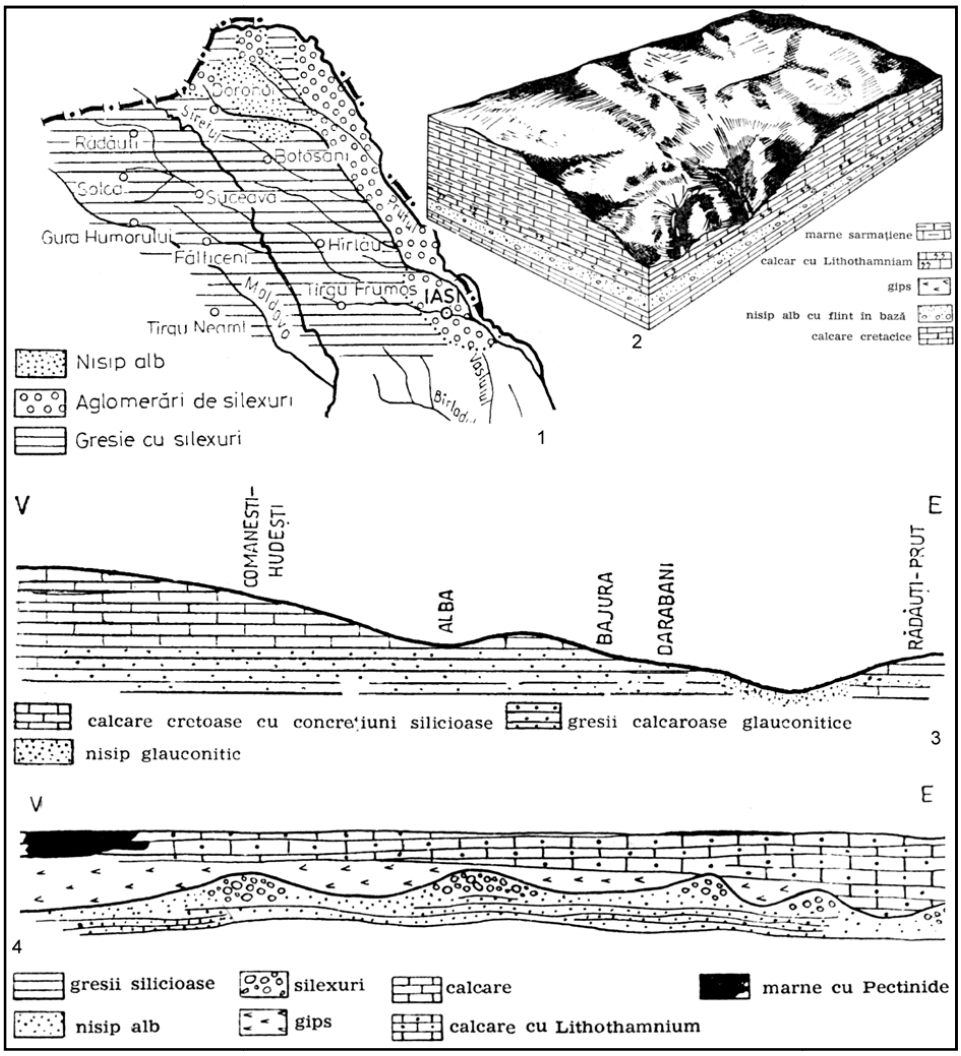


Fig. 7 - Geological profiles and sections from region after Gh. Bâgu, 1984: 1. The lower Tortonian horizon in the Moldavian Platform (fig. 9); 2. The block-diagram with deposit of white sand from Hudeşti (fig. 17); 3. The cross section in Cretaceous deposits from Radauti-Prut and Hudeşti (fig. 2); 4. Cross section in Tortonian deposits (schematically) in northern Moldova (fig. 3).

The analysis of geological similarities between the area of north Moldova and that of western USSR or P.R. Poland is relatively brief, the author mentioning that the situation in the area of Bajura-Hudeşti resembles that of the Rapuşneţ and Ocna area on Dniester or that of the Baranov-Sandomiretz area on Vistula River, while that of Mitoc, Crasnaleuca-Miorcani-Crăiceni, resembles that of Percăuţi, also on the riverside of Dniester, 20 km south, downstream from Ocna.

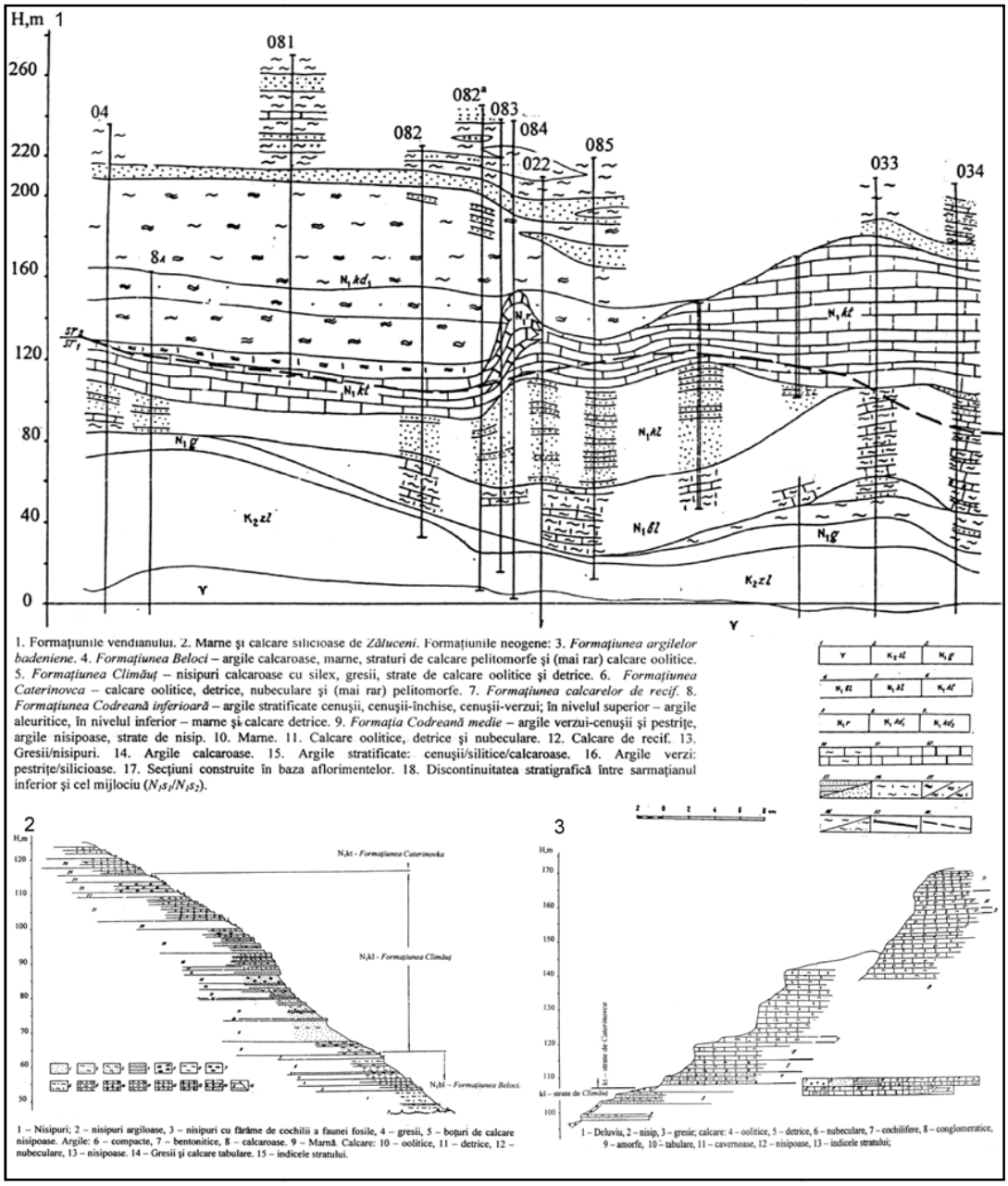


Fig. 8 - Profiles and geological sections from the Prut - Dniester area, after V. Ciubotaru, 2011: 1. Scheme of the Neogene geological formations from themcentral area of Nistru basin (fig. 9); 2. Geological situation (Climauti geological formation) at the northwest edge of the village Climauti (fig. 11); 3. Cross-section in Caterinovca geological formation at the northwest edge of the village Caterinovca (fig. 13).

In the work published in 1978 entitled *Studiul pectinidelor badeniene din nord-estul Platformei Moldoveneşti* (Study on the Badenian pectinoides north-east of the Moldavian Platform), Eugen Nicorici and Bica Ionesi mention an interesting piece of information, namely that the outcrop mentioned by I. Simionescu in the work of 1902, *Picket 51 bis*, situated north-west of the locality Crasnaleuca, and which presented *the most complete section*, rendered later on also by other researchers without any further information (as is the case of G. Macovei and I. Atanasiu in 1929) was at that time covered by vegetation, yet the erosion opened other points, as is the case of Cotul Grimeşti, south of Crasnaleuca, in the area of the former *Picket 53*, a situation illustrated in this work (Fig.6/6).

A much ampler work than those mentioned so far, and which includes a series of pieces of information of interest for the present study, is the volume published in 1984 entitled *Geologia Moldovei. Stratigrafie şi consideraţii economice* (The Geology of Moldova. Stratigraphy and Economic Considerations) of Gh. Bâgu and Alecu Mocanu, a first work offering an overview on region). In fact the authors resume the data known in the specialized literature resulted via the research carried out in this zone, summing up the information successfully, without updating the geochronological terminology, continuing to use the name of Tortonian.

Thus, further information is presented on the formation of the Cretaceous deposits with flint concretions or on the concentric siliceous areas observed in a section made into a oblong flint pebble, in the paper published in 1960 by Albu, Gheorghiu and Popescu, generated by the water chemism variation in which it appeared (p.21), realizing even a special subchapter dedicated to the sand and flint deposits, viewed through the prism of their economic use (p.67-73). At the same time, the figures add to the quality of the work, and also to the general idea on the issues related to occurrence of flint deposits in the region (Fig.7/1-4), along with the attempt to correlate geological formations in Moldova with similar formations in other regions.

Another synthesis that needs to be reminded is the one of Liviu Ionesi, published in 1994, *Geologia unităţilor de platformă and a orogenului nord-dobrogean* (Geology of the Platform Units and of the North-Dobroudjan Orogen), which, based on the specialized literature brings clarifications on the occurrence of geological formations in the region, without detailing, the levels in which flint appears, publishing however several outcrop profiles (Fig.6/3-4).

And, last but not least, we would like to mention two interesting bachelor degree theses, the first of Miss Claudia Cirimpei, of the year 1985, entitled *Studiul depozitelor calcaroase badeniene din regiunea Miorcani şi posibilităţile de valorificare* (Study on the Badenian limestone deposits of Miorcani region and possibilities of using them) and the second of Miss Aurelia Ionela Stănculete of the year 2005, entitled *Studiul geologic al depozitelor badeniene din nord-estul Platformei Moldoveneşti (zona Rădăuţi-Prut-Crasnaleuca)* (Geological Study on the Badenian Deposits in the NE Moldavian Plateau), works describing the geology of the area in a more detailed manner, the accent falling on the eroded outcrops present along the Valley of Prut and their geological analysis (Fig.6/5).

5. Flint occurrence on the Prut-Dniester interfluve (Republic of Moldova & Ukraine)

On the geological structure of the territory of Bessarabia and western Ukraine, areas situated between Prut and Dniester, we have made some remarks above, related to studies published in the interwar period. Unfortunately, the state barrier that divided the area for more than two centuries (but let us admit sincerely, to which the linguistic and political barrier contributed as well) clearly led to similar developments with no systematic convergence points.

Even though unpublished yet, the doctoral thesis defended in the year 2001 at the University of Iaşi by Valerian Ciobotaru, entitled *Studiu geologic şi geochimic al formaţiunilor geologice din zona nord-estică a Republicii Moldova* (*Geological and Geochemical Study of the Geological Formations in the North-East of the Republic of Moldova*), remains a first step in this direction. Along with a detailed presentation of the geological formations in between Prut and Dniester, the work offers both a description of the main geological researches in the region of the soviet period, and also an ample bibliography, an important part of it being made up of materials

remained unpublished from the fund of the Geological Association of Moldova.

Concerning the geological layers with flint of the zone of the interfluve Prut-Dniester, it is mentioned that on the Cretaceous level, in the upper part of the Zăluceni Formation, in the white and light grey siliceous limestones, in the upper level, there appear flint nodules, sometimes situated "in a continual series, creating the impression of an untouched layer", sometimes as flint intercalations in lenticular bedding, as well (p.50). The shape of these nodules is varied, with dimensions ranging between a few cm and 20-30 cm, grey and dark-grey; one can also observe samples with spots or zonal textures, formed of light or dark colored varieties.

Another geological level in which flint appears is that of the Badenian clay formation, ranged by transgression over the Cretaceous, and overlapped by the upper level, although in relation to it the limit is sometimes hard to mention. These appear in outcrops, such as the one in the riverside of Dniester in Vertiujeni Village, or the one near Sănătăuca Village, the flint nodules being grey or dark-grey and of small dimensions, 1-3 cm in diameter, the layers varying between 0.9 and 3.2 m in thickness.

In the Climăuţ formation, attributed to the lower Sarmatian (lower Volânian), in the outcrop of the north-west margin of the locality bearing the same name, there appear at the basis sands with flint, 6.2 m thick (layer 9) and above, in profile, calcareous sandstones with flint, 3.1 m thick (level 23) (Fig.8/1-3).

6. Research area.

In the area under analysis, beginning with the years 1997-1998, we undertook a series of research works out in the field to identify flint outcrops, to locate and map archeological sites known in the area and identify new ones, also making a profitable use of a series of partial results (M. C. Văleanu, 2003, p. 196 and the subsequent). Later on, the research out in the field was intensified, acquiring a systematic character, as it happened with the research works of 3-16 July 2013or those of the years 2014-2015.

Interesting for the present study was also the scholarship completed during the period 4-17 November 2014 at the Royal Belgian Institute of Natural Sciences of Brussels, which permitted an analysis by comparison to the geological situation of Spiennes, where flint mine exploitations exist since the Neolithic (Fig.39).

Just as important was the research undertaken in July 2015 along the Dniester Valley and in the area of Naslavcea locality (Ocniţa County, Republic of Moldova) with Dr. Valerian Ciubotaru from the Geological and Seismological Institute of the Academy of Sciences of the Republic of Moldova (Fig.40-41).

To prepare the research in the field but also to elaborate the present study, useful information regarding the geology of north-east Moldova, and also of the interfluve Prut-Dniester, was obtained as well by analyzing cartographic sources, the oldest being the Geoogical Map of Romania, drafted by N.A. Constantinescu and printed in Braşov in 1929 (Fig.3).

Very useful have proven to be various soviet geological maps, such as the map sheet L-35, 36, scale 1:1.000.000, edition: 1988, presenting the geological situation in between Prut and Dniester up to the 48^0N parallel, the map sheet M-34, 35, scale 1:1.000.000, edition: 1978, of west Ukraine, presenting the geological situation up to the 27^0E meridian, and the map sheet M-36, scale1:1.000.000, illustrating the territory in between Prut and Dniester, north of the parallel 48^0N and east of the 27^0E meridian, and respectively the northern area of the Republic of Moldova and the northern sector at its boundary with Ukraine.

At the same time, we also used the Geological Map of the Popular Republic of Romania at the scale 1:1.000.000, edition 1964 (Fig.4), but also other subsequent ones, like that at scale 1:200.000, map sheet M-35-XXIII/M-35-XXXIV Darabani, edition 1966, drafted under the coordination of Emilia Saulea.

To map the points on the ground, we used the 1984 edition of the Topographic Maps of Romania, scale: 1:25.000, a very useful tool, even 30 years after its publication, and the ortophoto map of the area or aerial and satellite photographs, available online today.

7. Mapped points

The research focused on the Romanian sector of Prut Valley, actually on the right side of Prut, between the localities Rădăuţi-Prut (in the north) and Mitoc (in the south), and we researched the following points:

7.1. *Rădăuţi-Prut and Miorcani– The sand and*

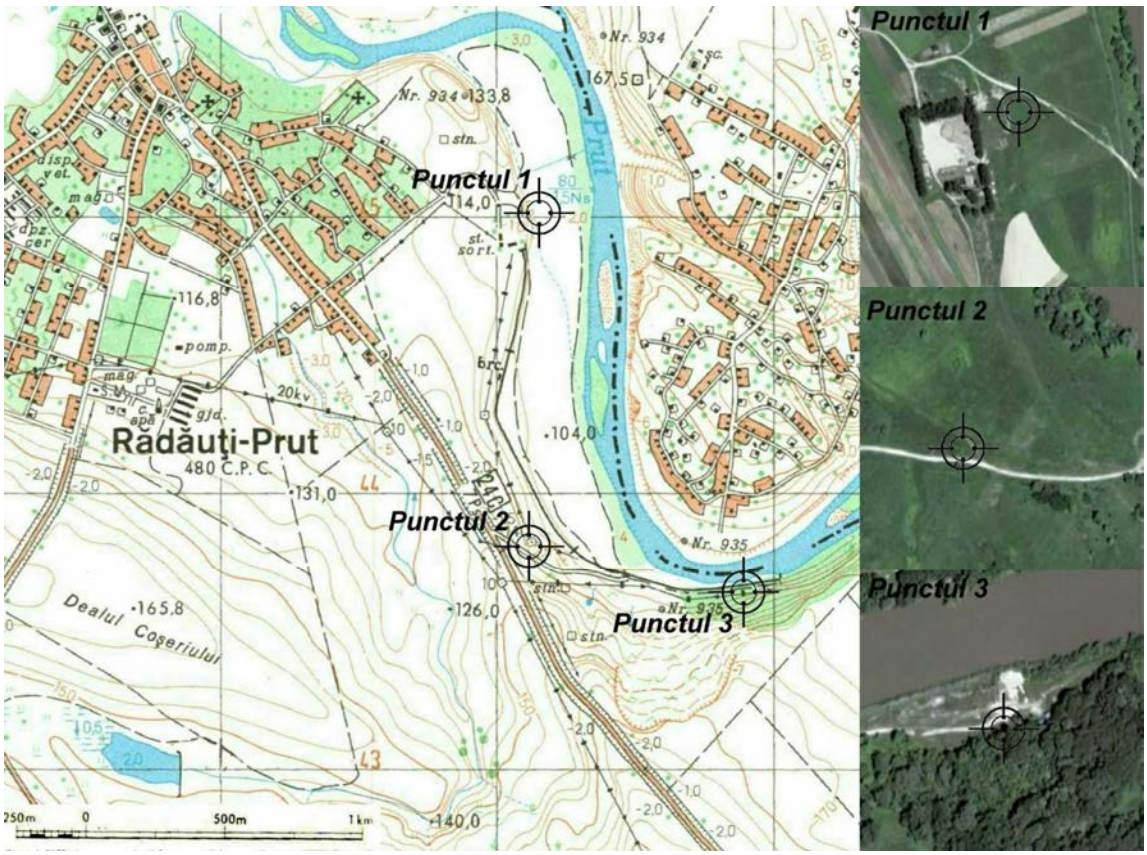


Fig. 9 - Extract from terrain map (scale of 1: 25,000) and satellite images for Rădăuți-Prut and Miorcani area – Quarry and sand mine (7.1.).

quarry mine (Fig. 9).

Point 1 (48.2375^{0}N, 26.8239^{0}E). The research in the field began east of the locality Rădăuți-Prut, in the perimeter of the former mining platform Miorcani (Fig.9, 11). Around 50-100 m east of it, due to anthropic works, the alluvium of Prut is open, and one can note pebble, generally small, of Carpathian rocks and of flint, of various shapes, dimensions and colors (Fig.10).

Point 2 (48.2263^{0}N, 26.8282^{0}E). Southwards, towards the locality Miorcani, the slope nearing Prut Valley is almost totally overgrown with grass, and one cannot even notice the area of the former sand mine, affected by landslide. We were able to identify easily the entrance in a former drift bank (48.2263^{0}N, 26.8282^{0}E), today under conservation, whose access has been blocked (Fig.9, 11).

Point 3 (48.2257^{0}N, 26.8357^{0}E). Around 600 m east of it, one can find another drift and several former buildings of the mining exploitation, seriously degraded (Fig.9, 11-12). In front of them, up to the riverside of Prut, one can observe flint nodules, of various shapes and dimensions, remained after the extraction of the underground sand, and attributed to the infra-anhydrous Badenian formation (Fig.12-13). Flint pebbles are generally rounded, their colors varying from black grey (Fig.45), to various other colors, sometimes with zonal or concentric color variations etc. (Fig.12, compare to Fig.6/1).

Note: downstream from this area and up to north of Cotu Miculinți Village, the right slope of Prut Valley was overgrown with grass or here and there wooded, with serious landslides, which has not allowed the realization of geological observations. In this area one can also find the outcrop found by Gr. Ștefănescu in 1885, presented previously, or that described by I. Simonescu in the work of the year 1902.

Fig. 10 - *Rădăuți-Prut and Miorcani – Quarry and sand mine - Point 1* (7.1.).
Geological profile and details.

Fig. 11 - *Rădăuți-Prut and Miorcani – Quarry and sand mine* (7.1.) - *Point 2* - up and middle. *Point 3* - down.

Fig. 12 - *Rădăuți-Prut and Miorcani – Quarry and sand mine - Point 3* (7.1.).
Details.

Fig. 13 - *Rădăuţi-Prut and Miorcani – Quarry and sand mine - Point 3* (7.1.). Details.

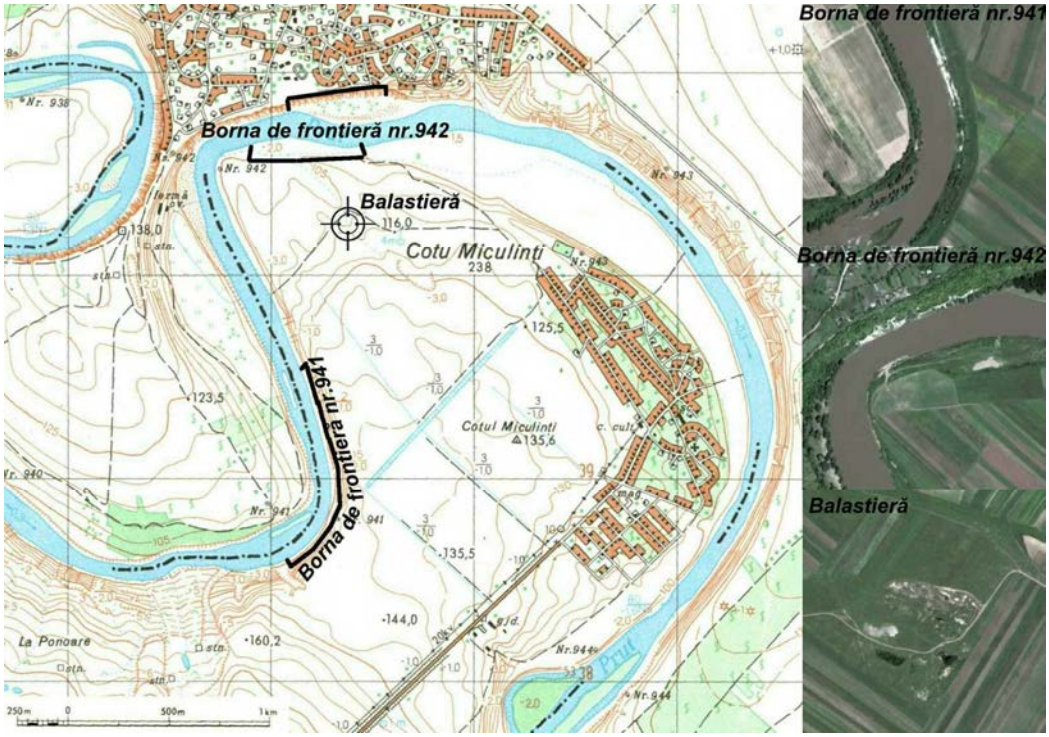


Fig. 14 - Extract from terrain map (scale of 1: 25,000) and satellite images for *Cotu Miculinţi – Border stone no.941* (7.2.), *Border stone no.942* (7.3.) and *Gravel Pit* (7.4.)

7.2. *Cotu Miculinţi - Border stone no. 941* (Fig.14)

West of this locality, upstream and downstream from border stone no. 941 (48.1821^{0}N, 26.9222^{0}E), situated over 60m above the level of Prut along 1000m (Fig.14), the geological deposits were opened by erosion. The depositional sequence starts with chalky marl with Cretaceous flint, on which there is Badenian flint conglomerate, on top of which there are *lithothamnium* limestones, the abruption reaching heights of 30-40m (Fig.15).

Fig. 15 - *Cotu Miculinţi – Border marker stone no. 941* (7.2.). Images with geological outcrop.

The flints from the limestone marl are black-grey, dark grey, irregular, with a whitish cortex, sometimes also yellowish, at the contact with the rock, of various dimensions (Fig.16-17). The depositional sequence includes not just one flint layer, but also an amorphous chalk mass, almost not differentiated as layers, where siliceous accidents appear under the form of flint (Fig.16-17).

Fig. 16 - *Cotu Miculinţi - Border marker stone no.941* (7.2.). Details with Cretaceous layer.

In point of color, this type of flint is similar, actually identical, to the dominant type of flint described previously, extracted from sands of the infra-anhydrous Badenian formation from the former mine of Miorcani, mentioned previously at **7.1.** *Rădăuţi-Prut and Miorcani - Sand quarry and mine* - Point 3 (Fig.12).

The Badenian conglomerate flints, opened 7-10 m above the water, were impossible to analyze *in situ* (Fig.18). In fact, we did not even aim to do this, because at the bottom of the outcrop, the erosion led to the appearance of debris-slide fallen off this level. The flint pebbles, relatively large, caught in limestone cement, have variable dimensions and obvious rolling traces. Macroscopically, this flint has great variations in color from grayish-white to brown-yellow, often in fracture being translucent; however, there are absolutely no black-grayish or light gray varieties like those of the lower, Cenomanian level, described previously (Fig.18).

Fig. 17 - *Cotu Miculinţi - Border marker stone no.941* (7.2.). Details with Cretaceous layer.

Fig. 18 - *Cotu Miculinţi - Border marker stone no.941* (7.2.). Images of the Badenian conglomerates.

Note: downstream from this zone and up to pt.**7.5.** *Crasnaluca - Stanişte* the right slope of Prut Valley was overgrown with grass or wooded, here and there, a fact that did not allow the realization of geological observations. In this area one can find the outcrop described by I. Simonescu in the work of the year 1902 under the name of Picket 51 bis.

7.3. *Cotu Miculinţi - Border stone no. 942* (Fig.14)

From the area of the border stone no. 942 (48.1978^0N, 26.9141^0E), yet on the left side of Prut (on the territory of the Republic of Moldova), along a 400 m distance one can notice a geological outcrop (Fig.19), similar to the one above - *Cotu Miculinţi - Border stone no.941*.

On the right side of Prut one can notice recent alluvium, including numerous flint pebbles, of various dimensions and shapes, of various colors, from grayish-white, to brown-yellowish, light grey, black-grayish etc. (Fig.20).

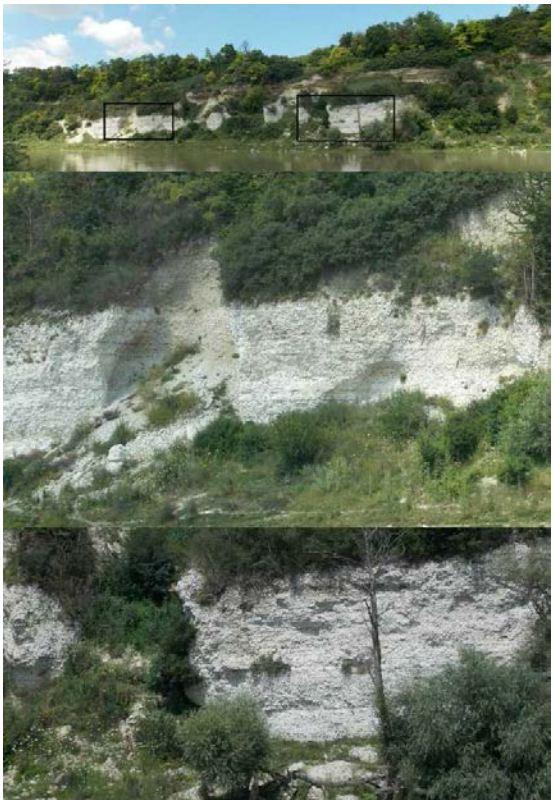


Fig. 19 - *Cotu Miculinţi - Border marker stone no.942* (7.3.) Details wit Cretaceous layer.

At the same time, eastwards from this area, up to Cotu Miculinţi Village two fluvial terrace levels are well delineated (Fig.20).

7.4. *Cotu Miculinţi - Balastieră* (Fig.14)

Also west of this locality, but around 400m from the northern end of the village (48.1925^{0}N, 26.9288^{0}E), there is a gravel and sand exploitation, situated around 25m over the level of Prut River.

Among the rock pebbles, mostly small and of Carpathian origin, flint pebbles have also been noticed (Fig.21).

7.5. *Crasnaluca - Stanişte* (Fig.22)

About 1.5 km south of Crasnaleuca Village and around 1km NW of the border stone 949, on the right side of the rivulet joining the Prut, about 100 m west of the junction point (48.1369^{0}N, 26.9520^{0}E), there are the archaeological sections realized during the period 1994 by V. Chirica and P.Haesarts (Fig.21). We shall mention that previous sections realized by M. Brudiu in the years 1974 and 1977 were impossible to identify out in the field.

Note. Between this point (**7.5.**) south of Crasnaleuca Village and up to the point that shall be mentioned next (**7.6.**), situated north of Mitoc Village, near the border stone no. 952, the high level of the water during the land research and the fact that the right bank of Prut was wooded and overgrown with grass, did not allow the identification of outcrops. **7.6.** *Mitoc - Border stone no. 952* (Fig.23)

North of Mitoc Village, from around 300 m upstream from border stone no. 952 up to around 900m downstream from it, the right bank of Prut is very abrupt, triggering sectioning and cropping of the geological layers (Fig.23-24). The stratigraphic series is as follows:

- at the upper part, loess deposits with numerous alluvium levels, of various thickness, varying from 5-10cm to over 50cm;
- under these loess deposits a level of *Lithothamnium* limestone and Badenian flint conglomerate was described, the latter being largely covered by recent alluvium brought by the Prut and deposited on the bank.
- at the basis of the profile, there is a chalky limestones/marls Cretaceous level with flint, almost completely covered by the scree from the basis of the slope and by recent alluvium, yet observable only in the southern area.

Fig. 20 - *Cotu Miculinţi - Border marker stone no.942* (7.3.). Two levels of terraces (up) and flint cobbles in beach alluvial area of the river.

Fig. 21 - *Cotu Miculinţi – Gravel Pit* (7.4.). Geological profile and details with flint pebbles.

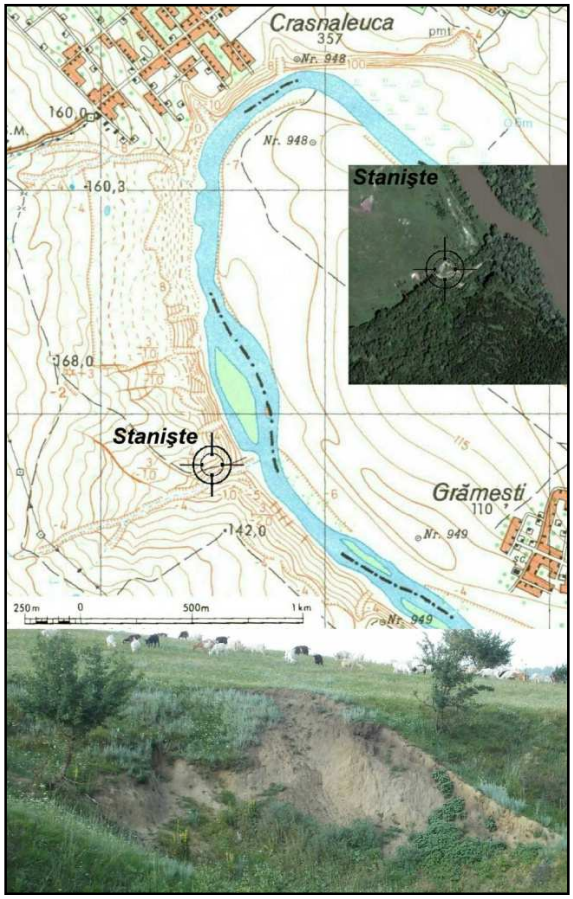


Fig. 22 - Extract from terrain map (scale of 1: 25,000) and satellite images for *Crasnaleuca - Stanişte* (7.5.), image with archaeological section.

In this area, several points were researched, from north to south, namely:

Point 1 (48.1248^{0}N, 27.0223^{0}E) (Fig.23-24). In this place one can note in the loess deposits numerous alluvium levels, from 5-10cm to over 50cm thick. In this point, between around 4.5 m and 7.5 m from the upper side of the slope, one can observe in profile most alluvium levels (sometimes even 7-8 such levels) (Fig.25). At about 10m from the northern end of the outcrop, around 1.10 m over the first layer of alluvium, black traces of coal have been noticed in profile, which apparently seemed to form a distinct level in the loess. At profile sloping, although several pieces of coal appeared in profile, their presence within a distinct stratigraphic level was no longer noticeable (Fig.25). At the basis of the slope, just a few meters downstream from this place, one could find a large flint conglomerate pebble, broken off from the Badenian layer, and recent alluvial deposits, with a lot of flint pebble, of various colors and shapes (Fig.25).

Point 2 (48.1232^{0}N, 27.0261^{0}E) (Fig.23-24). In this place, a sloping profile was realized, to better observe the loess structure and the alluvium layers (Fig.26). So, in the loess, darker layers have been noticed, actually representing palaeosoil levels (Fig.26). In the alluvium level, one could note rounded pebbles, of small dimensions, of Carpathian rocks, but also pebbles, more or less rolled, of flint of varied colors (Fig.26). A few scores of meters downstream from this point, at the slope bottom, in the recent alluvium covering the bank, a mammuth tooth was identified (Fig.26).

Point 3 (48.1246^{0}N, 27.0310^{0}E) (Fig.23-24). In this point, there is a larger outcrop, where at the upper side one can observe the *Lithothamnium* limestone level, under which there appears Badenian conglomerate with flint and, in the lower area, chalky limestones/marls. Regarding the Cretaceous layer, due to the shape of the slope, both the waters of the Prut and those from precipitations, removed the limestone matrix, freeing the flint nodules, of various dimensions, from a few centimeters to several scores of centimeters (Fig.27). In this point, the flint varies widely in color, from black-grayish to dark grey - as it has been described previously at pt. **7.2.** *Cotu Miculinţi - Border stone no.941* - and much whiter varieties, milky white, translucid, similar to the Badenian conglomerate described as well at pt. **7.2.** *Cotu Miculinţi - Border stone no.941*. On some pebbles, one can observe alternations of color from black-greyish and dark grey to light colors, milky white, and translucent (Fig.46-47). Concerning the flint dimension, in general it is up to 10-15cm long, however in this point we identified as well large flint, more than 50cm long.

7.7. *Mitoc - Cotul Mic* (Fig.23)

Point 1 (48.1265^{0}N, 27.0396^{0}E). In this place, but on the left side of Prut, on the territory of the Republic of Moldova, one can observe an outcrop around 200m long (Fig.28). At the bottom, one can find the chalky marl level, yet covered by alluvium, over which there appears a conglomerate level, apparently bedding, being covered by a tough rock - *lithothamnium limestones*, forming a veritable shelf. North of this point, one can observe erosion opening up the described deposits (Fig.28).

Point 2 (48.1297^{0}N, 27.0382^{0}E). In the same area,

yet on the right side of Prut, on the Romanian territory, upstream and downstream, a large fluvial beach appears (Fig.28 up), with alluvium, with a varied petrographic structure, partially overgrown with grass, however, here and there, including flint pebbles, of various shapes, dimensions and colors.

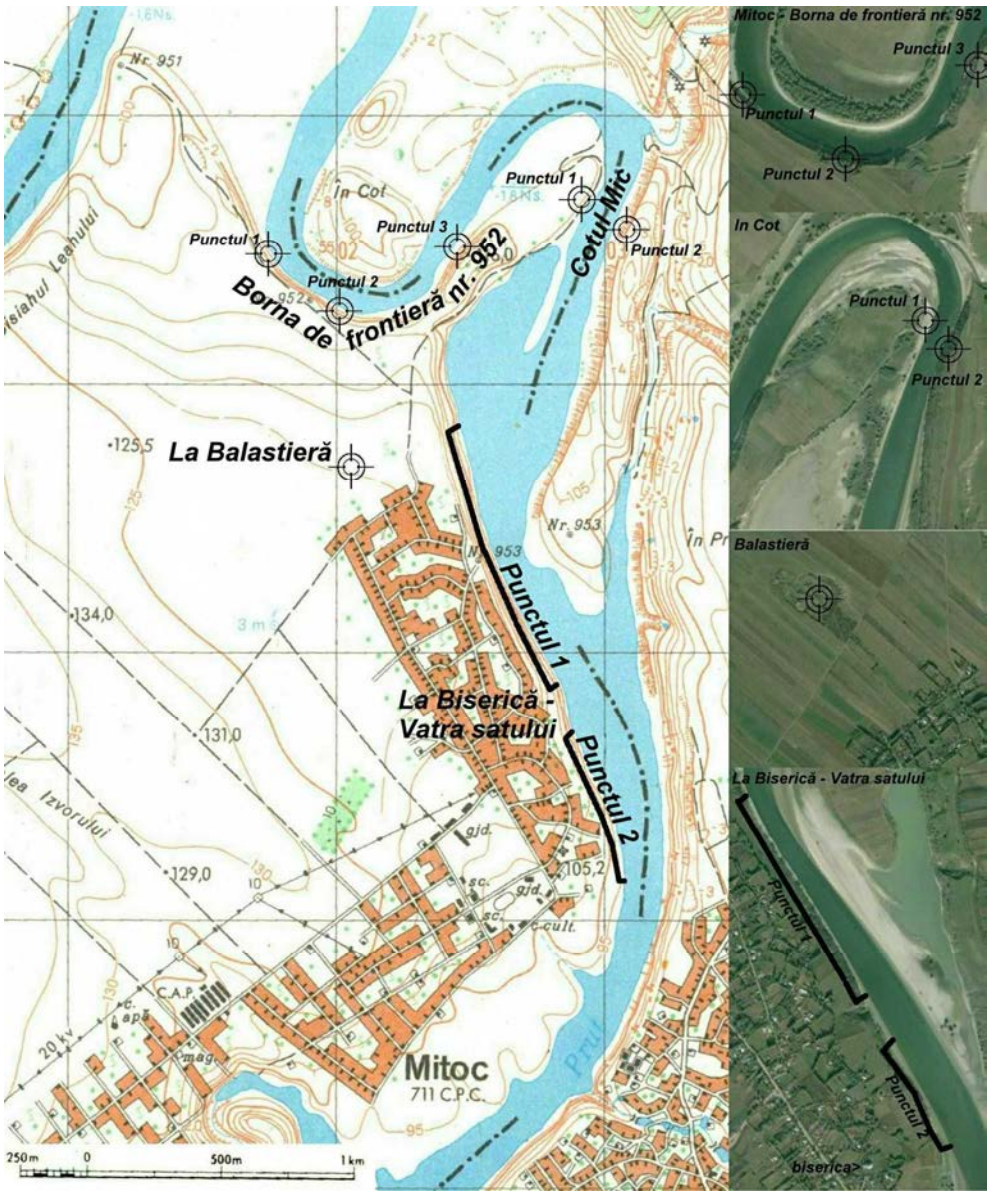


Fig. 23 - Extract from terrain map (scale of 1: 25,000) and satellite images for Mitoc area: *Mitoc - Border stone 952 (points 1-3)* (7.6.), *Cotul Mic (points 1-2)* (7.7.), *Gravel Pit* (7.9) and *At the Church – Within the Village Boundary (points 1-2)*(7.8.)

Fig. 24 - *Mitoc - Border stone 952* (7.6.). *Point 1* - up (view to north direction). *Point 2* - middle (view to south direction); *Point 3* - down (view to south direction).

In the area of Cotul Mic, I. Simionescu mentioned in 1897 "yellowish-white unstratified chalk marl", by whose destruction "rounded flints placed in parallel lines" become "free and get taken by the water", a fact narrated as well by the local people of the area, who mentioned that when the Prut is low, in its bed one can identify flint veins, which seem to have a eastern arrangement across the river.

Although we returned several times in this area, at different moments of the year, to be able to confirm the situations described above, the alluvium brought by the river and the water level did not permit these observations. The phenomenon noticed is, however, a very real one, because, as we have mentioned, in this area the outcrops are shaped by the erosion of the Cretaceous deposits (Fig.28 up), weathering the chalk marl and displacing up the small flint fragments, leaving in place the flint of larger dimensions, as we have noticed out in the field, as well, a few hundred meters upstream, in the place **7.6.** *Mitoc - Border stone no. 952 - Point 3*, where there are a lot of flint boulders, over 50cm long.

7.8. *Mitoc - La Biserică* (*At the Church*) - *Vatra satului* (*Village Precincts*) (Fig.24)

In the area of Mitoc Village, north of the village church, on the right side of Prut, which is abrupt, and on a total length of over 1.1 km, we were able to make a series of observations, namely:

Point 1 (Fig.24). Starting with the north, in the point with the coordinates (48.1097^{0}N,

27.00329^{0}E) and up to the point with the coordinates (48.1097^{0}N, 27.0372^{0}E) situated downstream, on a length of 700m, are opened by erosion the Badenian conglomerate levels with flint, overlapped by *Lithothamnium* limestone, however less easy to notice, because of scree (Fig.29), the situation being similar to that described previously at **7.7.** *Mitoc - Cotul Mic*, **Point 1**. At the basis of the stratigraphic profile, the Cretaceous level should be noticeable under the Badenian one, yet we have not been able to make observations at the basis of the slope because of the scree.

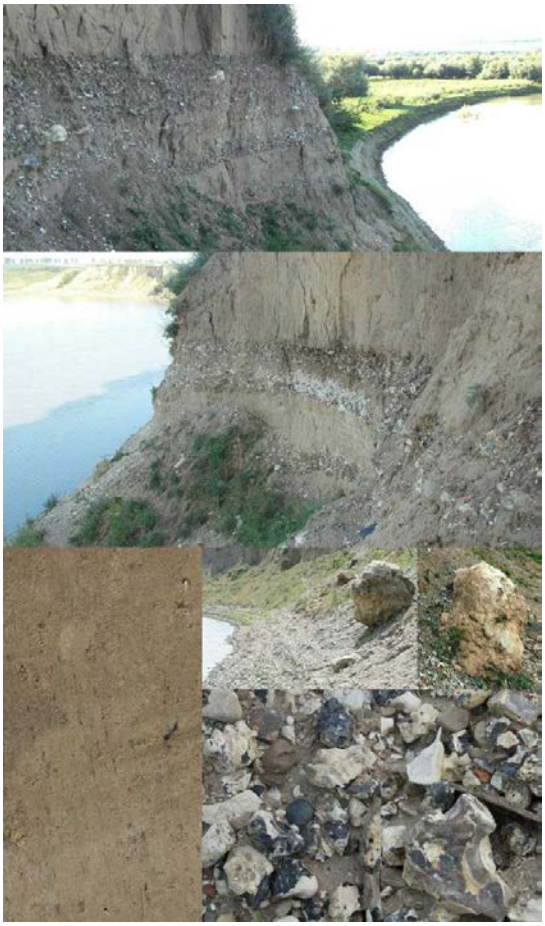


Fig. 25 - *Mitoc - Border marker stone 952 - Point 1* (7.6.). Top and middle: Details of alluvial levels - river deposits in terrace. Down: traces of coal in profile (bottom left), a boulder from Badenian conglomerate and pebble flint details.

The flints from the Badenian conglomerate are consolidated with a limestone bond, are varied in shape (slightly rounded, sometimes angular) and have various dimensions. Their color varies from whitish, grayish-white, dark grey, bluish-black and yellowish-brown (we exclude here the color varieties generated by secondary oxidations) etc., with a translucent general aspect (Fig.29). The flint cortex is generally thin, because of the erosion. In the calcareous bond of the conglomerate, no fossils have been determined, yet hard, arenaceous pebbles have been noticed.

Fig. 26 - *Mitoc - Border marker stone 952 - Point 2* (7.6.). Details with paleosols and sediments levels. Detail with mammoth tooth in situ.

Point 2 (Fig. 24, 30). Downstream of the previous Point, from which it is delimited by a small escarpment, around 300m long (between the points with the coordinates 48.1092^{0}N, 27.0374^{0}E and 48.1067^{0}N, 27.0392^{0}E), in the right bank of Prut one can observe outcrops with loess levels, over 4-5m thick (Fig.30). In these outcrops, small flint pieces have been noticed, here and there, and

levels of paleosoils, which makes us state that this area might yield results in the case of future research works, in the sense of the identification of Paleolithic settlements.

7.9. *Mitoc - La Balastieră* (Fig.24)

North of Mitoc Village, around 3-400m away from it, there is a poor-quality ballast quarry (48.1200^{0}N, 27.0288^{0}E), for the needs of the locality (Fig.31). In profile, we noticed small Carpathian hard-rock pebbles. Rarely, there appears flint pebble.

Fig. 27 - *Mitoc - Border stone 952 - Point 3* (7.6.). Details with Cretaceous layer.

7.10. *Mitoc - Pârâul Ghireni* (Fig.32)

On the left side of Ghireni rivulet (48.0960^{0}N, 27.0193^{0}E), around 3-400 m SSW of the archeological site Mitoc-Malu Galben, there is a small outcrop, 10-20 m long, where one can notice Badenian conglomerate with flint.

The flint of the conglomerates is connected with a limestone bond, varies in shape (sometimes slightly rounded, sometimes angular) and dimensions (Fig.33). Its color ranges from white, grayish-white, dark grey, to yellowish-brown etc., generally with a translucid aspect (Fig.48). Because of the erosion, the pebble flint preserved only small areas of calcareous mass, being generally thin (Fig.33, 48).

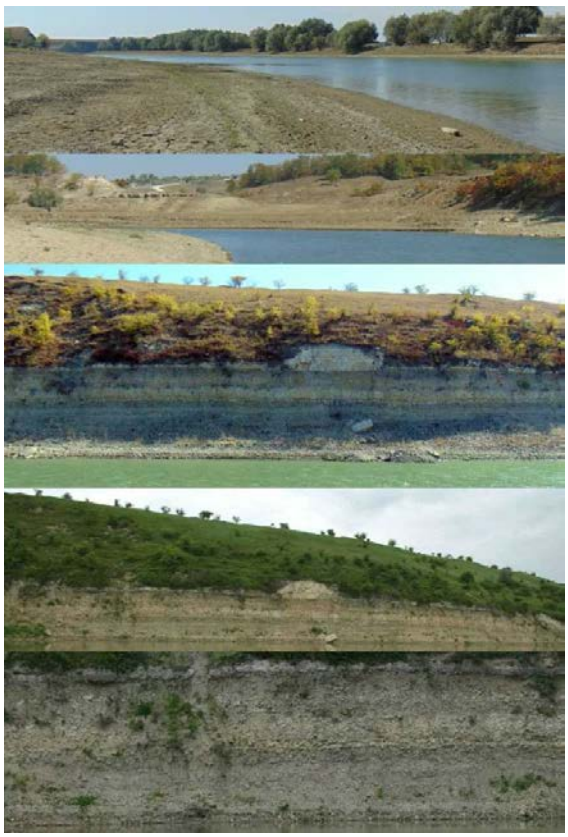


Fig. 28 - *Mitoc - Cotul Mic - Point 1* (7.7.). Details with Cretaceous and Badenian layers.

7.11. *Mitoc - Border stone no. 954* (Fig.34)

The outcrop is around 1km south of the archeological site Mitoc-Malu Galben, almost under the border stone no.954, where the erosion opened on the slope bottom the geological layers, starting from the Point with the coordinates(48.0890^{0}N, 27.0248^{0}E) up to the Point with the coordinates (48.0850^{0}N, 27.0348^{0}E), on a total length of 6-700m (Fig.35).

In the basis one can observe the Badenian conglomerate with flint, with flint pebble of various dimensions, shapes and culors, identical to that mentioned previously at **7.2.** *Cotu Miculinţi - Border stone no.941*; **7.6.** *Mitoc - Border stone no. 952*, **7.8.** *Mitoc - La Biserică - Vatra satului* (pt.1); **7.10.** *Mitoc - Pârâul Ghireni*. In this conglomerate

are caught as well lots of pebble coming from tougher, arenaceous rocks (Fig.36).

Fig. 29 - *Mitoc – At the Church – Within the Village Boundary - Point 1* (7.8.). Details with Badenian conglomerate.

At the upper side of the conglomerate there is a limestone layer where fossils of pectinids (*Chlamys sp.*) have been identified, caught in the calcareous mass, and also *lithothamnium* guide formations. This level, given its greater toughness, through erosion, has acquired in the natural outcrops on both sides of the Prut the shape of a shelf (Fig.35), constituting a landmark for the whole area in between Rădăuţi-Prut and Mitoc.

7.12. *Mitoc – Confluence between Pârâul lui Istrati* and *Prut River* (Fig. 34)

Upstream from the confluence between Pârâul lui Istrati and Prut, on the right side of Prut (48.0845^{0}N, 27.0327^{0}E), on a length of around 100m, one can observe loessoid deposits, with vertical outcrops, more than 5m high (Fig.37). The same type of deposits can be noticed downstream from the above-mentioned confluence (Fig.37).

Fig. 30 - *Mitoc – At the Church – Within the Village Boundary - Point 2* (7.8.). Outcrops of loess.

7.13. *Mitoc – Ballast quarry on the Valea Pârâului lui Istrati* (Fig. 34)

About 500m west of the confluence between Pârâul lui Istrati and Prut, in the riverbend, on its right side, one can note a former local ballast quarry - today become a dump for the local population -, also partially overgrown with grass (Fig.38). For this reason, the alluvium deposits exploited once are no longer visible.

Note: On the right side of Pârâul lui Istrati one can identify in the land, but also on the ortophoto maps and aerial photographs of the area, the old archeological sections made by V. Chirica - *Valea lui Istrati*, situated around 150 m off the right bank of the Prut (Fig.34, 38) (coordinates of the excavation center: 48.0840^{0}N, 27.0307^{0}E= 651408E, 733645N Stero-70). Around 200m west of this point, on the same side of the valley, one can observe another outcrop, in whose profile there appear, here and there, flint fragments (Fig.38).

Fig. 31 - *Mitoc – At the Gravel pit* (7.9.). Details.

Fig. 32 - Extract from terrain map (scale of 1: 25,000) and satellite images for *Mitoc –Ghireni Brook* (7.10.). Note: In image we can notice

Fig. 33 - *Mitoc –Ghireni Brook* (7.10.). Details with Badenian conglomerate.

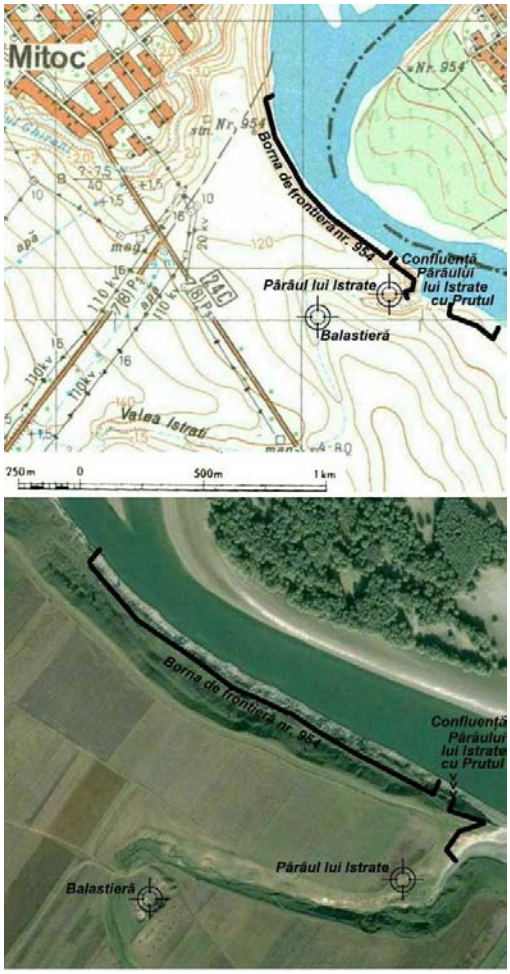


Fig. 34 - Extract from terrain map (scale of 1: 25,000) and satellite images for *Mitoc –Border stone 954* (7.11.), *Confluence of Pârâul lui Istrati with the Prut* (7.12.), *The Gravel Pit on Valea Pârâului lui Istrati* (7.13.), and archaeological site *Pârâul lui Istrati*.

Fig. 35 - *Mitoc –Border marker stone 954* (7.11.) Details with Badenian conglomerate

Fig. 36 - *Mitoc –Border stone 954* (7.11.) Details with Badenian conglomerate.

Fig. 37 - *Mitoc – Confluence of Pârâul lui Istrati with the Prut* (7.12.)

Fig. 38 - *Mitoc – Valea Pârâului lui Istrati*. Up - archaeological layer in *Valea lui Istrati*. Middle - outcrops with small fragments of flint. Down – *The Gravel pit on Valea Pârâului lui Istrati* (7.13.).

*****

Considerations on the Prut Valley flint occurence

Throughout history, as previously mentioned, the notion of deposit underwent major transformations. Thus, certain outcrops, which were vital sources of raw material for prehistoric communities, no longer pose a significant importance to modern geology, in which talks focus on large reserves and economic efficiency. Because of this, at best, these outcrops were either merely signaled either only briefly analyzed.

In this context, we have previously dedicated ampler space in geological literature to the matter of flint occurrence in the north-eastern region of Moldova and in the Nistru-Prut interfluve area in order to underline, as shown below, the fact that, even if proper attention was paid to the geological description of the region, to establishing the stratigraphy and its evolution stages, the conveyed specialty geological information could not provide a complete base in order to define those aspects which are important to archaeological research, especially where flint is concerned, a raw material of special importance to the prehistorical age.

For the north-eastern area of Moldova, as for flint, the information from geological literature can be grouped as follows:

- ***Informations and observations on flint occurence***:

1. The layers in which flint deposits have initially formed are those dating from the Cretaceous-Cenomanian age;

2. As result of the badenian marine transgression, the initial flint deposits were weathered and redeposed in new layers and, within

this chronostratigraphic unit, flint appears in three distinct formations:

- flint from sand and sand with flint nodules;
- in conglomerates with flint;
- at the bottom of *lithothamnium* limestones or in this limestone formation (rarely);

3. The Pliocene-Quaternary alluvium from the bottom of teraces contain flint pebble resulted from the erosion of Cretaceous and Badenian deposits.

4. Recent alluvium on fluviatile beaches or from the lower floodable part of the slope valley, contain flint pebble resulted from the erosion of the Cretaceous, Badenian and Pleistocene-Quaternary deposits, located upstream in the Prut's river hydrographic basin.

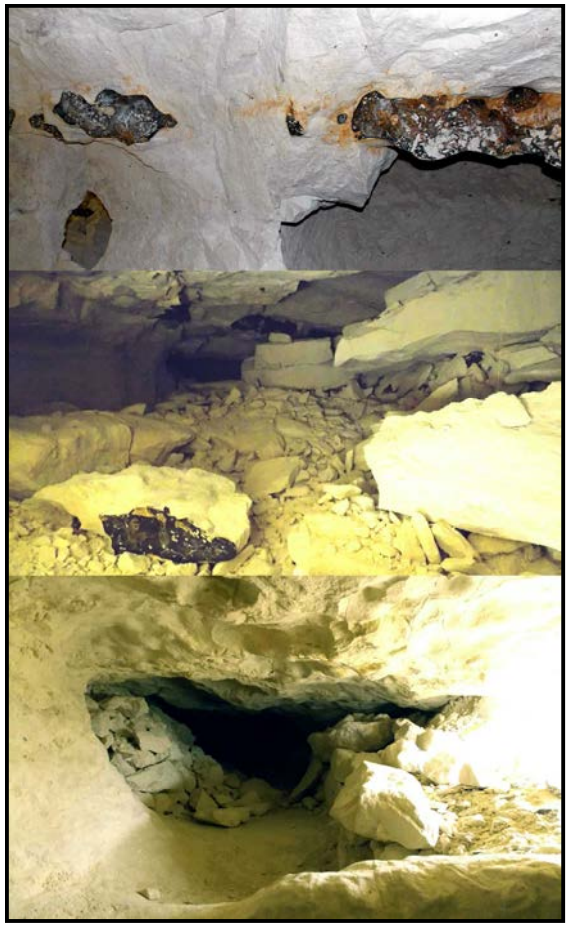


Fig. 39 - Spiennes, Belgium - A Neolithic mine with a geological level with silex.

- ***Information about the characteristics of flint*** (microscopic and macroscopic). Geological literature has very few information about this aspect. A couple of brief information pieces on the mineral composition of flint and the identification of some fossils. There are not data and informations regarding the color and color varieties of flint.

- ***Informations about the genesis of flint deposits*** which includes some details regarding the general conditions and aspects related to the forming of the initial cretaceous outcrops, and regarding the restoring of sedimentary conditions to explain the lithofacies variations of Badenian formations.

During the field research performed on the Prut river Valley, between Rădăuţi-Prut and Mitoc, our attention was drawn by the high flint morphological variations, both in the Cretaceous and especially in the Badenian deposits, an aspect which was never mentioned in the geological literature we have read. The morphological differences are obvious and macroscopically easy to observe. Thus:

- in the Badenian sands with flint nodules which appear in the sector between Rădăuţi-Prut and Miorcani we encounter flint of a relatively uniform morphological structure and colour, generally grey-black to light grey, as well as some variations, similar to the one in the cretaceous deposits opened by erosion in the Prut river's bank, at the sector between Rădăuţi-Prut and Mitoc, such as the one we identified and described at **7.2.** *Cotu Miculinţi – Border stone no.941* şi la **7.6.** *Mitoc - Border stone no. 952* , *Punctul 3.*

- in conglomerates with flint, this has a different morphological aspect, being characterized by a wide range of colours (variations from white to grey), with translucent varieties, sometimes opaque, such as the one we identified and described at **7.2.** *Cotu Miculinţi – Border stone no. 941*; **7.6.** *Mitoc - Border stone no. 952*, **7.8.** *Mitoc - La Biserică - Vatra satului* (pct.1); **7.10.** *Mitoc - Pârâul Ghireni*, **7.11.** *Mitoc - Border stone no. 954.*

The explanation behind the existence of these different morphological aspects of flint, as it also results from the previous presentation of the published geological studies, is related to the initial existing environment and to its variations, which are: pH, temperature, pressure etc.

Paradoxically, yet, the hypothesis according to which flint from Badenian layers, especially from sand and conglomerates, comes from

cretaceous deposits erosion is supported by logical and rational arguments, related to physical traits of flint, which is sometimes slightly rounded and of large sizes, which shows that it came from the proximity of the sediment.

Fig. 40 - Naslavcea area with flint occurrences. Up: the geological level with cretaceous limestone.

But this logical and rational argument can support neither the initial stratigraphy, nor the age of deposits in which the flint was found, therefore its geological age. On the contrary it raises this question, of the initial stratigraphy of deposits from which the flint deposition of Badenian layers comes, because, as shown in the previous presentation, the geological literature has no studies that analyze, date and indicate, at least with paleontological arguments, the age of the geological deposits from which this type of flint comes.

The morphology of flint from badenian conglomerate, sometimes of large size and slightly rounded (see the previous description at **7.2.** *Cotu Miculinţi – Border stone no.941*, **7.6.** *Mitoc - Border stone no. 952*, **7.8.** *Mitoc - La Biserică - Vatra satului*, **7.10**. *Mitoc - Pârâul Ghireni*, **7.11.** *Mitoc - Border stone no. 954*), as opposed to the shape and much smaller size of flint nodules from Badenian sands (as underlined at **7.1** *Rădăuţi-Prut şi Miorcani*), which show intensive rolling, including of the sand derived from the initial flint decay, suggest a different geological reality.

Fig. 41 - Naslavcea area with flint occurrences.

Can it be that in the initial geological deposits there were several flint layers, maybe also of different geological ages, with different features (colour, translucence, opaqueness etc.) generated by variations in the deposit environment? And that these deposits are completely different from what it is known today in the Cenomanian layer, such as the one described at **7.2.** *Cotu Miculinţi - Border stone no. 941*?

But, at the same time, we cannot exclude the existence of a flint layer, the one we see today in outcrops and is attributed to Cenomanian, but which has large morphological variations,

generated by diverse conditions in the initial formation environment. And arguments supporting this hypothesis would be those described at **7.6.** *Mitoc – Border stone no. 952- Point 3*, as well as the situation encountered in the area of Naslavcea village (Fig.40-41).

But regardless of which scenario was the real one, or maybe the actual facts were much more complex, by combining the scenarios previously stated, by taking into account the size of the studied area, we can clearly see the need for detailed geological research.

In addition to this initial geological situation, events that took place in Badenian, by erosion and depostion of cretaceous deposits, occurred a splintering and mixture of flint morphological varieties, on smaller or larger areas. And the Pleistocene-Quaternary and recent erosion have only to accentuate mixture of flint morfological varieties in the region.

We must specify that the flint pebble of Prut river recent alluvium not only come from wheathered deposits, where are the geological outcrops investigated by us, but are brought from all its drainage area, that extends far upstream, north and east in Ukraine. And the direct effect of these natural factors is that in the Holocene alluvium of Prut River there are many morphological varieties of flint, different in terms of physical and mechanical properties and color.

In fact, these extremely important issues for archaeological research are not mentioned in geological literature about the flint in our area of interest- north-eastern Romania, Prut Valley.

The geology of the area, previously presented and detailed, along with the geological situation of the Ukrainian Prut river basin, comes only to emphasize that the assumptions and theories circulated in archaeological literature on the Prut valley flint occurrence remain mostly without a real scientific support.

Fig. 42 - Flint from neolithic mine of Spiennes-Belgia.

Fig. 43 - Flint from Naslavcea area – Râpa lui Carpov

To this, we add the fact that in order to produce the necessary tools, prehistoric communities were selected from raw material only those rocks that had certain characteristics and physico-mechanical properties that allow the process to obtain adequate tools for use.

These are in fact the reasons why we have not proposed in this study the presentation of Prut Valley flint occurrence in the archaeological literature, even in a short or long *literature review*, although there are some good scientific studies , addressing in a corect manner the flint sources (M. Cârciumaru *et al.*, 2007).

Regarding the existence of flint morphological varieties on Prut valley, we have presented some data in a previous paper, but without detailing the causes that led to this (M. C. Văleanu, 2003). Now, the research that we carried out led to a description and clarification of the geological context of which the flint is found, especially in outcrops on the right side of the Prut valley, between Rădăuţi-Prut and Mitoc.

Another important aspect described in detail, and it must be stressed, is that on Prut Valley we are dealing with flint occurrences both in primary (cenomanian (cretaceous) layer) and secondary geological deposits (badenian, pleistocen-cuaternr and recent layers). In the latter geological formations, the flint varies greatly in term of color and other features, aspects that were easily observed by macroscopic observations. But these observations should be supplemented by detailed analysis to define and quantify the physical and mechanical characteristics and properties of flint varieties that appear in this area.

*****

Therefore at the end, it useful to make some summary regarding the flint occurrence on Prut valley, as follows:

1. The cretaceous (cenomanian) layers represent the primary geological deposits in which the flint was formed, and in geological literature structure and stratigraphy of these deposits are not fully clarified. As I observed on the field and I described at **7.2.** *Cotu Miculinţi – Bordes stone no. 941*, siliceous accidents occur in the amorphous chalk mass (almost undifferentiated stratigraphic), which generally have a dark color, but which varies from gray - black to a pale gray, similar to the samples illustrated in Fig.49. Also in this level, at **7.6.** *Mitoc - Bordes stone no. 952- Point 3*, the flint presents a wide variation of colors , from gray - black and dark gray, to the much lighter variety, milky white, translucent, sometimes opaque, and on some pebbles it can be observed alterations in color between gray and black and dark gray and light colors milky white, etc. (Fig.46-47).

2. Following marine transgression, the cretaceous primary accretions were eroded and redeposited in badenian layers, and here flint occurs in three separate formations:

2.1. Sand from flint and sand with flint nodules, observed on the field and described at **7.1.** *Rădăuţi-Prut şi Miorcani – Quarry and sand mine - Point 3*, where mostly occurs a flint similar to the one described in cretaceous layers at point **7.2.** *Cotu Miculinţi - Bordes stone no. 941*. The flint nodules shape denotes an intense rolling, phenomenon that transformed into sand the entire mass of siliceous accident, remaining the hard area, rich in silica. In fracture, the flint nodules have, most often, a color ranging from gray - black and light gray, and other varieties of color, sometimes with various colored concentric areas, etc. (Fig.45).

2.2. In the form of conglomerates, observed on the field and described at **7.2.** *Cotu Miculinţi - Bordes stone no. 941*; **7.6.** *Mitoc - Bordes stone no. 952*, **7.8.** *Mitoc - La Biserică - Vatra satului* (pct.1); **7.10.** *Mitoc - Pârâul Ghireni*, **7.11.** *Mitoc - Bordes stone no. 954*, which are characterized by a wide variety in terms of color (from gray to white), but sometimes translucent and opaque varieties (Fig.48).

2.3. Geological literature mentions the presence of flint at the bottom of *lithothamnium* limestones or, in rare cases, in this limestone formation (however, this situation has not been seen in field research of the area).

3. Pleistocene-Quaternary alluvium of the terrace bottom contain flint pebble due to erosion of cretaceous and badenian deposits

4. recent alluvium on the fluviatile beaches or on the lower, floodable, splopes, contain flint pebble due to erosion of cretaceous, badenian ant Pleistocene-Quaternary deposits, but they were brought from whole upstream basin. In these deposits, there are various forms of flint, both in terms of color and physical characteristics, etc.

Fig. 44 - Flint from Naslavcea area – La 3 Vaduri.

Fig. 45 - Flint from *Rădăuţi-Prut and Miorcani – Quarry and sand mine - Point 3*(7.1.).

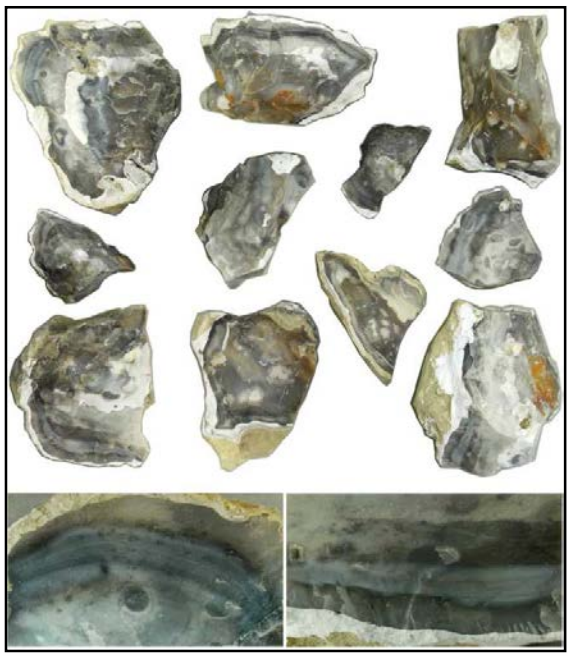


Fig. 46 - Flint from *Mitoc – Border marker stone 952 - Point 3* (7.6.).

Fig. 47 - Flint from *Mitoc – Border stone 952 - Point 3* (7.6.).

Fig. 48 - Flint from *Mitoc - Ghireni Brook* (7.10.).

Fig. 49 - Flint varieties of black colour from alluvial deposits from Prut Valley.

Fig. 50 - Flint varieties identified in the researched area. Up: Flint of dark colour, ranging from black grayish to light grayish, identified *in situ* in outcrops with Cretaceous levels open by the erosion in the Prut Valley at *Cotu Miculinţi-Border Stone 941*(7.2) and in the sand layer with flint nodules at *Rădăuţi-Prut and Mirocani – Quarry and sand mine - Point 3* (7.1.); Down: Flint of white colour, which ranging from white to light grey, translucent, identified *in situ* in Badenian conglomerate open by the erosion in the Prut Valley at *Cotu Miculinţi – Border Stone no.941* (7.2.), *Mitoc – Border Stone no. 952* (7.6.), *Mitoc – At the Church – Within the Village Boundary - Point 1* (7.8.); *Mitoc -Ghireni Brook* (7.10.) and *Mitoc – Border Stone no. 954* (7.11).

*****

We are aware that prehistoric man had much more patience than us in examining in particular the alluvium, for procuring quality raw material to produce tools, identifying here other morphological flint varieties, which archaeologists have seemed foreign, and this materials have been brought from other regions or geographical areas.

This first step had to be mandatorily continued through the inventory of other flint deposits occurrences in the region, especially in The Republic of Moldavia, but also in the territory of Ukraine, through the identification, analysis and detailed description of the geological and stratigraphical context, and of the flint morphological varieties which appear, in order to be able to have arguments and solid scientifically correct endorsements which regard the method of use and exploitation of this important resource by the prehistorical human communities which occupied this geographical spreading area.

Notes

[1] Communication presented at the *International Scientific Conference: Probleme actuale ale arheologiei, etnologiei şi studiului artelor* (Topical Issues in Archeology, Ethnology and the Study of Arts), 7th edition, Chişinău, Republic of Moldova, May 26-28, 2015, an abstract of it being published in the tome of this event ISBN 978-9975-3085-8-4, p.47. The variant in Romanian can be found in *Cercetari istorice* (Historical Researches), 2015, vol. XXXIV, p. 37-106.

[2] In some quotation are used many archaic words and expressions, some of them being untranslatable, therefore the translation was focused only on the phrase or sentence meaning. Original fragments are given in brackets.

[3] To locate these outcrops - see *infra*, the note at pt. **7.1.** *Rădăuţi-Prut and Miorcani – The Quarry and the sand mine*.

[4]An observation similar to that related to us by the local people of the area - see *infra* pct. **7.7.** *Mitoc - Cotul Mic*, pct.2.

[5] The location of the outcrop is south of Rădăuţi-Prut: see *infra* the note at pt. **7.1.** *Rădăuţi-Prut and Miorcani – The Quarry and the sand mine*.

[6] Concerning the location of these outcrops - see the previous note.

[7] Concerning the location of these outcrops - see note 5. On the outcrop of Pichetul 51 bis - see *infra* the mentions of E. Nicorici and Bica Ionesi in their 1978 study or those in the note on pt. **7.2.** *Cotu Miculinţi – Border stone no. 941*.

[8] Some of the research works in the field carried out in 2013 were attended by V. Chirica, but also by other members of the group that undertook the archeological excavations that year at the site Mitoc-Malu Galben. Due to the diverging opinions on this topic, later on the scientific collaboration was interrupted, each publishing independantly his own observations. And this manner of publishing is the most correct, in our opinion, because only in this way can one make a comparative analysis of what has been published. See V. Chirica *et al.*, 2014.

[9] We would like to thank here the leadership of the National Museum Complex of Moldova Iaşi and of the Royal Belgian Institute of Natural Sciences of Brussels for their support, and also our colleagues Dr. Ivan Jadin, Dr. Paul Haesaerts and Dr. Senica Ţurcanu.

Bibliography

Albu N. C., Gheorghiu C., Popescu I., 1960, *Depozitele sedimentare de la Rădăuţi-Prut (Sedimentary Deposits from Rădăuţi-Prut)*, Comunicări de Geologie-Geografie (1957-1959), Ed. Ştiinţifică, Bucureşti, p.9-23.

Bâgu Gh., 1965, *Variaţii litofaciale ale formaţiunilor tortoniene din nordul Moldovei, în comparaţie cu cele din vestul U.R.S.S. şi a R.P. Polonă* (*Lithofacial variations of Tortonian formations in northern Moldova, compared to those of western USSR and P.R.Poland*), Comunicări de Geologie, vol. III, Bucureşti, p.219-227.

Bâgu Gh., Mocanu A., 1984, ***Geologia Moldovei. Stratigrafie şi consideraţii economice*** *(The Geology of Moldova. Stratigraphy and Economic Considerations)*, Bucureşti, Ed. Tehnică, 296 p.

Ciobotaru V., ***Studiu geologic şi geochimic al formaţiunilor geologice din zona nord-estică a Republicii Moldova*** (*Geological and Geochemical Study of the Geological Formations in the North-East of the Republic of Moldova*), University of Iaşi, PhD thesis.

Cârciumaru M., Niţu E. C., Frânculeasa M., 2007, *Consideraţii preliminare asupra celor mai importante surse de materie primă litică*

întrebuinţată in preistorie pentru realizarea utilajelor, Arheologia Moldovei, XXX, p.7-40

Chirica V., Chirica C. V., Bodi G., 2014, ***La Vallée du Prut Moyen entre Miorcani et Ripiceni. Stratigraphie géologique et habitats paléolithiques***, Iaşi, BAI XXV.

Filipescu M., 1938, *Etude micrographique des roches siliceuses du Cretace du la Valle du Nistru*, Buletinul Laboratorului de Mineralogie al Universităţii din Bucureşti, vol I, 1934, I-ere partie, travaux originaux.

Ionesi L., 1994, *Geologia unităţilor de platformă și a orogenului nord-dobrogean* (*Geology of the Platform Units and of the North-Dobroudjan Orogen*), București, Ed. Tehnică, 280 p.

Macovei Gh., Atanasiu I., 1929, *Geologische Beobachtunngen uber das Miozan zwischen dem Siret und dem Nistru in der Bukowina und in nordlichen Bessarabia*, Anuarul Institutului Geologic Român, vol. XIV, Bucureşti.

Moroşan N. N., 1929, *Noi contribuţii preistorice asupra Basarabiei de Nord* (*New Prehistorical contributions about Northern Bessarabia*), Memoriile Secţiunii Ştiinţifice, Academia Română, seria III, tomul VI, mem.1, Cultura Naţională, Bucureşti, p.1-17.

Moroşan N.N., 1938, *Le Pléistocène et le Paléolithique de la Roumanie du Nord-Est. Les dépôts géologiques, leur faune, flore et produits d'industrie*, Anuarul Institutului Geologic al României, XIX, Bucureşti.

Nicorici E., Ionesi B., 1978, *Studiul pectinidelor badeniene din nord-estul Platformei Moldoveneşti (Study on the Badenian pectinoides north-east of the Moldavian Platform)*, Studii şi cercetări de Geologie, Geofizică, Geografie - Geologie, tome 23, vol.1, p. 119-132.

Simionescu I., 1897, *Crida superioară şi calcarul cu lithothamnium pe malul Prutului (jud.Dorohoi)*, Arhiva Societăţii Ştiinţifice şi Literare, nr. 1-2.

Simionescu I., 1902, *Constituţiunea geologică a ţărmului Prutului din nordul Moldovei*, Publicaţiunile Fondului Vasile Adamachi, nr. VII, meeting of 21 December 1901, Academia Română, p. 27-53 (in excerpt).

Ştefănescu Gr., 1888, *Relaţiune sumară asupra lucrărilor Biuroului Geologicu in campania anului 1885*, Anuarul Biuroului Geologicu, anul III - 1885, nr. 1.

Văleanu M. C., 2003, ***Omul şi mediul natural în neo-eneoliticul din Moldova*** *(Man and the Natural Environment in the Neo-Eneolithic of Moldova)*, Ed. Helios, Iaşi.

Văscăuţanu J., 1923, *Asupra Cretaceului Superior din Nordul Basara (Regarding the Upper Cretaceous from the north of Basarabia)*, Memoriile Secţiunii Ştiinţifice, seria III, tomul I, mem.13, Cultura Naţională, Academia Română, Bucureşti, p.287-299.

Ministère de l'Education Nationale
L'Université Valahia Târgovişte
Faculté de Sciences Humaines

ANNALES

D'UNIVERSITÉ VALAHIA TARGOVISTE

SECTION d'Archéologie et d'Histoire

TOME XVII
Numéro 1
2015

Valahia University Press
Târgovişte

Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire publie des mémoires originaux, des nouvelles et des comptes-rendus dans le domaine de l'archéologie préhistorique, de l'histoire du moyen âge, de l'environnement de l'homme fossile, de l'archéologie interdisciplinaire et de patrimoine culturel.

Revue indexée B+ par CNCSIS et B par CNCS - Roumanie

Indexée dans:

AWOL, FRANTIQ, LAMPEA, SCRIBD, DAPHNE

Tout ce qui concerne la Rédaction des *Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire* doit être envoyé à:mcarciumaru@yahoo.com, www.annalesfsu.ro

ISSN: 1584-1855; ISSN (online): 2285–3669

Ministère de l'Education Nationale
L'Université Valahia Târgovişte
Faculté de Sciences Humaines

ANNALES

D'UNIVERSITÉ VALAHIA TARGOVISTE

SECTION d'Archéologie et d'Histoire

TOME XVII
Numéro 1
2015

Valahia University Press
Târgovişte

Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire publie des mémoires originaux, des nouvelles et des comptes-rendus dans le domaine de l'archéologie préhistorique, de l'histoire du moyen âge, de l'environnement de l'homme fossile, de l'archéologie interdisciplinaire et de patrimoine culturel.

Revue indexée B+ par CNCSIS et B par CNCS - Roumanie

Indexée dans:

AWOL, FRANTIQ, LAMPEA, SCRIBD, DAPHNE

Tout ce qui concerne la Rédaction des *Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire* doit être envoyé à:mcarciumaru@yahoo.com, www.annalesfsu.ro

ISSN: 1584-1855; ISSN (online): 2285–3669

Sommaire

ARTICLES ET ÉTUDES

NOTES ET DISCUSSIONS

Annales d'Université Valahia Targoviste,
Section d'Archeologie et d'Histoire,
Tome XVII, Numéro 1, 2015, p. 51-56
ISSN: 1584-1855;
ISSN (online): 2285–3669

Germania Romana: the political evolution on the periphery of the expanding Roman world

*Maxim Domsky**

*National Research University Higher School of Economics (Perm, Russia). Group for Historical Research. Russia, 614070, Perm, Studencheskaja – 38; email: heliand@yandex.ru

Abstract: *Germania Romana: the political evolution on the periphery of the expanding Roman world*. The paper examines how the Roman Empire shaped political life in *Germania* in the first century A.D. It focuses primarily on the time span between Rome's subjugation of Germanic tribes on the both sides of the Rhine and the creation of provinces *Germania Inferior* and *Germania Superior*. Most attention is put on the likeliest scenarios leading to the growth of Roman or Roman-style institutions in *Germania*. Therefore, a creation of provincial administration, magistracies and military prefecture in the region are considered. An analysis of literary, epigraphic and archaeological sources shows that the process of political change in *Germania* implied neither uniformity nor synchronism and the ways to transform political life on the barbarian periphery were numerous. They varied from a complete assimilation of Germanic communities to no more than superficial political subjugation of neighboring client states.

Key words: Germania, Germania Inferior, provincialization, Waldgirmes, Oppidum Batavorum, municipalisation.

Rome's encounter with tribes living in the region, which later became widely known as *Germania* took place over the course of the Gallic War. It is unfortunate that with the end of the war there follows a period when written sources dealing with the northern peripheries of the Empire are sorrowfully scarce (E. Wightman, 1985, p. 44). We know little about what was going on there in a long interval between Caesar and Tacitus. One of the things written sources are silent about is how the contact with the Romans influenced political life in *Germania Romana*. Not only do we know nothing about political change on the right bank of the Rhine, but we know just as little about exactly when and how *Germania Inferior* and *Germania Superior* were established as provinces on its left bank. The lack of solid historical evidence leads to a heated debate over how, when and even whether Rome achieved political control over *Germania*.

For this reason, modern scholars find themselves in a difficult situation when writing about how Roman political system was reinforced in *Germania* in the first century AD. They write in a careful manner about starting the formation of a Roman province between the Rhine and the Elbe. Yet they can't affirm that the process resulted in the creation of a province and they can't say exactly how the province was named. Some of them even assume that not a single new province but several new provinces were planned to be organized in *Germania* (A. Becker, 2003, p. 349; S. Schnurbein, 2004, p. 30).

The starting point for integrating the region into the Roman Empire was Augustus' inspection trip to Gaul in 16 B.C. (P. Wells, 1999, p. 89). He spent there three years, overseeing the reorganization of the defenses of eastern Gaul. His stay in Gaul resulted in administrative reforms that

have transformed the political landscape of Gaul for generations to come. Thus Under Augustus Gallia Comata was divided into three provinces (Gallia Belgica, Gallia Lugdunensis and Gallia Aquitania), known collectively as the Three Gauls, (*Tres Galliae*) (M. Goodman, 2012, p. 233).

As was mentioned above, the situation on the Gaul's northern border is poorly documented and all that we know for sure is that under Domitian this area became the provinces of *Germania Inferior* and *Germania Superior*. Some men believe that these areas became a part of Gallia Belgica under Augustus. Others may think that the Augustan reform was not aimed at the extension of administrative control over the Germanic tribes. Rather, the goal was to assert and maintain military control over vulnerable northern periphery of the Roman world (J. Slofstra, 2002, p. 27). If so, such a policy could have resulted in the creation of a buffer zone on the extreme north of Gaul, not a province (C. Rüger, 1996, p. 526).

In 12 B.C. soon after Augustus returned safely from Gaul, Drusus launched his first major offensive against Germanic tribes on the right side of the Rhine. He led these campaigns until his death in 9 BC and thus he had added to the Roman empire the German lands east of the Rhine bordered by the Elbe River. Romans controlled this region until the disaster suffered by Varus in 9 A.D. But contemporary authors say little or nothing about who administered it, and how it was administered. This is why so much ink has been spilled over the status of Germania within the empire.

Some historians went so far as to suggest that Germania was indeed a *provincia* (A. Birley, 2006, p. 559). This view of the Roman-native interactions in Germania of this period is based primarily on the textual accounts left by classical writers. For example, Cassius Dio shortly reported that during the reign of Augustus “cities were being founded” in Germania (Cassius Dio 56.18) and Tacitus mentioned a “new colonies” established there (Tac. Ann. 1.59).

Other historians, however, suggest that such classical accounts tell us little about the situation on the ground and details about these “cities” and “new colonies” are still not clear. They argue that the region inhabited by Germanic tribes has occurred far beyond the limits of direct Roman rule.

First of all, it is necessary to clarify what did ancient authors mean by the word “province”. The views of C.R. Whittaker that he put forth in the book The Rome and Its Frontiers seem to be relevant here. Whittecker finds – and it seems to be a very interesting and curious detail – that this term sometimes had nothing to do with what he calls “the administered provinces”. He analyses a cosmological view which has come down to us in the various Roman cosmographic writings now collected in the *Geographi Latini Minores*. There he finds three bands of space: “the administered territories, the unadministered territories under Roman rule and the outer periphery”. Some of these writings, he says, established that between the core of the Roman world and the “outer tribes” (*gentes externae*, stretching to the north as far as the ocean) lay the so called “inner tribes”. What is most interesting about them is that they lay still within the “provinces” (*provinciae*).

Whittacker writes among other things about how the Romans visualized this region in human form. They often envisioned Germania as female whose appearance evolved over the course of the first century AD. She started out as a woman whose hands were tied behind her back and her breasts were bare. That's how she is carved in relief on a stone found in Lydia. This same relief also shows an armed horseman riding at the woman. The inscription below names him as Caesar Germanicus (C. Whittaker, 2004, p. 117).

The Roman imperial coinage may very well illustrate the Roman perception of Germania. There one can find the same image of a female captive accompanied by the legends *Germania subacta* or *Germania capta*. That’s exactly how she is shown on the coins of Domitian. Then similar pictures of Germania were found under Trajan. But in his reign “Capta” coin series ended (K. Christ, 1996, p. 99). The half-naked woman became *Germania pacata et pacifera* (J. Bennett, 1997, p. 74). And finally under Hadrian we can see the fully dressed woman, whose one breast is exposed. These changes in the iconography of Germania indicate the gradual changes in her status within the empire. The last picture shows “Germania taking her full share of imperial responsibilities” (C. Whittaker, 2004, p. 121). But

a woman whose hands are bound behind her back doesn't look like the personification of a full Roman province.

Modern German historians pay a great deal of attention to the study of Germania Romana. Notable among them is Reinchard Wolters, who believes that during Drusus campaigns Rome imposed its hegemony over Germanic tribes. This hegemony had resulted in various kinds of Roman government. It may imply at least partial control over the political order and the administration of justice. Probably Rome even planned to turn this region into a Roman province.

After the Varian disaster Rome lost the political will to restore its hegemony over the lands east of the Rhine. According to Tacitus, an arch was consecrated "…to commemorate the recovery of the standards lost with Varus" and Germanicus Caesar celebrated his triumph over the tribes "which extend as far as the Elbe". But Germanicus had been forbidden to finish the war, which "was taken as finished" (Annales, 2.41). Thus in 16/17 AD Tiberius abandoned any further attempts to conquer Germania.

The project of Roman province east of the Rhine (if such a project had ever existed) was closed and the Rhine became a permanent northern frontier again. On its Roman bank all down the river some 100 000 soldiers were stationed (P. Petit, 1976, p. 27). These troops were divided into two major commands and were governed by their own legates. Each of the two legates was quite independent and by the end of the first century their commands formed the provinces *Germania Inferior* and *Germania Superior*. They were, however, at first reckoned as part of Belgic Gaul (W. Arnold, 1906, p. 117). That's clear, for instance, from Pliny who treats the region as if it belonged to *Gallia Belgica* (Wightman, 1985, p. 54).

At the same time the 'free' bank of the Rhine started developing along divergent trajectory. Wolters assumes that after the disaster the "peripheral client states" were developed in Germania beyond the Rhine. Rome left their administration fundamentally intact (N. Roymans, 2004, p. 197). Unfortunately for scholars studying *Germania Romana*, "more is known about Roman client management in the East" (E. Luttwak, 1979, p. 38).

Dutch scholar Jan Slofstra tries to fill in the gaps in the written record. He follows Wolters in suggesting that the Romans did not create formal provinces in *Germania* in the Augustan era. But then he adds more details to Wolters' model. He adds the concept of the "military prefecture" to Wolters' model. He argues that the prefecture was established under Augustus as the Roman institution to administer tribal communities there. Its prime concern was to ensure regular recruitment of Germans into auxiliary units and payment of tribute from them rather than to establish the political infrastructure of a Roman province in *Germania* (J. Slofstra, 2002, p. 27).

He finds two models of military prefecture. The first one has been created for smaller tribes, which had no long history of friendly relations with Rome. In such a case the position of prefect have been filled by a former Roman officer usually with the rank of primus pilus.

The second model Slofstra considers is so called the 'Cottian model'. Slofstra names it after Marcus Julius Cottius, who had been appointed by Augustus as *praefectus civitatium* over several tribes in the Alpine area in 12 BC. This type of prefecture has usually been created for tribes that concluded an alliance of friendship with Rome. In accordance with this model *praefectus civitatium* was usually appointed from the local noble families (N. Roymans, 2004, p. 197), who possessed both the Roman citizenship and equestrian status. They were members of the Roman aristocratic community and this fact is witnessed by the Roman nomenclature in the north-west Gaul: the list of nobles from the Germanic tribes involved in the uprising of AD 69 is full of indigenous Iulii, Tiberii and Claudii.

But topics of discussion are not limited to questions concerning the provincialization and military prefecture. Throughout the Roman Empire the normal form of local government was the city-state polity traditionally dominated by local aristocratic families. *Germania Romana* had to be forged into self-governing communities, and if so, then another discussed issue is the municipalisation of *Germania*. The term "municipalisation" denotes "the introduction of a Roman system of civic administration in line with the civitas model, with codified laws, elected magistrates and public priesthoods" (N. Roymans, 2004, p. 63).

The views of another Dutch scholar, Nico Roymans, are relevant here. He considers the process of "municipalisation" as a slow and gradual implantation of a Roman-style administration, which initially relied on tribal structures. He assumes that municipal structures were established long before either Germania Inferior or Germania Superior was created. These structures seem to him to be traditional governing structures which had been no more than superficially Romanized in the Augustan era.

Written sources neither confirm nor deny their real existence and roman writers are totally silent about them. But despite this silence Roymans usually employs the term "monocratic magistracy" to describe them (N. Roymans, 2004, p. 201). This so called "magistracy" was Roman by name but indigenous by nature. The altar stone from Ruimel, dating to the early first century AD, illustrates the differences between the two types of magistracy.

Here a certain "Flavus, son of Vihirmas" is mentioned as holding a high position of supreme magistrate (*summus magistratus*) of the civitas Batavorum. What is interesting about his office is that it does not fit into the Roman magistracy.

The Roman magistracy has been built on the principle of collegiality, while the *summus magistratus* held the monocratic authority over the community. Furthermore, it is hard to imagine that a peregrine could have been trusted with such a high position as supreme administrator. But Flavus and Vihirmas – judging from their single names – were themselves not Roman citizens. This allows to consider the office of *summus magistratus* as "a Latinisation of an indigenous office".

Most of our current knowledge about *Germania Romana* and changes in indigenous society are based mainly on the archaeological or epigraphic evidence. Perhaps the most famous and important epigraphic evidence on the topic of interest is the so-called *Tabula Siarensis*.

This inscription on bronze dated to the emperorship of Tiberius contains the funerary honors decreed by the Senate to Germanicus. Among other things this tablet mentions Germanic *civitates* on the "near" (left) side of the Rhine whom the Emperor ordered to make sacrificial offerings to Drusus' grave. Because of this passage, some scholars assume that Drusus had established Germanic self-governing communities west of the Rhine.

But one of the most important archaeological sites forming a new understanding of Germania Romana was discovered and excavated in 1990-s by Lahnau-Waldgirmes in Hessen, Germany (A. Becker, 2003, p. 337). There an unnamed small town dated to the Augustan period was found. Perhaps it was called *Oppidum Chattorum*, but today it is widely known as Waldgirmes (K. Strobel, 2007, p. 210).

This settlement is not mentioned in any Roman writing. It was initially interpreted as a Roman military camp, but excavations have shown that it had little or nothing to do with the army. However, the absence of military equipment and military buildings was not the only striking feature of Waldgirmes. Yet more surprising is the presence of public buildings in Mediterranean style that is seen elsewhere in the Roman provinces but has never been met east of the Rhine. For example, buildings were discovered here whose possible function appears to be connected to municipal administration. Perhaps the most significant finding of this site was a forum considered to be the earliest building of this type north of the Alps (A. Becker, 2003, p. 340 – 344; H. Enckevort, 2004, p. 112). The creation of such a centre east of the Rhine might well be considered as good evidence that the Romans started building the political infrastructure of a province in the region. It led some scholars to conclude that "Waldgirmes was founded as a centre of administration in an embryonic province which was viewed as securely pacified" (M. Todd, 2004, p. 51).

However, it still remains unclear to what extent this hypothetical plan of "provincialization" was implemented in *Germania Romana*. Numerous Roman camps discovered in recent decades offer little help in describing the political processes that took place in the region. The study of Roman civil settlements in *Germania* could shed more light on the matter, but evidences available from urban areas are incomplete and fragmentary. Among them, archaeological data from town which can be identified as *Oppidum Batavorum* seems to be especially promising. It covered an area of some 20 ha and functioned as a key administrative center of the Batavian region until the Batavian revolt when it was burned to the ground and was never rebuilt.

The most interesting thing about this town is that Batavian chiefs have long enjoyed close relations with the Romans. The strength of these relations may be illustrated by the example of a well-known cult of Hercules Magusanus, whose name consists of two male elements and who should be regarded as the result of an amalgamation of two different deities – the Roman Hercules with indigenous Magusanus. This double-named deity was widely worshiped in *Germania Inferior* and appears to be the only indigenous deity north of the Alps to be associated with Hercules (N. Roymans, 1996, p. 91). All of this makes it likely that multiple signs of change within the indigenous society will be found there.

Unfortunately, the degree to which indigenous population of *Oppidum Batavorum* adopted Roman political practices is still far from being clear. Scholars know little or nothing about its indigenous residents. For example, the proportion of the Germanic population in the town is at the moment unclear and some scholars even "see it as a town located in Batavian territory, not as a Batavian town". This is not surprising given that the area investigated is too small and comprises only 3% of the total (*Oppidum Batavorum* is almost completely covered by the medieval and modern town of Nijmegen). The problem is complicated by the fact that "there are as yet no definitive publications" on the topic (N. Roymans, 2004, p. 203-204).

The corollary of the above mentioned is that scholars may not be able to say exactly how and when Roman governmental structures have been established in *Germania Romana*. Hopefully, the issues over political transformation in the region will be resolved when all the recent results of excavations will be published in full detail. But still one may safely maintain that the ways to transform political life on the barbarian periphery were numerous. The process of transformation didn't necessarily imply uniformity and synchronism and the result of the transformation varied from a complete assimilation of indigenous communities to no more than superficial political subjugation of neighboring client states.

Bibliography

Arnold W.T., 1906, ***Studies of Roman Imperialism***, University Press, Manchester, 281 .p.

Becker A., 2003, *Lahnau-Waldgirmes: Eine augusteische Stadtgründung in Hessen*, Historia, Vol. LII, no. 3, p. 337-350.

Bennett J., 1997, ***Trajan: Optimus Princeps***, Routledge, London, 317 p.

Birley A.R., 2006, Wells Peter S., *The Battle that stopped Rome. Emperor Augustus, Arminius, and the Slaughter of the Legions in the Teutoburg Forest*, L'antiquité classique, Volume 75, p. 557-559.

Christ K., 1996, ***Griechische Geschichte und Wissenschaftsgeschichte***, Franz Steiner Verlag, Stuttgart, 236 p.

Enckevort H., 2004, *The Roman military complex in Nijmegen*, in F. Vermeulen, K. Sas, W. Dhaeze (eds.), ***Archaeology in Confrontation: Aspects of Roman military presence in the Northwest***, Academia Press, Ghent, 459 p., p. 103-124.

Goodman M., 2012, ***The Roman World 44 BC – AD 180***, Routledge, London, 413 p.

Luttwak E., 1979, ***The Grand strategy of the Roman empire: From the first century A.D. to the third***, Johns Hopkins University Press, Baltimore, 255 p.

Petit P., 1976, ***Pax Romana***, University of California Press, Berkeley.

Roymans N., 1996, *The sword or the plough. Regional dynamics in the romanisation of Belgic Gaul and the Rhineland area*, in N. Roymans (ed.) ***From the sword to the plough: three studies on the earliest romanisation of Northern Gaul***. Amsterdam University Press, Amsterdam, 260, p, 9-126.

Roymans N., 2004, ***Ethnic Identity and Imperial Power***, Amsterdam University Press, Amsterdam, 292 p.

Rüger C., 1996, *Germany*, The Cambridge Ancient History, Volume X, p. 517-534.

Schnurbein S., 2004. *Germanien in römischer Sicht. Germania Magna und die römischen Provinzbezeichnungen*, in Beck, H. (ed.) ***Zur Geschichte der Gleichung "germanisch-deutsch": Sprache und Namen, Geschichte und Institutionen***, De Gruyter, Berlin, 711 p., p. 25-36.

Slofstra J., 2002, *Batavians and Romans on the Lower Rhine. The Romanisation of a frontier area*, Archeological Dialogues, Volume 9, No. 1, July, p. 16-38.

Strobel K., 2007, *Vom marginalen Grenzraum*

zum Kernraum Europas: Das Römische Heer als Motor der Neustrukturierung historischer Landschaften und Wirtschaftsräume, in L. de Blois, E. Lo Cascio (eds.) ***The Impact of the Roman Army (200 B.C. – A.D. 476): Economic, Social, Political, Religious and Cultural Aspects***, Brill, Leiden, 589 p., p. 207-238.

Todd M., 2004, ***The early Germans***, Blackwell Publishers, Oxford, 266 p.

Wells P.S., 1999, ***The Barbarians speak: How the conquered peoples shaped Roman Europe***, Princeton University Press, Princeton, 335 p.

Whittaker C.R., 2004, ***Rome and its frontiers: the dynamics of empire***, Routledge, London, 246 p.

Wightman E.M., 1985, ***Gallia Belgica***, University of California Press, Berkeley, 385 p.

Ministère de l'Education Nationale
L'Université Valahia Târgovişte
Faculté de Sciences Humaines

ANNALES

D'UNIVERSITÉ VALAHIA TARGOVISTE

SECTION d'Archéologie et d'Histoire

TOME XVII
Numéro 1
2015

Valahia University Press
Târgovişte

Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire publie des mémoires originaux, des nouvelles et des comptes-rendus dans le domaine de l'archéologie préhistorique, de l'histoire du moyen âge, de l'environnement de l'homme fossile, de l'archéologie interdisciplinaire et de patrimoine culturel.

Revue indexée B+ par CNCSIS et B par CNCS - Roumanie

Indexée dans:

AWOL, FRANTIQ, LAMPEA, SCRIBD, DAPHNE

Tout ce qui concerne la Rédaction des *Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire* doit être envoyé à:mcarciumaru@yahoo.com, www.annalesfsu.ro

ISSN: 1584-1855; ISSN (online): 2285–3669

Sommaire

ARTICLES ET ÉTUDES

NOTES ET DISCUSSIONS

Annales d'Université Valahia Targoviste,
Section d'Archeologie et d'Histoire,
Tome XVII, Numéro 1, 2015, p. 57-62
ISSN: 1584-1855;
ISSN (online): 2285–3669

A l'ombre du Saint Empire. Quelques aspects de la politique de Michel le Brave pendant ses derniers mois de vie

*Radu Cârciumaru**

* « Valahia » University Târgovişte, Faculty of Humanities, Str. Locotenent Stancu Ion, nr. 34-36, Târgovişte, 130018, Dâmbovița County; email: radu.carciumaru@gmail.com

Abstract: *In the shadow of Holy Empire. On some polithic issues of Michael the Brave in the last months of his life.* The reasons why Michael the Brave crossed the Carpathians into the Empire ruled by the Habsbourg dinasty, at the end of the year 1600, received several interpretations on the historiographic level. From our perspective, the clearest opinion, partially supported by the documents of those times, shows that the former ruler of the three Romanian Countries only had this solution. The policy of the last months in the ruler's life oscillated between the desire to return to the forefront of the Romanian politics and the attempts to regain the Austrians' trust. Deprived of financial power, Michael the Brave was brought to Transylvania on the order of the Emperor Rudolph II to help the principality reenter the orbit of the imperial power. Victorious at Gurăslău, in front of the noblemen of Ardeal, Michael the Brave gave the impression that he can regain Wallachia, where favorable forces had overturned the ruler imposed by Poland, Simion Movilă. The twisted relations with the general of the imperial armies, Georgio Basta, stopped this plan. It may have been a political error of the ruler who maintained the conflictual relation built even since his moments of sudden ascension. The writings of the time catch the attitude of superiority manifested by Michael the Brave to the Albanian-origin general. Acting on the secret orders of the emperor or simply out of fanaticism, the general Basta decided to kill the former ruler. This killing occurred on the camp of Turzii Plain, in a Transylvania that had declared its hostility and for which he did not have, according to the memoires sent from his wonderings of refugee, any trace of sympathy. Consequently, in this study we shall try to highlight that the Wallachian voivode no longer had, at the time of his wonderings, any intention to reinstate his rule over the three Romanian Countries but was hoping, by a play upon interests, to win back the power over the Wallachian state. The idea of the realization of the Romanian unity at the turn of the 17th century should also be permanently removed from the specialized literature.

Key-words: *memoire, betrayal, negotiations, Habsbourg Empire, national unity*

A la fin du mois d'octobre de l'an 1600, la situation de Michel le Brave, le prince régnant qui avait gouverné l'aire roumaine la plus étendue, était dramatique. La coalition polonaise-moldave-turque avait atteint son objectif, délivrant les pays extra-Carpatiques « *du fardeau d'une seule domination* ». Michel le Brave avait perdu bataille après bataille, mais peut-être la défaite la plus difficile avait été celle face à son propre peuple, qui n'avait pas compris la politique des derniers mois. La lettre du franciscain Eustachio Fontana adressée au cardinal Cinzio Passeri Aldobrandini, le futur envoyé papal d'Avignon, du 14 octobre 1600, est représentative et peut constituer un point de départ dans l'analyse des moments finaux de la vie du voivode et implicitement des raisons de son passage dans l'Empire des Habsbourg.

Selon Eustachio Fontana, sur l'aire roumaine le calme régnait : « *Ce qui n'empêche pas de manœuvrer de toutes forces contre Michel. Tous crient contre lui pour le plan digne de mépris ; ils le menacent de la mort ; il ne peut gagner pour ses*

propositions de paix ni le peuple, ni les nobles, car il a presque toutes les catégories de gens contre lui, même les Hébreux, du monde de mauvaise qualité. »*

On ne peut pas avoir trop de doutes concernant ce qui a été écrit dans cet avant-dernier rapport envoyé par l'émissaire de la papauté de Constantinople, surtout que dans toutes les informations antérieures, expédiées régulièrement depuis 1596, sont présents aussi de nombreux éloges concernant le prince régnant.

La dernière solution du voïvode qui avait tout perdu, plus rapidement même qu'il n'avait bâti, était celle de « *l'ennemi caché* », l'empire Habsbourg de Rudolph II, lequel n'avait pas levé ouvertement les armes contre lui, mais avait mis son épaule à la destruction de l'union politique réalisée dans l'espace roumain, en appuyant la révolte des nobles de Transylvanie.

Pour arriver aux territoires impériaux, Michel le Brave avait un obstacle important à franchir : le passage par une Transylvanie qui lui était hostile du simple paysan jusqu'au noble hongrois. C'est ici qu'on peut trouver la raison pour laquelle il garde autour de lui une armée massive, d'environ 7000 personnes, qui avait une mission claire avant son déchirement, à savoir celle d'assurer l'intégrité de l'ancien prince régnant dans une principauté où il avait régné il y a très peu de temps.

Dans le mémoire envoyé à l'empereur Rudolf II, rédigé à Vienne, Michel le Brave fait une série de remarques concernant les dangers connus de la Transylvanie (« *Dans bien des endroits, ils se sont jetés sur mes hommes et les ont tués sans pitié. De la cité de Deva ils ont dirigé les canons contre moi et ont noyé dans le Mureş plusieurs des miens ; et ces problèmes ne me sont pas arrivés seulement dans un endroit, mais dans toute la Transylvanie… Encombré de malheurs, dans l'ordre et de la manière que je vous ai montrée, je suis arrivé à Votre Majesté déshabillé et dépouillé de tous mes biens.* »).*

De manière surprenante, certains écrits de spécialité ont vu dans la décision de Michel de passer dans les territoires impériaux un compromis accepté car il voulait obtenir du support militaire pour reprendre le pouvoir (Istoria românilor / Histoire des Roumains, 2001) lorsque, en fait, l'essence de l'option restait la survie même. Aucun autre Etat ne garantissait mieux, à ce moment-là, à l'ancien voïvode, qu'il n'allait pas tomber victime aux intrigues tissues dans la Valachie, la Moldavie ou bien même à Constantinople. Dans l'empire, il se trouvait au moins à l'abri fragile d'une vague promesse arrachée à l'empereur en septembre 1600, par laquelle on lui accordait un territoire en cas de refuge, la cité de Königsberg, en Silésie.**

Evidemment, l'histoire démontre que presque tous les anciens princes régnants dépaysés et d'autant plus Michel le Brave, le premier prince régnant des trois pays roumains, ont nourri l'espoir, parfois dépourvu de la moindre trace de réalisme, de récupérer leur position et leurs privilèges. Regardant de manière objective la situation, on peut observer que dans l'automne de l'année 1600, l'ancien prince régnant ne disposait plus d'aucun appui et par conséquent se trouvait dans l'impossibilité de revenir dans l'avant-scène de la politique roumaine. L'intense activité diplomatique déroulée surtout à Vienne nous permet de croire que le voïvode pensait à reprendre son règne dans la Valachie.

L'obstacle majeur dans de telles situations, le manque des moyens financiers, se voit clairement dans la demande d'argent pour les dépenses usuelles adressée par Michel le Brave à l'empereur à travers l'archiduc Mathias : « *Prie même Sa Majesté de bien vouloir s'enquérir pour une vie meilleure et plus adéquate de sa femme et de sa famille et un traitement plus adéquat… Ensuite… les soldats qui ont servi Sa Majesté avec fidélité avec lui-même … et qu'il a laissés lui-même près de Kosice, Oradea et d'autres frontières transylvaines et qu'il n'a pas pu payer comme on lui a volé tous ses biens, prie donc Sa Majesté de bien vouloir s'en charger … pour qu'ils ne soient pas obligés, sans argent et pressés par la faim, de se disperser ailleurs ou de causer des dommages… Concernant l'argent qu'il fallait qu'on lui donne, pour lequel il avait prié Sa Majesté avant, il La prie aussi maintenant, afin de couvrir les dépenses pour sa propre vie, et pour celle de sa famille, qu'il a avec lui.* » .*

Revenant, nous pouvons affirmer que la période des derniers mois de la vie de Michel le Brave a été traitée, au niveau de l'historiographie moderne aussi, partant des écrits de la génération qui luttait pour l'unité roumaine au milieu du XIX^{e} siècle (D. Bojincă, 1834; A. Florian, 1858; N. Bălcescu, 1908). Le passage du voïvode dans l'Empire Habsbourg est, ainsi, le plus souvent associé à l'idée de refaire l'unité roumaine perdue

seulement suite au jeu d'intérêts des Grands Pouvoirs (C. Rezachevici, 2001). En réalité, ce que l'on appelle la politique de l'unité roumaine a ses racines dans la situation créée par la disparition du facteur d'équilibre de la zone, la Hongrie, après la bataille de Mohács, de l'an 1541. La défaite du puissant royaume a apporté dégringolade dans la politique des trois principautés roumaines et a donné naissance à l'idée de la création d'un centre de pouvoir dans l'aire roumaine initiée par Stefan Jósika (Marius Diaconescu, 2004), le chancelier de Sigismond Báthory, d'abord par voie diplomatique, et complété par voie militaire et politique, quelques ans plus tard, par Michel le Brave. Vraiment, l'accomplissement de l'union politique ne convenait pas aux deux grands Empires, Habsbourg et Ottoman, qui ont agi immédiatement, et avec succès, désirant sa destruction.

Le mémoire envoyé à l'empereur Rudolph II par un prince régnant qui avait perdu son pouvoir met en évidence, d'une manière extrêmement directe, l'absence de l'idée d'unité nationale, pétrifiée – semblerait-il – dans les écrits de spécialité. Les accusations contre les Transylvains en tant que nation mettent un ombre sur le désir d'homogénéisation roumaine de l'aube du XVII^{e} siècle. (« *Mais tout comme le renard change difficilement sa mauvaise habitude, ainsi les Transylvains se passent-ils avec difficulté de leur ancienne coutume <de la trahison> ... moi, je suis toujours resté constant dans la foi … n'étant pas habitué à changer comme les Transylvains, dont l'habitude est de jurer faussement deux fois par jour … Souvent, j'ai demandé de manière insistante l'aide des Transylvains, mais toujours en vain, car, dédaignant à la fois le bien particulier et celui général, leur seule pensée était celle de me tuer*. »)*

Selon notre perspective, les attentes et les plans politiques de l'ancien prince régnant étaient bien plus restreints. Michel le Brave devait, avant tout, regagner la confiance de l'Empereur Rudolph II et, encore plus, démontrer son utilité et ses qualités au service de la Maison d'Autriche. Tout cela se voit dans les lettres envoyés à l'Empereur durant son escale à Prague : « *Contraint, d'un côté, par mon impuissance, ayant confiance, de l'autre côté, dans l'infinie bonté et générosité de Votre Majesté… je viens vous prier de bien vouloir me donner quelque appui, pour pouvoir avancer de cette manière dans cette guerre contre l'ennemi commun et terrible du nom de Chrétien ; et tout se prosternera devant la grandeur de la très radieuse Maison d'Autriche … » **

Il n'est pas exclus que l'entière politique de l'ancien prince régnant ait visé de reprendre le pouvoir sur la Valachie. Seulement l'attitude des Habsbourg, dont Michel le Brave dépendait militairement, l'empêchait d'avoir grands espoirs dans cette direction. Le désir de reprendre le pouvoir au moins sur l'Etat de droit, l'Etat valaque, transparaît du mémoire au duc de la Toscane, à côté de l'incapacité de réaliser cela à travers ses propres forces : « *…clairement, tout le monde peut voir la besogne et la corvée que j'ai supporté sept ans sans arrêt et tout le service que j'ai fait à la chrétienneté … et maintenant je suis arrivé à cette fin, perdant toutes les choses que j'avais gagnées depuis ma jeunesse jusqu'à ma vieillesse … ainsi, je prie toute la chrétienneté de venir à mon appui, car j'ai perdu tout, pays tout comme richesses … et enfin tout ce que j'ai eu dans le monde*. »*

De manière surprenante, ce n'est pas la riche activité diplomatique qui a apporté à l'ancien voïvode dépaysé l'audience tellement désirée à l'empereur. Elle a été dictée, dans une proportion encombrante, par la conjoncture politique et plus exactement par les tensions éclatées en Transylvanie. Les nobles transylvains avaient réussi à imposer leur point de vue face aux conseillers impériaux représentés par le baron Ugnad et Dr. Bartholomeus Pezzen, derrière lesquels se trouvait le général Basta. La nomination de Sigismond Báthory marquait la victoire des forces polonaises-turques dans la principauté et l'intervention des Autrichiens était imminente (Veniamin Ciobanu, 1991). L'Empereur Rudolph II a eu l'intuition que l'expérience militaire de l'ancien prince régnant de la Valachie qui avait soumis la Transylvanie d'une manière catégorique à Mirăslău, peut incliner la balance de la victoire. Prévoyant, Rudolph II, place Michel le Brave sous la commande de celui qu'il n'avait pas craint d'accuser maintes fois de trahison : le général Basta.

Pendant les deux audiences à l'empereur, du 19 et du 22 février 1601, Michel le Brave a jouit de nouveau de tous les honneurs impériaux. Parmi les preuves du changement d'attitude, nous trouvons les deux représentations du prince régnant dans la gravure d'Aegidius Sadeler et le tableau de

Franz Francken I où les signes de son pouvoir apparaissent, semblerait-il, intentionnellement, tout à fait complets.

En réalité, même après avoir regagné les faveurs impériales, Michel le Brave continuait de se trouver dans une posture délicate, car il devait avoir confiance dans un personnage qui lui avait montré que la trahison est une arme naturelle. Les relations entre le prince régnant de la Valachie et le général italien d'origine albanaise, Giorgio Basta, doivent avoir été dès le début tendues et elles sont relevantes pour la soi-disant « *confiance* » réacquise par l'ancien prince régnant aux yeux de la Maison d'Autriche. Rudolph II voyait dans le général Giorgio Basta un vrai chien de garde qui pouvait être à tout moment incité contre l'ancien voïvode de la Valachie, surtout si le dernier aurait dépassé, de nouveau, les attributions dont il avait été investi. Le jugement de l'empereur était correct du point de vue politique. La situation de la Valachie devenait compliquée étant donnée la politique de Simion Movilă qui mécontentait la force interne la plus puissante, les boyards Buzescu. Le retour de Michel le Brave comme prince régnant de la Valachie ne semblait plus impossible et ce retour devait être arrêté par les représentants de l'empire.

Ce que l'empereur n'a pas prévu (ou bien peut-être il a été conscient justement de cette chose), dans le trame d'intrigues créé, c'est l'immense haine que le général Basta nourrissait contre Michel, bâtie justement sur les réussites du voïvode de la Valachie au niveau militaire et politique. Finalement, la mission de Michel le Brave dans la Transylvanie était vue comme une conséquence directe de l'échec de Basta de maintenir la principauté dans l'orbite du pouvoir impérial. L'historien allemand Ioannis Bisselius écrivait, quelques décennies après la décantation des événements, offrant peut-être l'explication la plus claire de ce conflit: « Le *Valaque avait, de l'autre côté, la toujours plus grande conscience de tant de victoires importantes, une confiance infinie dans ses pouvoirs et dans le prestige de son nom ; dans certaines choses, il n'était pas moins grand que Basta, et dans d'autres choses, faites tout seul et sans aide, il dépassait Basta*. » ***

Les malentendus entre les deux commandants, après la bataille de Gurăslău, sont évoqués de manière différente dans les écrits du temps. Il faut préciser, pourtant, que la majorité des informations concernant la campagne de la Transylvanie et implicitement l'assassinat de Michel le Brave ont été fournies par Basta. Par conséquent, les sources d'inspiration pour les notes contemporaines avec les événements nous poussent vers une attitude réservée concernant leur véridicité. Il va sans dire que la liquidation de Michel le Brave dans un camp militaire contrôlé par le général Basta a rendu plus difficile l'accès vers la découverte de la vérité derrière cette action. L'historien anglais Richard Knolles, celui qui a réalisé dans le royaume, en 1610, le premier ouvrage ample dédié à l'Empire Ottoman, condamnait l'attitude hautaine de Michel le Brave d'après l'éloignement du prince Báthory: « *A la suite de cette victoire, le voïvode, pour satisfaire la haine qu'il nourrissait depuis longtemps contre les Transylvains, a saccagé tout ce qu'il a pu, désolant de manière extrême toutes les localités qu'il avait traversées, ce qui ne plût pas à Basta, qui lui demanda d'utiliser sa victoire avec plus de modestie … A cela il répondit avec dédain qu'il ferait ce qu'il croyait bon, sans son approbation ou l'approbation de l'empereur, surtout dans ce pays qu'il avait pris deux fois par sa propre épée …* » .*** Malgré toutes les exagérations arrivés à l'historien anglais en reprenant la version proposée par le général Basta, l'insoumission de Michel le Brave en Transylvanie semble se baser sur un grain de vérité. En partie, elle était dictée par la position des grands nobles de la Transylvanie, d'origine hongroise, qui continuaient à voir dans le prince Sigismond Báthory, l'ennemi de Michel, la seule liaison entre les prétentions autrichiennes et celles turques. Dès l'entrée des Pays Roumains sous une seule domination, Michel le Brave a été haï ici. Cette haine surgissait de la jalousie pour le fait qu'un prince régnant d'un pays presque inconnu avait réussi, l'arme à la main, à étendre sa domination au-delà des Carpates. Un pays foulé sous les pieds des chevaux de la Sémilune pendant des siècles se levait de ses cendres et instaurait son pouvoir sur une Transylvanie qui n'avait pas connu réellement de domination étrangère.

L'historien français Jaques Augustin de Thou, dans son ouvrage *Historiarum sui temporis*, reconnu pour sa bonne documentation et l'impartialité de la présentation des événements, présente une version sensiblement différente du conflit entre les deux commandants d'armées : « *Basta, voyant que Michel, un homme d'une*

ambition démesurée, a commencé à devenir, après sa victoire, de plus en plus éhonté, l'observa d'abord, et ensuite décida de le supprimer. Prétendant que Michel eût déclaré ne pas reconnaître personne en dessus de lui, ni Basta, ni l'empereur. » .***

D'après le chroniqueur français, les choses semblent s'être déroulées d'après un plan bien organisé, selon lequel Michel le Brave devait passer pour un personnage qui ne se soumissait ni aux ordres de l'Empereur Rudolph II et pour lequel la suppression restait la seule solution.

L'ambassadeur anglais à Constantinople, Henry Lello, qui écrivait le 2/12 septembre1601, peu après la liquidation de l'ancien prince régnant, semble offrir une image un peu plus claire du conflit : « *...entre celui-ci et Michel a éclaté un grand conflit [concernant la question] qui d'entre eux devrait être gouverneur suprême et, tandis que Michel dormait dans sa tente, Basta l'a encerclé et l'a étranglé ; la manière et la motivation de cette querelle sont encore inconnues et, avant d'avoir des nouvelles plus récentes et plus certaines, je pense ne pas devoir troubler Votre Excellence ... On considère que cette action est un complot de l'empereur, qui doutait de la fidélité de Michel et craignait qu'une fois retourné sur le trône du pays, il pourrait acquérir du courage pour d'autres actions aussi ...* » .**** La peur de l'empereur Rudolph II était liée plutôt à la reprise de la domination sur la Valachie par Michel le Brave. L'idée est mise en évidence aussi par la lettre envoyée par le voïvode à l'archiduc Mathias. Vainqueur à Gurăslău, celui-ci écrivait du camp de Moftin, le 17 juillet 1601, au successeur au trône impérial : « *Le pays de la Valachie, selon le désir secret de tous, s'est levé et a chassé le voïvode, le frère cadet de Ieremia, et immédiatement s'est soumis et s'est incliné devant l'autorité de Votre Majesté. Il reste encore que Votre Majesté nous aide, aussi rapidement que possible, avec de l'argent, qui est la force de la guerre ...* » ****

Regardée de cette perspective, la liquidation de l'ancien prince régnant roumain n'apparaît plus comme une action solitaire du général Basta, mais devient, plutôt, une action réalisée avec l'accord tacite de la plus haute autorité impériale. Le manque d'une désapprobation publique de cet acte de la part de l'empereur Rudolph II vient confirmer, en bonne mesure, justement son implication.

La lettre adressée à l'archiduc Mathias démonte aussi l'idée que Michel le Brave après Gurăslau aurait voulu la fonction de gouverneur de la Transylvanie (G. C. Măcus, 1971; C. Rezachevici, 1979) plutôt que celle de prince régnant de la Valachie. L'orgueil démesuré du prince régnant, illustré dans la majorité des écrits du temps, nous détermine à croire que la Valachie était sa première option. La question qui apparaît aussi est qui étaient les forces internes qui auraient soutenu son éventuel retour comme prince régnant de cette principauté. Dans l'une de ses dernières lettres, avant d'être tué, Michel s'adressait aux Sicules auxquels il demandait de le soutenir. C'était le seul groupe social qui, face à l'oppression de la dynastie Báthory avait appuyé inconditionnellement le voïvode valaque (Bogdan Murgescu, 2012). C'était un signe de plus que la politique de Michel le Brave ne contenait pas des considérations ethniques comme il a été souvent spéculé dans l'historiographie. Le mouvement des troupes dans la Transylvanie entre la victoire de Gurăslău (3 août 1601) et son assassinat (19 août 1601) indique plutôt le désir du prince régnant de récupérer sa famille restée captive dans la cité de Făgăraş que celui d'entrer dans Alba-Iulia comme gouverneur.

Certes, la peur d'un regain du pouvoir par Michel le Brave (quel que soit le territoire) était vive à la fois pour le général Basta et surtout pour l'empereur Rudolph II. C'est l'équation autour de laquelle s'est construit le plan de sa liquidation, qui a besoin d'une justification minimale. Cette justification a été trouvée dans l'attitude d'insoumission que le général Basta invoque après la victoire de Gurăslău et dans le refus de se présenter au Conseil de Guerre du 18 août, vu comme un acte de trahison par l'empereur lui-même.

A la longue, la mort du prince régnant roumain, dans ces circonstances, s'est avérée bénéfique pour l'aire roumaine, qui, à l'époque moderne, y a pu trouver son pilier la soutenant dans la réalisation de l'union de la Valachie avec la Moldavie, de l'an 1859. L'histoire ne peut pas opérer avec « *qu'est-ce qu'il y aurait eu si* », mais nous pouvons au moins nous demander qu'est-ce qui aurait pu arriver si le prince régnant n'avait pas rencontré sa fin sur la plaine de Turda. Certes, nous ne sommes pas devant une réponse unique, mais nous croyons que c'est seulement alors qu'on

aurait pu comprendre que l'unité roumaine n'a jamais été une des facettes de la politique de Michel le Brave.

Bibliographie

***Mihai Viteazul în conştiinţa europeană, 1,Documente externe** (Michel le Brave dans la conscience européennne), Ed. Academiei, Bucureşti, 1982, p. 580, 623, 606, 618, 622, 644-645,

****Lupta pentru unitate naţională a Ţărilor Române 1590-1630. Documente externe** (La lutte pour unité nationale des Pays Roumains 1590-1630. Documents externes), Ed. Arhivelor, Bucureşti, 1981, p. 107

*****Mihai Viteazul în conştiinţa europeană, 2, Cronicari şi istorici străini. Secolele XVI-XVIII. Texte alese** (Michel le Brave dans la conscience européenne. 2.Chroniqueurs et historiens étrangers. Siècles XVI-XVIII), Ed. Academiei, Bucureşti, 1983, p. 302, 101.

******Mihai Viteazul în conştiinţa europeană, 5, Mărturii** (Michel le Brave dans la conscience européenne. 5. Témoignages), Ed. Academiei, Bucureşti, 1990, p. 448-449, 436-437.

Istoria Românilor (L'Histoire des Roumains), 2001, vol. IV, paru sous l'égide de l'Académie Roumaine, Ed. Enciclopedică, Bucureşti, p. 635.

Bojinca Damaschin, 1834, *Istoria lui Radu Şerban* (L'Histoire de Radu Serban), Biblioteca Românească, deuxième partie, p. 27

Florian Aaron, 1858, ***Mihai II Bravul, biografia şi caracteristica lui*** (*Michel le Brave, biographie et caractérisation*), Bucureşti, p. 160

Bălcescu Nicolae, 1908, ***Românii sub Mihai-Vodă Viteazul*** (*Les Roumains au temps du règne de Michel le Brave*), nouvelle édition par A. Lapedatu, Bucureşti.

Diaconescu Marius, 2004, *Gândirea politică a lui Ştefan Jósika, Cancelarul Principelui Sigismund Báthory. Paternitatea unei idei politice: unirea Transilvaniei cu Ţara Românească şi Moldova* (*La pensée politique de Ştefan Jósika, Chancelier du Prince Sigismond Bathory. La paternité d'une idée politique : l'union de la Transylvanie avec la Valachie et la Moldavie*), Acta Transylvania, 1, p.17-18

Ciobanu Veniamin, 1991, ***La cumpăna de veacuri. Ţările Române în contextul politicii poloneze de la sfârşitul secolului al XVI-lea şi începutul secolului al XVII-lea*** (*Au tournant des siècles. Les Pays Roumains dans le contexte de la politique polonaise de la fin du XVI^e^ siècle et du commencement du XVII^e^ siècle*), Ed. Junimea, Iaşi, p. 288-289.

Mărcuş Graţian C., 1971, *Date noi cu privire la unele evenimente din ultimele zile ale domniei lui Mihai Viteazul* (*Nouvelles données concernant certains évènements des derniers jours du règne de Michel le Brave*), Anuarul Institutului de Istorie şi Arheologie Cluj, XIV, p. 48-49

Rezachevici Constantin, 1979, *Mihai Viteazul „înainte şi după Guruslău"* (*Michel le Brave, avant et après Guruslău*), Revista de Istorie, XXXII, no. 11, p. 155

Rezachevici Constantin, 2001, ***Cronologia critică a domnilor din Ţara Românească şi Moldova, I, Secolele XIV-XVI*** (*Chronologie critique des princes régnants de la Valachie et de la Moldavie, I, Siècles XIV-XVI*), Ed. Enciclopedică, Bucureşti, p. 351.

Murgescu Bogdan, 2012, *Ţările Române între Imperiul Otoman şi Europa creştină* (*Les Pays Roumains entre l'Empire Ottoman et l'Europe chrétienne*), Ed. Polirom, Bucureşti, p. 49-50.

Ministère de l'Education Nationale
L'Université Valahia Târgovişte
Faculté de Sciences Humaines

ANNALES

D'UNIVERSITÉ VALAHIA TARGOVISTE

SECTION d'Archéologie et d'Histoire

TOME XVII
Numéro 1
2015

Valahia University Press
Târgovişte

Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire publie des mémoires originaux, des nouvelles et des comptes-rendus dans le domaine de l'archéologie préhistorique, de l'histoire du moyen âge, de l'environnement de l'homme fossile, de l'archéologie interdisciplinaire et de patrimoine culturel.

Revue indexée B+ par CNCSIS et B par CNCS - Roumanie

Indexée dans:

AWOL, FRANTIQ, LAMPEA, SCRIBD, DAPHNE

Tout ce qui concerne la Rédaction des *Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire* doit être envoyé à:mcarciumaru@yahoo.com, www.annalesfsu.ro

ISSN: 1584-1855; ISSN (online): 2285–3669

Sommaire

ARTICLES ET ÉTUDES

NOTES ET DISCUSSIONS

Annales d'Université Valahia Targoviste,
Section d'Archeologie et d'Histoire,
Tome XVII, Numéro 1, 2015, p. 65 - 80
ISSN: 1584-1855;
ISSN (online): 2285–3669

Recent perspectives on a neglected category of heritage. Roman mining in the "Golden Quadrilateral"

*Vlad Rumega-Irimuș**

* "Valahia" University of Târgoviște, Doctoral School, Lt. Stancu Ion Street, no. 34–36, Târgoviște, 130018, Dâmbovița County, Romania, e-mail: vladrumega@gmail.com;

Abstract: *Recent perspectives on a neglected category of heritage. Roman mining in the "Golden Quadrilateral***.** Research on mining archaeology in Romania focused – mostly – on the historical interpretation of earlier mentions and very little on proper documentation (archaeological and topographic) of this peculiar type of vestiges. Only in the late 1990' the first scientific approach to mining archaeology was undertaken in the framework of a Romanian-French cooperation, initially in the area of the Pianu Valley (Alba County) and later in the Roșia Montană – Bucium area, in the context of the "*Alburnus Maior*" National Research Program. In this context, the area of the "Golden Quadrilateral", especially Roșia Montană, benefitted from a series of systematic mining archaeological research, both on the surface and underground. Despite the important results yielded by the research lasting more than a decade at Roșia Montană, by a national research program (halted later on), the field of ancient mining heritage in the "Golden Quadrilateral" is deeply neglected, with deep inconsistencies between what is happening in Romania and the international developments in this field. The paper lists the issues approached during the last 15 years concerning mining archaeology and related heritage in Romania, bringing to the public's attention a new approach concerning the latter's documentation according to specific international practice.

Keywords: mining heritage, Roman mining, "Golden Quadrilateral", multidisciplinary approach for documentation, GIS correlated database

Introduction

It is well known than much of the human activities have effect on the environment, leaving their mark on the natural surroundings. Thus, exploiting useful deposits, in all their forms, left significant traces, sometimes visible, other times "hidden" to the direct visual perspective.

This is also the case of the ancient mining vestiges in the "Golden Quadrilateral" in the Apuseni Mountains (Fig. 1). Interest for the vestiges resulting from old exploitations and metal-processing in this area dates as early as the 16th c., and is well-exemplified by the writings of the foreign travellers that also mention certain ancient heritage monuments[1]. Technical information, maps and numerous details start to be mentioned especially during the second half of the 18th c., once extension of mining activity in this area became a priority for the Habsburg Empire and the *Mountain Treasury* was formed; therefore, today we have an important archive, not enough researched yet, but through the effort of several scientists the archive in Cluj was put in order and published (Slotta *et al.*, 2002). From the middle of the 19th c., especially in the context of the discovery of the wax tablets at *Alburnus Maior* and their publication by Th. Momsen[2], the interest shown by historians and archaeologists (largely "amateurs" at that time) for ancient mining vestiges in the "Golden Quadrilateral" augmented constantly, with the first field surveys undertaken for determining their precise location[3]. Thus, at the beginning of the 20th c. a new distinct research

direction was formed, mountain archaeology, a precursor of what is now comprised by the concept of "mining archaeology"; focus continued to be on cataloguing the different mining object discovered by chance and the publication of the epigraphic inscriptions from the Classical period coming from this area. All along the 20th c., information on the ancient mining heritage also came from chance discoveries made in the context of extension of historical exploitations such as those in the area of Roșia Montană, Zlatna, Bucium or Brad[4]. Starting only with 2001, when an ample mining project started at Roșia Montană, did the first proper mining archaeology research begin in Romania (B. Cauuet, 2003, p. 471–473). In a paradoxal way, this research did not stimulate this research field in Romania, and most of the mining vestiges in the "Golden Quadrilateral" are still practically unknown. Their proper documentation, by corroborating bibliographical sources with field surveys, detailed mapping and correlating with geological data (objectives of my PhD stage) constitute a first step for the preservation and putting to good value of extremely important heritage elements.

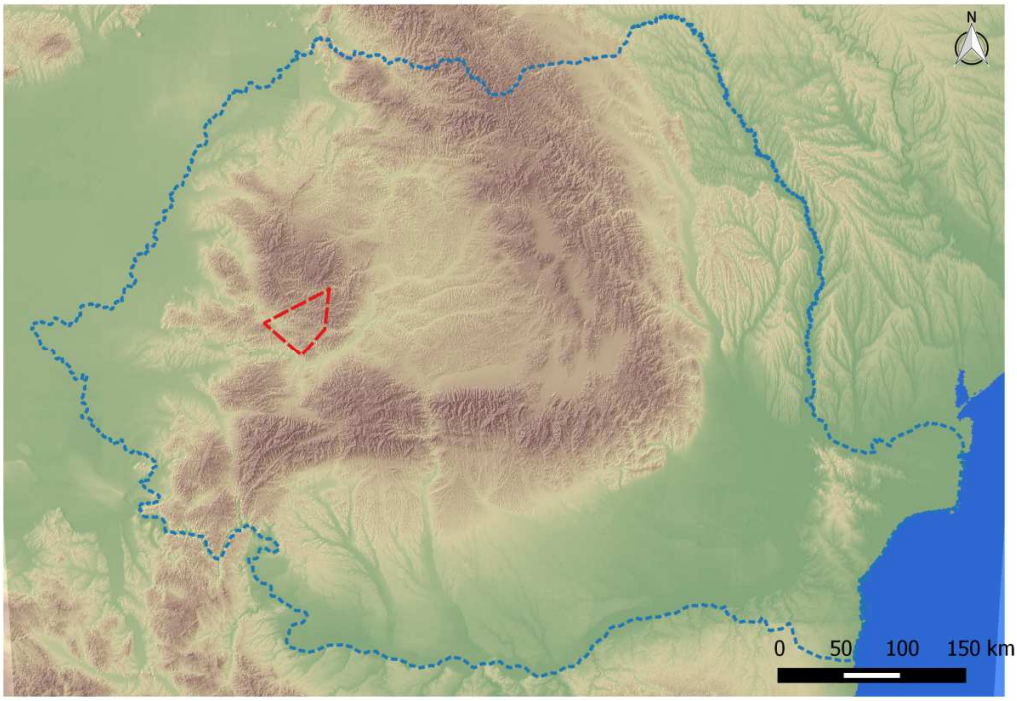


Fig. 1 – Location of "Golden Quadrilateral"

Defining mining heritage

The study of mining heritage is an important component for understanding historically and culturally an area where mining activities took place. The areas with historical mining vestiges represented – and still do – a peculiar category of heritage from the perspective of studying economic and social development, as well as putting to good value these elements through cultural tourism.

Human activity in spaces that can be mined generated a large series of testimonies with high cultural value. Starting from this point, a recent study mentioned that "due to the impregnation and marking or the territories with their own identity, the latter leave their own inheritance, which we call mining heritage" (D.J. Carvajal, 2010, p. 49). Basically, a distinct definition of *historical mining heritage elements* is difficult to formulate, given its belonging to the general category of *industrial heritage*[5]. In order to clarify this term, in 2003, on the occasion of the Congress of the International Committee for the Preservation of the Industrial Heritage[6], a thematic document was drawn, that contains the definition of terms, values, legal

protection and obligations regarding the latter (*TICCIH, 2003). From this perspective, *industrial heritage* is made up of the testimonies of the industrial culture with historical, social, technological and scientific significance (buildings, machines and installations, mills, factories, **mines**, transport structures and infrastructures, cult places). Also, *industrial archaeology* is identified as a distinct discipline, whose object of study are the testimonies concerning or created by industrial processes (*TICCIH, 2003, art. 1).

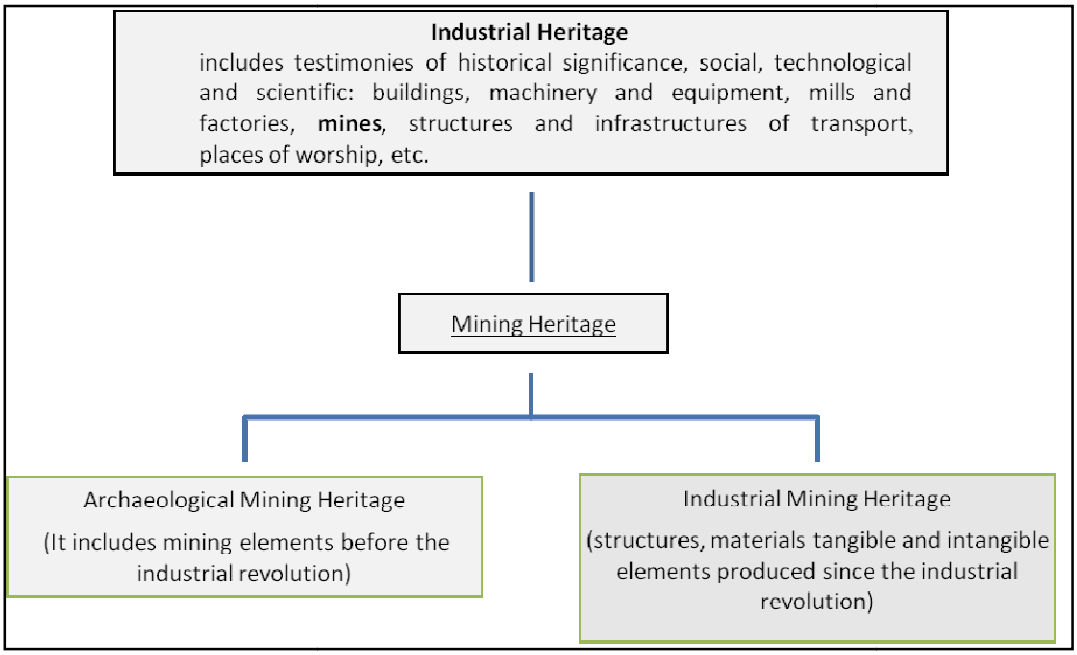


Fig. 2 – Mining Heritage as a subclass within the Industrial Heritage
(after Alberruche del Campo *et al.* 2012, p. 8)

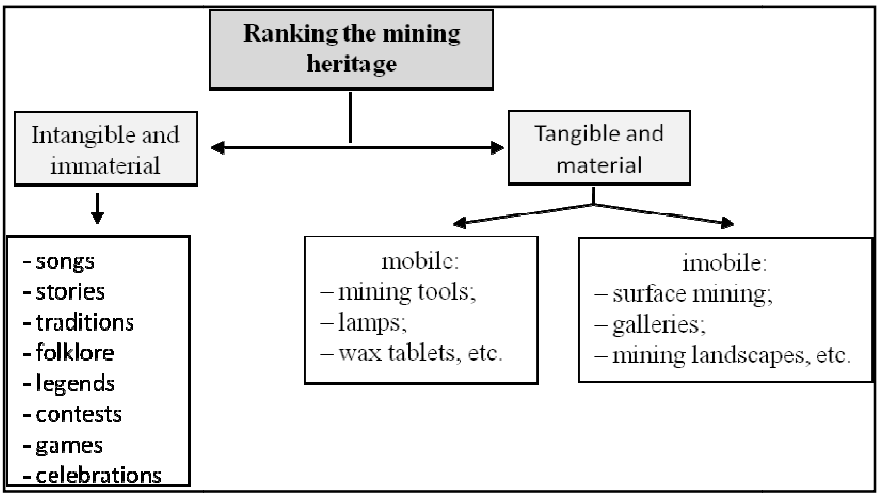


Fig. 3 – Representing the defining elements of the mining heritage

In this context it is necessary to make the distinction between *historical/archaeological mining heritage* and *industrial mining heritage* (Fig. 2). The latter, according to the most recent

analysis in this field (Alberruche del Campo *et al.*, 2012, p. 8), contains the vestiges of mining works starting with the middle of the 18th c., that is when the first industrial revolution took place (with the introduction of mechanical production) and up to the last third of the 20th c. (which coincides with the moment when automatic production was gradually or partially introduced).

Therefore, the present research focuses on *mining heritage*, understood as the sum of components of the *historical/archaeological mining heritage*, made up of those tangible and intangible elements and manifestations (activities) produced by the individual – community – society that are defined and differentiated by their unique character (Fig. 3). Given the evolution of the field at an international level, this endeavour[7] analyses the acute necessity for inventorying, preserving, putting to good value and advertising the products of historic metal mining susceptible of being part of the national cultural heritage, many of which are in danger of being destroyed without the proper investigation.

State of the research after 2000 on ancient mining heritage in the area of the "Golden Quadrilateral"

At the beginning of the 21st c. V. Boroneanț published a work (2000) in which the author synthesized the information available at that time on natural and artificial caves, mines, salt mines and stone quarries, as well as new information provided by the author's own research. In the chapter dedicated to mining (p. 117–131), 60 galleries, surface works and traces of alluvial deposits processing are repertoried, most of the dated to the Roman, medieval and modern periods.

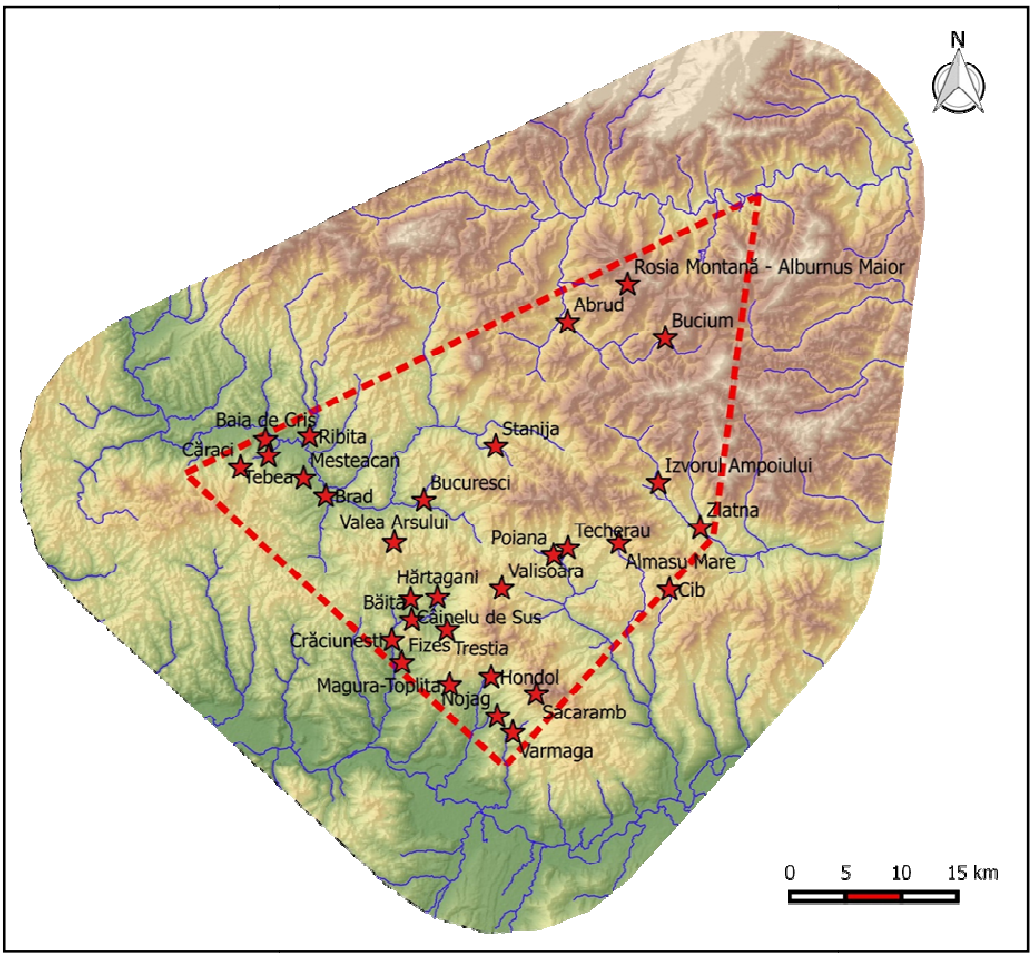


Fig. 4 – The main Roman mining sites in the "Golden Quadrilateral" (after M. Simion *et al.*, 2008)

Over 15 years ago, in 1999 at Roșia Montană[8] (Fig. 4), the largest (proper) mining archaeology research started, later to become the "*Alburnus Maior*" National Research Program, instituted in 2001 by the Ministry of Culture. This important endeavour to investigate in the field ancient mining vestiges had a multidisciplinary character, uniting – under the coordination of the Romanian National History Museum – archaeologists, historians and geologists from different institutions in the country (Alba Iulia, Bucharest, Cluj and Deva), and it also had an essential research component in the underground investigation, led by Beatrice Cauuet (I. Opriș, 2003, p. 10; B. Cauuet *et al.*, 2003, p. 472; P. Damian, C. Borș, 2008, p. 489–502, annexes 1–2 and 4). A first stage of the mining archaeological research at Roșia Montană was a survey of the historical vestiges preserved underground, in the Cârnic, Cetate, Zeus, Găuri, Țarina, Orlea, Păru-Carpeni, Coș and Jig-Văidoaia Mountain Massifs (Fig. 5), which lead to the exploration of over 70 km of mining networks that bore the marks of recent (20th c.), modern (18th c. – beginning of the 20th c.) and old works (Roman and medieval). Soon after the beginning of this large-scale research, from 2003[9], the first results of the mining archaeology campaigns in the Roșia Montană area started to be published (B. Cauuet *et al.*, 2003; B. Cauuet *et al.*, 2003b; B. Cauuet, C.G. Tămaș, 2012; B. Cauuet *et al.*, 2013; B. Cauuet, 2014), and they were analysed in the larger context of the mining technology analogies from the Roman world (B. Cauuet, 2004b; B. Cauuet, 2008; B. Cauuet, 2011). We must also mention a distinct research direction, regarding the effort to establish the origin of elements of gold and silver in prehistoric and ancient artefacts discovered in Romania, which saw the analysis of 29 ore samples from the Roșia Montană area (especially from the Roman galleries), and the results were compared with the other gold and silver deposits in the Apuseni Mountains and the Maramureș (Baron *et al.*, 2011).

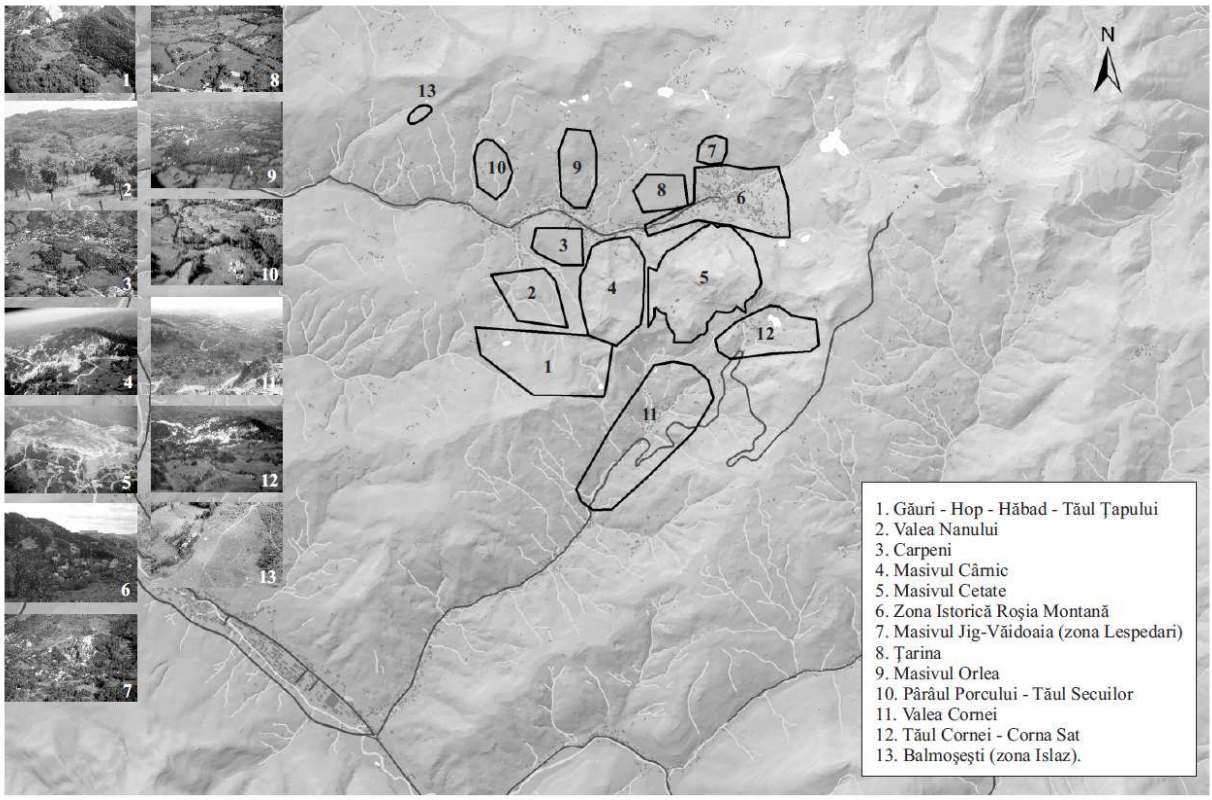


Fig. 5 – Archaeological sites from Roșia Montană outlined during the "*Alburnus Maior*" National Research Program (after P. Damian, C. Borș, 2008, fig. 3)

In the over 10 years of mining archaeology research (2000–2013), a series of gallery segments were researched, where over 7 km of ancient works were documented, occasion on which were identified and preserved systems for water evacuation (wooden wheels and connected elements)[10] and ventilation systems; important information was gained on systems for excavating the different types of rocks and on the practice of reinforcing the galleries. Unfortunately, as Béatrice Cauuet remarked, "*the emptied underground space was weakened by the removal of the supporting backfilling and should be reinforced and not abandoned as such*" (B. Cauuet, 2014, p. 103), more precisely – the research of these structures was not immediately followed by a medium- and long-term conservation strategy, deemed absolutely necessary given the high historical and cultural value of such ancient structures.

At the same time with the underground mining archaeology research undertaken at Roșia Montană, there were also research efforts on a much smaller scale, focusing on ancient ferrous and non-ferrous mining works in Roman Dacia. Thus, literature specialized on mining archaeology in Romania benefits from a series of works published starting with 2000, but which were, as V. Wollmann well put it[11] (1996, p. 23) "often debatable from the perspective of new information or interpretation[12].

Starting with 2002, H. Ciugudean[13] (in 1999 member of the team for the research of the gold alluvial deposits in the Pianu Valley) (H. Ciugudean *et alii*, 2000, p. 75–76) made a series of field surveys aimed at (re-)identifying certain historical mining works in the area around Bucium, Zlatna and Roșia Montană (H. Ciugudean, 2012). He listed previously-mentioned mining works (as early as the end of the 19th c.) located both on the surface and underground (H. Ciugudean, 2010, p. 263–268). In this context, the author emitted the hypothesis according to which some of these mining works could have started as early as the end of the Late Bronze Age, namely that "*Roman mining was nothing more than a reorganization and enlargement by improved technology of earlier mining activity in this area*" (H. Ciugudean, 2010, p. 268), without providing solid arguments to back it up though.

Another contribution to this field, owing to her interests in metallurgy during the Roman period, belongs to Prof. Doina Benea, who took up again (without any new information though) the problem of organizing Roman mining and the importance of mining in the "Golden Quadrilateral" (D. Benea, 2008a, p. 12–25; D. Benea, 2013, p. 253–267). The author also analysed the rich metal deposits in the Banat (Bocșa, Ocna de Fier, Berzovia, Eftimie Murgu, Dognecea, Moldova Nouă, Sasca Montană and Ciclova Română), from where large quantities of lead, copper, iron, silver and gold were extracted in Antiquity. Concerning the origins of the lead there is no clear information, given it was most probably extracted along with other metals (D. Benea 2008b, p. 231) in Moldova Nouă and probably all over Southern Banat. Gold mining was also approached by C. Timoc (2008), without bringing any new information though. The author treats especially the problem of the centre of the Roman mining administration at *Ampelum* (present-day Zlatna) based on epigraphic information. A synthesis of the archaeological activity in the "*Alburnus Maior*" National Research Program was published in 2008 (P. Damian, C. Borș, 2008). In it are presented the settlement's history, chance discoveries before 2000 and the main results of the archaeological research between 2001–2006. Along with the strategy for research and conservation, protection and proposals for putting to good value the archaeological discoveries, there is also a list of partner institutions, as well as a series of considerations regarding the publication and dissemination of the results.

Among the most important publications on mining and technology during the last 15 years we must mention the series *Silber und Salz in Siebenbürgen*, the result of a Romanian-German historical research under the coordination of Deutsches Bergbau-Museum Bochum. Apart from a detailed account of the information on the Roșia Montană area (V. Wollmann, 2002, p. 91–124), we must mention the volume dedicated to ancient mining works in the area around Brad, Baia de Arieș, Băița and Baia de Criș (V. Wollmann, 2010a, p. 35–80; 2010b, p. 223–274; R. Slotta, V. Wollmann, 2010, p. 518–542;). V. Wollmann published detailed studies on the mining works in the above-mentioned areas, focusing on signalling Roman mining works. This endeavour also includes data obtained through the study of archives regarding historical doscuments such as

travel journals, technical reports of certain geologists and mining technicians starting with the 18th c. and up to the first half of the 20th c.

Based on recent research[14], including the corroboration of the data in older specialized literature, M. Simion (M. Simion *et al.*, 2010) drew up a catalogue of ancient mining works signalled in the "Golden Quadrilateral", which are classified according to several criteria (presence of settlements/dwelling environment, necropolises or funerary areas, galleries and underground mining installations, epigraphic and monetary discoveries). Based on preliminary field observations and an analysis of the documentation, she formulated the hypothesis according to which there could be in this area a series of sites with an archaeological potential similar to that of Roșia Montană, such as the ones at Ruda-Brad, Stănija, Bucium, Băița, Certej and Săcărâmb (M. Simion *et al.*, 2010, p. 39).

Another work was published the same year, this time a synthesis essential for the history of mining in the Roman Empire by A.F. Hirt (2010); this book pays due attention to the ferrous and non-ferrous mining works in Roman Dacia, analyzing the organization of mining districts based on the relevant epigraphic material. A synthesis with the latest data (2011) on the given subject was published by D. Vleja[15]. The perspectives for putting to good value the recent discoveries at Roșia Montană are also discussed by C. Borș (2012). Another synthetic approach is taken by H.A. Pundt (2012), by studying the organizing of Roman Dacia and its ethnic groups, based on the analysis of the funerary rite and behaviour, especially in the area around ancient *Alburnus Maior* (Roșia Montană).

As far as field research is concerned, namely surveys on ancient mining vestiges, in 2014 a series of preliminary observations was made around Băița (Hunedoara County), covering the villages Băița, Câinelu de Sus, Trestia, Crăciunești and Hărțăgani. These led to the identification of new Roman mining galleries, some of them in an advanced state of degradation. The results of these investigations were updated through the National Archaeological Repertoire[16] (that contained a national map server for archaeological sites and monuments), thereby completing the list of ancient mining works signalled in the "Golden Quadrilateral". Unfortunately, in this case also, as in others mentioned in different works, there is no precise data on the location of these objectives, which would constitute an essential element for investigating and preserving such vestiges.

The repertoire of ancient mining sites in the "Golden Quadrilateral"-a pluri-disciplinary endeavour

As was previously shown, with the exception of Roșia Montană, ancient mining vestiges in the Golden Quadrilateral were not properly researched through mining archaeology, and they were not even adequately repertoried. In many cases, the specialized literature has simple mentions of such structures or indirect clues concerning them (e.g. mining tools – hammers, stone hammers, etc.[17]), given the use of mines, shafts and washing installations in following periods. Starting from these conclusions, the object of the research undertaken during the doctoral stage is gold, silver, copper and iron exploitation from the earliest periods up to the Roman period, including a presentation of the techniques and tools used for it, a documentation based on direct field observations on the present state of conservation of such vestiges, and the creation of a digital repertoire. The relatively significant number of artefacts (tools, weapons and jewellery) that can be indirectly associated to ancient mining works should have stimulated a detailed research of the primary sources and emplacement of metal exploitation areas. But their study in Romania is still in its infancy, when compared to similar research in other countries.

A first and necessary step for documenting this category of vestiges is creating a repertoire, by corroborating historical-archaeological data with geological data. Thus, the starting point for the repertoire I am creating is the location of all potential settlements and areas with mineral deposits, starting from Rădulescu and Dimitrescu's comprising book (1966), V. Brana (1958), of course with the updates made following later geological research (Tămaș-Bădescu, 2010, p. 30–42; Cristea, 2012, p. 8–37). The necessity of this approach is obvious only if we consider that only for copper we have 636 deposits (J. Emsley, 1991) in the world known until now (with copper purity of between 100% and 0.07%); thus our analysis for developing the database of the above-mentioned repertoire contains only the sites of interest for

prehistoric mining and which are located only in Romania[18]. We applied the same perspective for silver, gold and iron components.

Another direction for the structure of the information to be comprised by the repertoire is the beginning and development of mining in time, including the Roman period. One of the most difficult challenges will be to correlate the places of discovery for certain mining tools (prehistoric and ancient) used for exploiting ferrous and non-ferrous deposits, taking into account the fact that some of these could be used also in those times for salt or construction material extraction. Thus, it becomes necessary to also integrate these *indirect proofs* concerning ancient mining vestiges in the repertoire that I am developing, because by corroborating this information with geological data we can obtain indications for the existence of prehistoric or ancient mining works. Also, this inventorying of the mining sites contains references to elements of fixed heritage (shafts, galleries, mines, areas for exploiting alluvial deposits etc.), as well as the location of objects that constitute indirect proofs for mining in a certain area. In essence, drawing this complex repertoire of the prehistoric and ancient mining works can offer a new perspective on mining vestiges in the area under scrutiny.

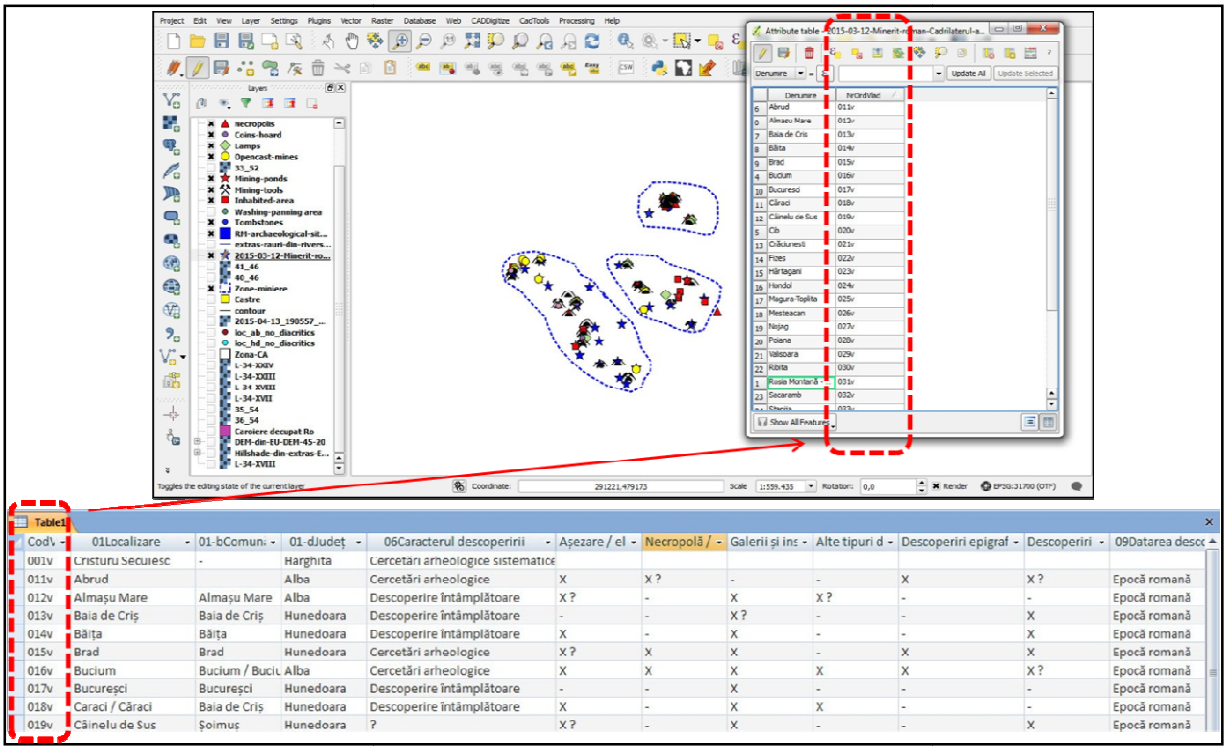


Fig. 6 – Combination of unique codes from MS Access database with the dedicated programs for Geographic Information System (Quantum GIS)

The database created for this purpose includes several criteria, namely:

1. Administrative location;
2. Toponym or toponyms of the places of discovery;
3. Topographical location according to landmarks provided by the bibliography, completed in several case studies with data obtained during my own field surveys (including GPS measurements);
4. Type of discovery: shaft, gallery, mine, washing installation, object;
5. Category of ore/deposit in the area
6. Character of the discovery: systematic, salvage / preventive archaeological excavation, surface research, field survey, archaeological test trenches, chance discoveries etc.;
7. Short history of the research;
8. Present location of the archaeological material;

9. Chronological data of the discoveries;
10. Signalling exploitations from other historical periods;
11. Bibliographical references;
12. Code in the National Archaeological Repertoire (Repertoriu Arheologic Național – RAN);
13. Code in the List of Historical Monuments (Lista Monumentelor Istorice – LMI);
15. Information on the current state of preservation.

Thus, in order to integrate the available data in specialized literature and to precisely locate the main vestiges connected to the exploitation of the ferrous and non-ferrous resources in the "Golden Quadrilateral" in Prehistory and Antiquity, starting with 2013 a GIS (*Geographic Information System*) database was designed and developed, the information structured according to the criteria mentioned above (Fig. 6). The endeavour is difficult, given that most times in specialized literature the information are descriptive and are not accompanied by plans or maps.

Fig. 7 – Georeferencing a map (Baron 2012), using as ground control points the top of the hills from a military map

One example is the situation at Brad, where Roman period mining vestiges are signalled in the Muşari (Muşariu) mine, on the Dealul Fetii, in the Barza mine (gallery named *Treptele romane* – "the

Roman steps", near the Ruda village), in the *Sf. Ana Gallery*, in the Ruda-Brad mine (galleries *12 Apostoli* and *Zdrahonț – Sf. Ioan*) or on the Muncelul hill – near Ruda (V. Wollmann 1996, p. 134–136, 187–188; M. Simion *et al.*, 2010, p. 42). In order to map all these discoveries we used maps of contemporary exploitations (M. Baron, 2012, fig. 1), geo-referenced with the aid of the Quatum-GIS software, using as control points the peaks of surrounding hills (Fig. 7, 8) There are similar situations on other ancient mining sites in the Golden Quadrilateral.

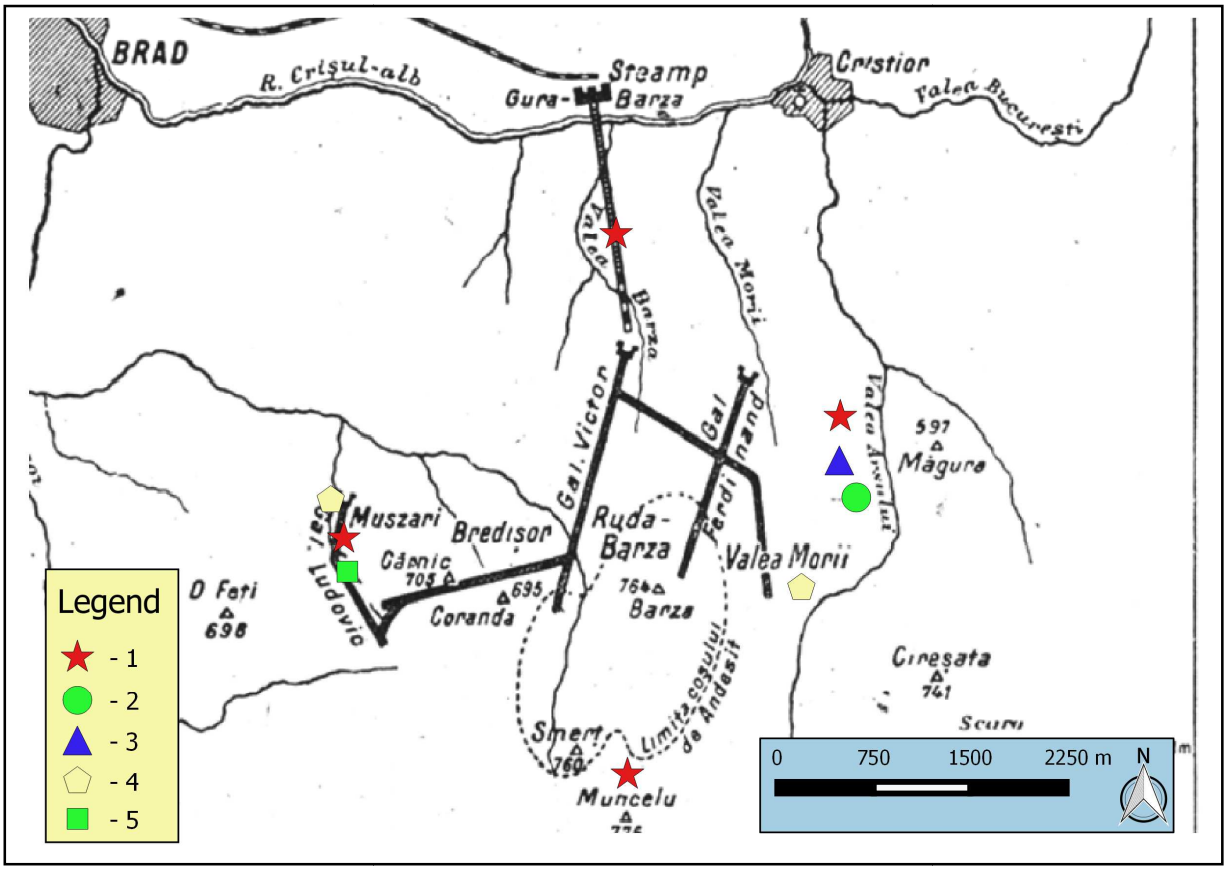


Fig. 8 – Brad area and the main Roman mining discoveries: 1 – underground works; 2 – monetary hoard; 3 – opencast mines; 4 – mining tools, 5 – waste dumps

Even if it is an on-going project, this repertoire is a very useful tool that will contribute to the better knowledge and preservation of a heritage category that is rather neglected in Romania, but which has a significant potential for both scientific research and for cultural tourism.

Acknowledgements

This article was drafted following the research work financed through the Project „**MINERVA –** Cooperation for an elite career in doctoral and post-doctoral research", contact code: POSDRU/**159/1.5/S/137832**, co-financed through the European Social Fund through the Sectorial Operational Program for Developing Human Resources 2007-2013.

Notes

1. Different epigraphic monuments from the mining areas were also mentioned by chroniclers and antiquarians such as Ioannes Mezerzius (1470–1517), Stephanus Taurinus (1485–1519), Martin Opitz (1597–1639), Samuel Köleséri (1629–1683), who published a series of inscriptions from the Apuseni Mountains in a book called *Auraria Romano-Dacica*; the Jesuit monk Ioannes

Fridwaldssky approached the same topic in his work *In Romano-Transilvanicae honoribus comiti Andreae ab hadik oblatae ab Josepho Thoroczay de Thoroczko*, published in 1767 (V. Wollmann, 1996, p. 11–13; 17–19; D. Vleja, 2011, p. 88–91).

2. *Corpus Inscriptionum Latinarum*, available on-line at http://cil.bbaw.de/cil_en/index_en.html. Also, the wax tablets discovered at *Alburnus Maior* were published in volume I of the series *Inscriptiones Daciae Romanae* (1975), while the epigraphic material from the *Alburnus Maior – Ampelum* area discovered up to '80s of the last century was published in volume III/3 of this series (IDR III/3, 1984), along with translations and comments (V. Wollmann, 1996, p. 12–13).

3. In this context we must mention the work of Téglás Gábor (1848–1916), a nature scientist and self-taught archaeologist who, at the end of the 19th – beginning of the 20th c., published many articles concerning Roman mining works in Transylvania. Recently, his biography was published (E. Gáll, 2014), containing a list of all the works on mining. The same interest for archaeology came out in his brother, István Téglás (1853–1915), who managed to gather unique information concerning gold processing, salt and construction material extraction in Roman Dacia (I. Bajusz, 2005).

4. For a history of these discoveries in the Roșia Montană area see P. Damian, C. Borș, 2008, p. 482–486.

5. At the present moment, in Romania, industrial heritage is protected by Law no. 422/2001 for the protection of historical monuments. We must mention the organizing of international workshops on industrial archaeology in our country: 2001 (in Bucharest), 2002 (Banatul Montan), 2003 (Cluj-Napoca), 2004 (Baia Mare) and 2007 (Bucharest). See information available on-line at http://www.cimec.ro/patrimoniuindustrial/, where there is a short presentation of the above-mentioned workshops, as well as an international definition of *industrial heritage*; the information has not been updated after 2007.

6. International interest for the study and preservation of industrial heritage dates to the 1970', when the The International Committee For The Conservation Of The Industrial Heritage (TICCIH) was created. Starting with 2000, this committee became a specialized institution of the ICOMOS – International Council on Monuments and Sites – that provides consulting on industrial heritage and the inclusion of such sites in the UNESCO List of World Heritage.

7. Since 2013, in the Doctoral School of the "Valahia" University in Târgoviște, I focused my research on the possibility of exhibiting to the public the historical mining heritage in central and north-western Romania, a first step in this direction being a GIS (*Geographic Information System*)-based repertoire of all discoveries connected to prehistoric and ancient mining.

8. A survey of mining works in the gold-bearing alluvial deposits of the Pianu Valley (Alba County) was undertaken in 1999 and 2000, occasion in which three such works were identified on a surface of 320 km^2. These were vast and long works, aligned and regular on the slope, and small pits, together with the mounds of debris (H. Ciugudean *et al.*, 2000, p. 75–76; B. Cauuet *et al.*, 2003, p. 472).

9. In 1999–2001 annual reports were published, initially presented by the University of Toulouse (B.Cauuet, 1999, 71 p., 55 fig.; B. Cauuet, 2000, 156 p., 133 fig.), given the fact that this university financed all mining archaeology research in 1999, and later by the Romanian Ministry of Culture, when the *Alburnus Maior* National Research Program started (B. Cauuet, 2001, 216 p. + illustration). In 2000, 60% of the expenses for the mining archaeology research at Roșia Montană was covered by the French state (*Ministère des Affaires Étrangères* and *Unité Toulousaine d'Archéologie et d'Histoire – U.T.A.H*), the rest of 40% by S.C. Roșia Montană Gold Corporation – RMGC. From 2001, the financing of the program for the research of ancient mining vestiges at Roșia Montană was provided by the private company and the French university (Béatrice Cauuet *et alii*, 2003, p. 471). Starting with 2002 and up to 2013, the funds for this research were provided exclusively by the mining company, with the reports transmitted to the Romanian Ministry of Culture and the Romanian National Archaeological Commission, according to the laws passed since 2000 concerning the protection of archaeological heritage (B. Cauuet, 2002, 243 p., 233 fig.; B. Cauuet, 2003, 219 p., 146 fig.; B. Cauuet, 2004, 219 p., 160 fig.; B. Cauuet, 2005, 244 p., 233 fig.; B. Cauuet, 2006, 239 p., 841 fig.).

10. During the archaeological campaign in 2013, two rooms equipped with hydraulic wheels – in their original position – for the evacuation of the water from lower galleries were discovered in the *Cătălina Monulești* Gallery in the Coș Mountain Massif (B. Cauuet *et al*., 2013, p. 114–115, 339; B. Cauuet 2014, p. 98–99). There were also older mentions of such ancient installations preserved in the galleries at Roșia Montană, made by Fr. Pošepny (P. Damian, C. Borș, 2008, p. 485, n. 30 și 31; p. 485–486, n. 38).

11. Single author or co-author of over 90 studies and 12 books on ancient Dacia, mining, metallurgy and history of technology (Ardevan R., 2012, p. 11–17), V. Wollmann managed through his PhD thesis (defended in 1983, published only in 1996 though) to offer a relatively complete image of the mining activities in Roman Dacia (V. Wollmann, 1996). We must mention another series of articles published as single author before 2000 (1976; 1999) or published together with A. Sântimbreanu (1974; 1989), concerning ancient mining works.

12. In the study dedicated to Roman mining in the Zlatna-Stănija area, N. Ludușan (2003) uses entirely the text, illustrations and references of V. Wollmann (1996, p. 136–140, pl. XXXIX, LXVI, LXXXVII), with only a few minor changes. We also mention the work of D. Fodor (2005), intended to be a "history of mining" from the oldest times up to the beginning of the 3rd millennium. Unfortunately, in the 39 pages dedicated to "mining in Dacia under the Roman rule" (p. 71–110), there are entire phrases – slightly reformulated – taken from the works of N. Maghiar, Șt. Olteanu (1970, p. 47–92), without even updating or verifying the information, and off course with no new information. The same goes for the illustration, all taken from the above-mentioned work.

13. Preoccupied by the earliest information concerning the exploitation of mineral resources in Transylvania, together with V. Wollmann, he published an article on the problem of prehistoric mining hammers made of stones. But the use of these artefacts cannot be connected only to mining, given the fact that some of the objects were discovered in areas lacking any mineral resources (V. Wollmann, H. Ciugudean, 2005, p. 96). The problem posed by these tools was also analysed by C. Schuster (1998; 2000), and new examples were more recently mentioned (I. Mareș, 2002, p. 59–60, fig. 72/4–5; N. Boroffka, 2006, p. 74–76; B. Seculici, 2008; C.A. Tulungea, M. Blăjan, 2009; Al. Hegyi, 2012).

14. In the "*Alburnus Maior*" National research Program, in the area of Roșia Montană, several dwelling areas were researched (at Hop-Găuri, Hăbad, the Tăul Țapului area and Dealul Carpeni), as well as sacred areas (Hăbad, Nanului Valley, Carpeni, Pârâul Porcului-Tăul Secuilor), 5 necropolises (Hop, Tăul Cornei, Jig-Piciorag, Țarina, Pârâul Porcului-Tăul Secuilor) and two funerary areas located on the Dealul Carpeni and in the Nanului Valley (P. Damian, 2003; M. Simion *et al.*, 2005; P. Damian, C. Borș, 2008, p. 499–502).

15. "*Exploatarea și prelucrarea metalelor în Dacia romană. Interferențe etnice și culturale*", PhD thesis defended at the University of Bucharest. A series of issues are approached, regarding mining techniques for exploiting gold in Antiquity, as well as everyday life, religion and funerary rite in the mining community, to which is added a list of the main ancient discoveries in the area of the Metaliferi Mountains, in the Banat and in Oltenia. We must also mention the fact that, starting with 2006, D. Vleja was part of the research team from the University of Toulouse, led by Beatrice Cauuet, PhD, and took part in underground excavations in the Cârnic and Orlea Mountain Massifs, as well as in surveys in the Bucium area, Alba County. In 2010 he took part in a series of surveys in the ancient mining areas in central and southern Serbia, led by Vera Bogosavljević Petrović (D. Vleja, 2011, p. 78).

16. Resource available at http://www.cimec.ro/scripts/ARH/RAR-Index/sel.asp (accessed on 28.09.2015).

17. See above n. 12.

18. Copper (100% Cu), Cuprite (88.82% Cu), Tenorite (79.89% Cu), Chalcopyrite (34.63%), Azurite, Bornite, Copper sulphate, copper sulphide, Malachite, Melaconite in D. Rădulescu, R. Dimitrescu (1966, p. 52, 71, 79, 83, 118, 119, 288).

Bibliography

Alberruche del Campo E., Marchán Sanz C., Sánchez Rodríquez A., Ponce de León Gil D., García de Domingo Alfredo, 2012, ***Guía metodológica para la integración del Patrimonio***

Minero en la Evaluación de Impacto Ambiental, Madrid, 40 p., ISBN 978-84-7840-913-6.

Ardevan R., 2012, *Istoricul Volker Wollmann septuagenar*, Terra Sebus. Acta Musei Sabesiensis, 4, p. 7–12.

Bajusz I. (ed.), 2005, ***Téglás István jegyzetei. I. Régészeti feljegyzések***, Cluj-Napoca, Ed. Scientia, 1172 p., ISBN 973-7953-48-7

Baron M., 2012, *The Contribution of "Ruda 12 Apostoli" Mining Association in the Brad to the Development of Transylvanian Gold Mining between 1884–1921*, Annales of the University of Petroşani, Economics, 12 (1), p. 5–14.

Baron S., Tămaş C.G., Cauuet B., Munoz M., 2011, *Lead isotope analyses of gold–silver ores from Roşia Montană (Romania): a first step of metal provenance study of Roman mining activity in Alburnus Maior (Roman Dacia)*, Journal of Archaeological Science, Nr. 38/5, p. 1090–1100.

Benea D., 2008a, *Metalurgia şi prelucrarea fierului în Dacia*, in Benea D. (coord.), ***Dacia în sistemul socio-economic roman. Cu privire la atelierele meşteşugăreşti locale***, Bibliotheca Historica et Archaeologica Universitatis Timisiensis, Editura Excelsior Art, Timişoara, ISSN 1453-7419, p. 11–95, 19 fig.

Benea D., 2008b, *Unele aspecte privind prelucrarea plumbului în provincia Dacia. Atelierele*, in Benea D. (coord.), ***Dacia în sistemul socio-economic roman. Cu privire la atelierele meşteşugăreşti locale***, Bibliotheca Historica et Archaeologica Universitatis Timisiensis, Editura Excelsior Art, Timişoara, ISSN 1453-7419, p. 229–255, 8 fig.

Boroffka N., 2006, *Resursele minerale din România şi stadiul actual al cercetărilor privind mineritul preistoric*, Apulum. Acta Mvsei Apvlensis, Alba Iulia, 44/1, p. 72–94.

Boroneanţ V., 2000, ***Arheologia peşterilor şi minelor din România***, Editura cIMeC – Institutul de Memorie Culturală, Bucureşti, 327 p., 123 pl., ISBN 973-99088-0-2.

Borş C., 2012, *Perspectivas de conversión en museo del patrimonio arqueológio de Roşia Montană*, Revista de Museología, nr. 54, p. 23–41.

Brana V., 1958, **Zăcămintele metalifere ale subsolului românesc**, Editura Ştiinţifică, Bucureşti, 261 p., 100 fig.

Carvajal D.J., 2010, ***Metodología para la gestíon de proyectos de puesta en valo del patrimonio minero***, Universidad de Huelva, Memoria para optar al grado de doctor, Huelva, 401 p., ISBN 978-84-92944-63-7.

Cauuet B. (coord.), 1999, Mines d'or antiques de Dacie. Vallée du Pianul et district de Roşia Montană (Carpates Méridionales, Roumanie). Rapport de mission archéologique, Université de Toulouse II – Le Mirail, Toulouse, 71 p., 55 fig., (*ms.*)

Cauuet B. (coord.), 2000, Mines d'or antiques de Dacie. District de Roşia Montană (Monts Apuseni, Roumanie). Rapport de mission archéologique, Université de Toulouse II – Le Mirail, Toulouse, 156 p., 133 fig., (*ms.*)

Cauuet B. (coord.), 2001, Mines d'or antiques de Dacie. District de Roşia Montană (Monts Apuseni, Roumanie). Rapport de mission archéologique, Université de Toulouse II – Le Mirail, Toulouse, 2001, 216 p., (*ms.*)

Cauuet B. (coord.), 2002, Mines d'or antiques de Dacie. Le massif de Cârnic (Roşia Montană, Roumanie), Document Final de Synthèse, Université de Toulouse II – Le Mirail / Romanian Ministry of Culture and Religion, Toulouse, 243 p., 233 fig., (*ms.*)

Cauuet B. (coord.), 2003, Mine d'or antiques de Dacie. Les massifs de Cârnic et de Coş (Roşia Montană, Roumanie). Document Final de Synthèse, Université de Toulouse II – Le Mirail / Romanian Ministry of Culture and Religion, Toulouse, 219 p., 146 fig., (*ms.*)

Cauuet B. (coord.), 2004a, Mine d'or antiques de Dacie. Les massifs de Cârnic, Jig et Orlea-Ţarina (Roşia Montană, Roumanie). Document Final de Synthèse, Université de Toulouse II – Le Mirail / Romanian Ministry of Culture and Religion, Toulouse, 219 p., 160 fig., (*ms.*)

Cauuet B., 2004b, *Apport de l`archéologie minière à l`étude de la mise en concessions des mines romaines aux IIe et IIIe siècles. L`exemple de Vipasca (Aljustrel, Portugal) et d` Alburnus Maior (Roşia Montană, Roumanie)*, in Gorges J.-G., Cerrillo E., Nogales Basarrate T. (eds.), ***V Mesa redonda internacional sobre Lvsitania Romana: las comunicaciones*, Cáceres, (7–9 nov. 2002)**, Cáceres, 2004, ISBN 84-369-3836-4, p. 33–60.

Cauuet B. (coord.), 2005, Mine d'or antiques de Dacie. Les massifs de Cârnic et de Păru Carpeni (Roşia Montană, Roumanie). Document Final de Synthèse, Université de Toulouse II – Le Mirail /

Romanian Ministry of Culture and Religion, Toulouse, 244 p., 233 fig., (*ms.*)

Cauuet B. (coord.), 2006, Mine d'or antiques de Dacie. Les massifs de Cârnic (Roșia Montană, Roumanie). Document Final de Synthèse, Université de Toulouse II – Le Mirail / Romanian Ministry of Culture and Religion, Toulouse, 2 volumes, 239 p., 841 fig., (*ms.*)

Cauuet B., 2008, *Équipements en bois dans lesmines d`or protohistorique et antiques (Gaule et Dacie romaine),* in Bailly-Maître M.-Ch., Jourdain-Annequin C., Clermont-Joly M. (eds.), ***Archéologie et paysages des mines anciennes, de la fouille au musée***, 276 p., Picard, Paris, ISBN 978-2-7084-0828-9, p. 57–73, 15 fig.

Cauuet B., 2011, *L'espace minier romain. La cas des mines d'or et d'argent d'Alburnus Maior en Dacie romaine (Rosia Montana, Roumanie),* in Mata-Perelló J.M., Torró I Abat L., Fuentes Prieto M.N. (eds.), ***Actas del V Congreso Internacional sobre Mineria y Metalurgia Historicas en el Suroeste Europeo (León – 2008), Libro en homenaje a Claude Domergue***, 852 p., Sociedad Española para la Defensa del Patrimonio Geológico y Minero, Madrid, ISBN 978-99920-1-790-6, p. 345–382**,** 32 fig.

Cauuet B., 2014, *Gold and silver extraction in Alburnus Maior mines, Roman Dacia (Rosia Montana, Romania). Dynamics of exploitation and management of the mining space*, in Fontes L**.** (coord.), ***Paisagens Mineiras Antigas na Europa Ocidental. Investigação e Valorização Cultural,* Atas do Simpósio Internacional, Boticas 25–27 julho 2014**, Câmara Municipal de Boticas, Boticas, 204 p., ISBN 978-972-97695-7-3, p., 82–105, 10 fig.

Cauuet B., Ancel B., Rico Ch., Tămaș C., 2003, *Rețelele miniere antice. Misiunile arheologice franceze 1999–2001*, in Damian P. (ed.), ***Alburnus Maior***, I, Editura CIMEC, București, 530 p., ISBN 973-85887-7-4, p. 471–530, 40 fig.

Cauuet B., Assoun C., Bonnamour G., Carré R., Constans A., Dubois C., Girard, J., Guilini E., Moindrot T., Thiery G., Vialaron Ch., Benea B., Faur S., Feier N., Ghergari L., Groza N., Ionescu C., Tămaș C., Kammenthaler E., Lehrberger G., Ryttner V., Pavel R., 2003b, *Roșia Montană, com. Roșia Montană, jud. Alba. Punct: Masivul Cârnic*, in M.V. Angelescu, Borș C., Vasilescu F. (eds.), ***Cronica cercetărilor arheologice din România: campania 2002, [prezentată la] a XXXVII-a Sesiune Națională de Rapoarte Arheologice, Covasna, 2–6 iunie 2003***, cIMeC, București, 520 p., ISBN 973-7930-02-9, p. 254–262, nr. 164, pl. 99/B, 100/A.

Cauuet B., Tămaș C.G., 2012, *Les travaux miniers antiques de Roșia Montană (Roumanie). Apports croisés entre archéologie et géologie*, in Orejas C., Rico A., Sánchez Palencia J. (eds.), ***Minería antigua: estudios regionales y temas de investigacion actual,*** Colloque International 28–29 novembre 2005, Casa de Velazquez, Madrid, p. 219–244.

Cauuet B., Ancel B., Vialaron Ch., Tămaș C., Damian P., Vleja D., Rumega V.,2013, *Roșia Montană, com. Roșia Montană, jud. Alba [Alburnus Maior]. Punct: Galeria Cătălina Monulești, masivul Coș*, in ***Cronica cercetărilor arheologice din România: campania 2012, [prezentată la] a XLVII-a Sesiune Națională de Rapoarte Arheologice, Craiova, 27–30 mai 2013***, Editura Universității „Alexandru Ioan Cuza", Iași, p. 114–115, nr. 57, pl. 339.

Ciugudean H., 2010, *Landscape Archaeology in South-West Transylvania: Ancient gold mining in the Bucium–Zlatna Region,* in ***New Europe College GE-NEC Program 2004–2007***, New Europe College, București, ISSN 1584-0298, p. 251–316.

Ciugudean H., 2012, *Ancient Gold Mining in Transylvania: The Roșia Montană–Bucium Area*, Caiete ARA [Arhitectura, Restaurare, Arheologie], Nr. 3, p. 219–232.

Ciugudean H., Cauuet B., Rico Ch., Lehberger G., Ruttner V., Tămaș C., Bedelean A., 1999, *Exploatarea minieră de la Pianu de Jos – La Margini, jud. Alba*, in ***Cronica Cercetărilor Arheologice din România. Campania 1999***, Editura CIMEC – Institutul de Memorie Culturală, București, 213 p., ISBN 973-99088-6-1, p. 75–76.

Cristea D., 2012, ***Studiul aurului din România în vederea stabilirii proveniență obiectelor arheologice din patrimoniul cultural național***¸ Universitatea din București, Facultatea de Geologie și Geofizică, Catedra de Mineralogie, București, teză de doctorat, 171 p., 153 fig. (*ms.*)

Damian P. (coord.), 2003, ***Alburnus Maior***, I, Editura CIMEC, București, 530 p., ISBN 973-85887-7-4.

Damian P. (coord.), 2008, ***Necropola romană de incinerație de la Tăul Corna***¸ Alburnus Maior,

III, partea I, 263 p. + 346 pl., ISBN 978-973-1868-44-8.

Damian P., Borş C., 2008, *Managementul arheologic în contextul proiectului minier Roşia Montană – „Programul Naţional de Cercetare Alburnus Maior" (2001–2006)*, in Cercetări Arheologice, 14, p. 481–555.

Damian P., Borş C., 2009, *Alburnus Maior Ancient Mining Site. Considerations regarding the archaeological management*, in *Proceedings of the SOMA 2007 – Symposium on Mediterranean Archaeology 2007* (April 24-29, 2007 Istanbul Technical University), BAR International Series 1900, p. 75–82.

Emsley J., 1991, **The Elements**, Oxford.

Fodor D., 2005, ***Pagini din istoria mineritului***, Editura Infomin, Deva, 456 p., ISBN 973-86131-8-3.

Gáll E., 2014, *Precursorii arheologiei profesioniste din Transilvania. Gábor Téglás*, Studii şi Cercetări de Istorie Veche şi Arheologie, tomul 65, nr. 3–4, p. 219–293.

Hegyi Al., 2012, *Un fragment de ciocan pentru minerit descoperit la Zădăreni, județul Arad*, Acta Musei Caransebesiensis, III, p. 195–201.

Hirt A.M., 2010, ***Imperial Mines and Quarries in the Roman World. Organizational Aspects 27 BC – AD 235***, Oxford University Press, Oxford / New York, 2010, ISBN 978-0-19-957287-8, 551 p.

Ludușan N., 2003, *Repere istorice privind mineritul în zona Zlatna-Stănija*, Pangeea, nr. 1, p. 102–105.

Maghiar N., Olteanu Șt., ***Din istoria mineritului în România***, Editura Științifică, București, 1970, 333 p.

Mareș I., 2002, ***Metalurgia aramei în neo-eneoliticul României***, Editura Bucovina Istorică, Suceava, 501 p., ISBN 973-86046-0-5.

Opriș I., 2003, *Programul Național de Cercetare „Alburnus Maior"*, in Damian P. (coord.), ***Alburnus Maior***, I, Editura CIMEC, București, 530 p., ISBN 973-85887-7-4, p. 9–11.

Pundt H.A., 2012, ***Mining Culture in Roman Dacia: Empire, Community and Identity at the Gold Mines of Alburnus Maior ca. 107–270 C.E.***, Portland State University, Dissertations and Theses. Paper 800, 167p.(disponibil on-line la adresa: http://pdxscholar.library.pdx.edu/open_access_etds/800/)

Rădulescu D., Dimitrescu R., 1966, ***Mineralogia topografică a României***, Editura Academiei Republicii Socialiste România, București, 376 p.

Sântimbreanu A., Wollmann V., 1974, Aspecte tehnice ale exploatării aurului în perioada romană la Alburnus Maior (Roșia Montană), Apulum. Acta Musei Apulensis, 12, p. 240–278

Sântimbreanu A., Wollmann V., 1989, ***Muzeul Mineritului din Roșia Montană***, Editura Sport-Turism, București, 216 p., ISBN 9734100297

Schuster C., 1998, *Despre un anumit tip de ciocan și ciocan-topor neperforat din piatră de pe teritoriul României*, Thraco-Dacica, XIX/1–2, p. 113–144.

Schuster C., 2000, *Notă cu privire la două tipuri de obiecte din piatră șlefuită din epoca bronzului din sudul și răsăritul României*, Augustia, 5, p. 85–92.

Seculici B., 2008, *Unele considerații privind exploatarea și obținerea aurului și argintului în Dacia preromană*, Banatica, 18, p. 65–73.

Simion M., Apostol V., Vleja D., 2005, **Alburnus Maior II.** ***Monumentul funerar circular***, București, 193 p., 51 pl., ISBN 973-85887-9-0.

Simion M., Borș C., Damian P., 2010, *Lo sfruttamento dei metalli preziosi in Dacia. I siti minerali di età romana del Quadrilatero aurifero*, in Oberländer-Târnoveanu E., Ungaro L. (eds.), ***Ori Antichi della Romania. Prima e dopo Traiano*** , Silvana Editoriale, Milano, 255 p., ISBN 8836619010, p. 31–47.

Slotta R., Wollmann V., *Sachzeugen des Montanwesens in des Berstädten und- Orten Baia de Arieș/Offenánya/Offenburg, Brad, Băița/Pernseifen, Crăciunești, Barbura/Trestia und Baia de Criș/Köröbánya/Altenburg* in Slotta R., Wollmann V., Dordea I. (eds.), 2010, ***Silber und Salz in Siebenbürgen. Bd. 10: Gold aus dem „Goldenem Viereck". Der Bergbau in Brad, Offenburg (Baia de Arieș/Offenbànya), Băița (Boicza/Pernseifen) und Baia de Criș (Altenburg/Kőrösbànya)***, Bochum, I – 640 p., ISBN 3-937203-47-8; 978-3-937203-47-8, p. 518-542

Slotta R., Wollmann V., Dordea I. (eds.), ***Silber und Salz in Siebenbürgen, Bd. 5, Quellen***

aus dem Montan-Thesauriats-Archiv von Cluj-Napoca, 577 p., ISBN 3-921533-95-3

Slotta R., Wollmann V., Dordea I. (eds.), 2010, ***Silber und Salz in Siebenbürgen. Bd. 10: Gold aus dem „Goldenem Viereck". Der Bergbau in Brad, Offenburg (Baia de Arieş/Offenbànya), Băiţa (Boicza/Pernseifen) und Baia de Criş (Altenburg/Kőrösbànya)***, Bochum, I – 640 p., II – 1580 p.

Tămaș-Bădescu S., 2010, ***Contribuții privind geologia economică a aurului în România***, Universitatea din București, Facultatea de Geologie și Geofizică, București, rezumat teză de doctorat, 132 p. (resursă documentară disponibilă on-line la adresa http://www.unibuc.ro/studies/Doctorate2010Iunie/TamasBadescu%20Sorin%20%20Contributii%20privind%20geologia%20economica%20a%20aurului%20in%20Romania/REZUMAT_Geol_Ec_Aur_STamas-Badescu.pdf (accesat în data de 28.09.2015)

Timoc T., 2008, *Mineritul aurifer în Dacia Romană*, in Benea D. (coord.), ***Dacia în sistemul socio-economic roman. Cu privire la atelierele meșteșugărești locale***, Bibliotheca Historica et Archaeologica Universitatis Timisiensis, Editura Excelsior Art, Timișoara, ISSN 1453-7419, p. 96–106, 6 fig.

Tulugea C.A., Blăjan M., 2009, *Topoare-ciocan de minerit din colecția Muzeului Județean Aurelian Sacerdoțeanu Vâlcea*,Buridava. Studii și materiale, Râmnicu Vâlcea, nr. 7, p. 40–43.

Vleja D., 2011, ***Exploatarea și prelucrarea metalelor în Dacia. Interferențe etnice și culturale***, Universitatea din București, Facultatea de Istorie, București, teză de doctorat, vol. I – 308 p., vol. II – 128 p., (*ms.*)

Wollmann V., 1976, *Tăbliţele cerate din Roșia Montană și datarea „galeriilor romane"*, Anuarul Institutului de Istorie și Arheologie, Cluj-Napoca, XIX, p. 237–257.

Wollmann V., 1996, ***Mineritul metalifer, extragerea sării şi carierele de piatră în Dacia romană / Der Erzbergbau, die Salzgewinnung und der Steinbrüche im römischen Dakien***, Bibliotheca Mvsei Napocensis, XIII / Veröffentlichungen aus dem Deutschen Bergbau-Museum Bochum, 63, Cluj-Napoca, 472 p., CXVI pl., ISBN 973-0-00253-3

Wollmann V., 1999, *Contribution à la connaissance de la topographie archéologique d'Alburnus Maior (Roşia Montană) et à l'histoire des techniques d'exploitation romaines en Dacie*, in Cauuet B. (ed.), ***L'or dans l'Antiquité, de la mine à l'objet***, Suppl. 9, Aquitania, p. 117–130.

Wollmann V., *Die römischen Wachstafeln von Roșia Montană-Paraleipomena*, in Slotta R., Wollmann V., Dordea I. (eds.), ***Silber und Salz in Siebenbürgen. Bd. 4: Einleitende Sätze, Reiseberichte sowie geologische und mineralogische Literatur,*** 468 p., ISBN *9783921533963, p. 91–124.*

Wollmann, V., 2010, *Der Bergbau von Brad und Umgebung (in Crișcior/Kreischquell, Ruda, Valea Arsului, Zdrahoț und Musariu) von seinen Anfängen bis zur Gründung der "Mica"-Gesellschaft im Jahre 1920*, in Slotta R., Wollmann V., Dordea I. (eds.), ***Silber und Salz in Siebenbürgen. Bd. 10: Gold aus dem „Goldenem Viereck". Der Bergbau in Brad, Offenburg (Baia de Arieş/Offenbànya), Băiţa (Boicza/Pernseifen) und Baia de Criş (Altenburg/Kőrösbànya)***, Bochum, I – 640 p., ISBN 3-937203-47-8; 978-3-937203-47-8, p. 35–80.

Wollmann, V., 2010, Der Bergbau von Băița (Boicza, Pernseifen), Hărțăgani, Trestia, Draica, Porcura, Găinel, Crăciunești und Fizeș bis zum Ende des 20. Jahrhunderts, in Slotta R., Wollmann V., Dordea I. (eds.), 2010, ***Silber und Salz in Siebenbürgen. Bd. 10: Gold aus dem „Goldenem Viereck". Der Bergbau in Brad, Offenburg (Baia de Arieş/Offenbànya), Băiţa (Boicza/Pernseifen) und Baia de Criş (Altenburg/Kőrösbànya)***, Bochum, I – 640 p., ISBN 3-937203-47-8; 978-3-937203-47-8 p. 223–274.

Wollmann V., Ciugudean H., 2005, *Noi cercetări privind mineritul antic în Transilvania (I)*, Apulum. Acta Mvsei Apvlensis, Alba Iulia, 42, p. 95–116

* TICCIH (*The International Committee For The Conservation Of The Industrial Heritage*), 2003, ***The Nizhny Tagil Charter for the Industrial Heritage*** (17.07.2003), disponibilă on-line la adresa http://ticcih.org/about/charter/

Ministère de l'Education Nationale
L'Université Valahia Târgovişte
Faculté de Sciences Humaines

ANNALES

D'UNIVERSITÉ VALAHIA TARGOVISTE

SECTION d'Archéologie et d'Histoire

TOME XVII
Numéro 1
2015

Valahia University Press
Târgovişte

Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire publie des mémoires originaux, des nouvelles et des comptes-rendus dans le domaine de l'archéologie préhistorique, de l'histoire du moyen âge, de l'environnement de l'homme fossile, de l'archéologie interdisciplinaire et de patrimoine culturel.

Revue indexée B+ par CNCSIS et B par CNCS - Roumanie

Indexée dans:

AWOL, FRANTIQ, LAMPEA, SCRIBD, DAPHNE

Tout ce qui concerne la Rédaction des *Annales d'Université Valahia Targoviste Section d'Archéologie et d'Histoire* doit être envoyé à:mcarciumaru@yahoo.com, www.annalesfsu.ro

ISSN: 1584-1855; ISSN (online): 2285–3669

Sommaire

ARTICLES ET ÉTUDES

NOTES ET DISCUSSIONS

Annales d'Université Valahia Targoviste,
Section d'Archeologie et d'Histoire,
Tome XVII, Numéro 1, 2015, p. 81 - 90
ISSN: 1584-1855;
ISSN (online): 2285–3669

The problem of interpretation of war between the Tang Empire and Bohai in period 732 - 735

*Alexander Alexeevich Kim**

*Department of Historical Education, School of Education, Far Eastern Federal University, 692500, Russia, t, Ussuriysk, Timiryazeva st. 33 -305; email: kimaa9@gmail.com

Abstract: *The problem of interpretation of war between the Tang Empire and Bohai in period 732-735*. Bohai kingdom (698 - 926) was the first state in the history of the Russian Far East. This article considers the most discussed period of the history of Bohai – its war against Chinese Empire Tang. This military conflict changed the political situation not only on the Korean Peninsula, but in East Asia in general. This war also influenced political contacts in the Far East significantly. On the basis of different materials and studies of events in the neighboring states and tribes, the authors have analyzed events leading up to the war, the military operations in the war itself and the results of this conflict.

Keywords: *Bohai, Far East, East Asia, history, Mohe, China*.

A short discussion of Bohai's history up until 735

To start with, we must consider the history of Bohai up until 735 in order to understand the specifics of the issue at hand.

The state of Bohai[1] (in Russian: Бохай, in Korean: Parhae 발해, in Chinese: Bohai 渤海, in Japanese- Bokkai) existed in what is now the Russian Maritime Region (Primorskij krai/ Приморский край), as well as including territories that are parts of modern-day North Korea and Northeastern China. It existed from the late seventh to the early tenth centuries AD.* (A. P. Okladnikov, 1959; A. P. Okladnikov, A. P. Derevianko, 1973). According to the Japanese annals "Ruiju-kokushi" (類聚国史), the Bohai state was founded in 698 AD. A number of events had led to the formation of this state. Leading up to the emergence of Bohai, the Korean kingdom Koguryŏ had been destroyed in 668 by the Tang Empire and Silla (another Korean state), and parts of the Mohe tribes, who were vassals of Koguryŏ, switched their loyalties to the Tang Empire or migrated elsewhere.

However there were also Mohe groups that resisted pressure from Tang China and with people from Koguryo carefully prepared a rebellion. Short-sighted political decisions (oppressions of nomadic tribes) by leaders of Tang China in the east also provoked a rebellion by the Khitan tribes in 696, and the Mohe along with Koguryŏ groups used this episode as a pretext to establish the new state of Zhen (in Korean: Jin, 진). The ruler of this state was Da Zuorong (大祚榮, in Korean reading - Dae Jo Yeong, 대조영). The Tang Empire sought assistance from the Turks. Turkic cavalry subsequently defeated the rebel Khitan army. After this, the Tang Empire sent a retaliatory expedition to deal with Da Zuorong, but this army was destroyed.

Da Zuorong established relations with the Second Turkic Kahagnate and Silla and in 700 he received ranks from them (for example, the fifth rang "Dae Achan" from Silla). In 705 the Tang emperor fundamentally changed his attitude toward Bohai. Accordingly, China sent an ambassador to Bohai whose task was to establish

peaceful relations. In response Da Zuorong sent his second son, Da Menyi (in Korean reading - Dae Mun-ye, 대문예), as a hostage to the Tang Empire**. In 713 Da Zuorong received Tang recognition as the ruler of a new state called Bohai. From this date on references to Bohai in the Chinese annals can be found. As a result of the ambassadorial group's exchanges between the Tang Empire and Bohai, Da Zuorong received the new title "Bohaigunwang" of the sovereign of Bohai. On one hand, it meant a guarantee of peaceful co-existence with China, but it also resulted in antagonistic relations with Silla. The situation changed after death of Da Zuorong. From 719 the second Bohai ruler Da Wuyi (大武藝, Korean reading – Dae Mu-ye, 대무예), began to look for allies to fight against the Tang Empire. For example, he developed relations with the Khitan and Turkic tribes, as well as with Japan, aspiring to receive their support against the Chinese Empire.

His young brother, Da Menyi criticized his position and considered his diplomatic activities to be a potential cause of Bohai's destruction in the future. Moreover, Da Menyi was commander of the Bohai army, but nonetheless criticized the commands of his superior the Bohai ruler. Hence, Da Wuyi wanted to kill his younger brother, but Da Menyi was tipped off about the plot and with a small group of people fled to China.

In 732 Bohai started a war against China with military operations that began at sea – the Bohai navy attacked the Shandong peninsula and destroyed the biggest seaport of the Tang Empire in the east – Dengzhou (D. Twitchett 1979; A. L. Ivliev, 2005). Bohai's army also assisted the Khitans, who were fighting with China. In this difficult situation, the Tang Empire along with Silla built an alliance consisting of several tribes. In so doing they formed an army group that could march against Bohai. In the war between the Tang Empire and Bohai in 732 - 735, Silla assisted China, describing in official letters Bohai as "rebellious barbarians" (Nan Hee Ku, 2011, p. 396) and improved relations with Chinese Empire. Tang asked Silla for military support, and Silla prepared an army (100 thousands strong) (Nan Hee Ku, 2011, p. 396) by land to enable an "attack from both flanks" with the soldiers of the Tang Empire, who were to attack Bohai in the north. However snow and rough mountain roads made the plan impossible to carry out; the Silla army lost half its soldiers and returned to south (Kuk Jeong Jang, 2001, p. 169; Samguksagi 1959). In spite of the failure of Silla's expedition, the attempt influenced the outcome of the war between Tang and Bohai. Silla showed that it could potentially help China, and Bohai must have noted the possibility of an attack from its southern border. Bohai was forced to move some of its military to defend its southern flank from Silla. While Silla initially attacked unsuccessfully, the pressure from two fronts finally resulted in Bohai suing for peace with China in 733 (A. L. Ivliev, 2005).

The historiography of the war.

As mentioned above, Bohai was located in areas of the modern states North Korea, China and Russia. Scholars from these countries have considered the question of the war between Bohai and Tang Empire very differently.

For example, Chinese historians believe that Bohai was a provincial power in medieval China (Hong Song, 2001) and do not consider this conflict to have occurred between independent states.

North Korean specialists think that the Tang Empire provoked the war with Bohai – an independent kingdom. In their opinion, Bohai commenced military hostilities as a preventive action because China would attack Bohai in any case (Guk Jeong Jang, 2001). They have considered events of the war in detail (Guk Jeong Jang, 2001). They describe the war as being successful for Bohai, and do not write about results of the conflict (Bohai's ambassadorial mission arrived in China to ask for peace and mercy, a fact overlooked in the North Korean narrative).

South Korean scholars have been active in researching the war, but are not united in how they explain the origins of the war. Some historians consider the conflict to be connected with Bohai's relations with Silla (this medieval Korean state, located in the central and south parts of the Korean peninsula, had antagonistic relations with Bohai) (A. A. Kim, 2011a), other specialists do not comment on the reasons and results of the war** (Giu Cheol Han, 1994; Ki Ho Song, 1995; A. A. Kim, 2011b.

The position of Russian historians is rather different. Scholars in the Soviet Union considered Bohai to be an independent kingdom without

Chinese political or cultural influence. Therefore they portrayed Bohai as a state that had successfully resisted China; these scholars were therefore not all that interested in results of the war itself (A. P. Okladnikov, 1959; A. P. Okladnikov, A. P. Derevinako, 1973).

However, in the post-Soviet period, historians' views of this war have changed. Certainly, some Russian historians continue to support Soviet views of the war between Bohai and China, but other specialists have written that Bohai could not successfully fight against Tang Empire for such a long time (A. L. Ivliev, 2005).

Who started the war and why.

The war cannot be considered to be a preventive attack by Bohai against Tang Empire (as is commonly thought). China had not prepared its ground or naval forces for military activity against Bohai. This is the reason why Bohai's first attacks were successful. Clearly, the Tang Empire had a large numerical and resource advantage over Bohai. Certainly, China did not anticipate a Bohai attack in 732; therefore we must look for other reasons as to why Bohai attacked the Tang Empire.

First, Bohai wanted to help the Khitans. As is known, in the period 715 - 730 the Khitans recognized Tang Empire as suzerain. However in 730 the new Khitan chief began to support positions by Turkic Khaganate. At that time Turks had antagonistic relations with the Tang Empire. Therefore China sent an army and defeated Khitan and Xsi (allies of the Khitan) troops in 731 - 732. After this battle Bohai forces suddenly attacked the Tang Empire. The Khitan army supported Bohai in this war. So, it seems clear that China did not provoke the Bohai attack – rather the attack was in support of Bohai's allies – i.e. the Khitan tribes. Khitan lands were located between Bohai and the Tang Empire. Clearly, Bohai's rulers considered the Khitan tribes to be a buffer against China. As mentioned above, the second Bohai ruler had problems with his younger brother who fled to the Tang Empire and Da Wuyi considered this situation to be dangerous for his powerbase. The Tang Empire could destroy Bohai's buffer and therefore the Bohai ruler began a war with China.

As is known, Bohai began this war and the first attack was aimed at Dengzhou. The Chinese annals "Xin Tang shu" (新唐書, The New history of Tang) and "Jiu Tang shu" (舊唐書, The Old history of Tang), which are the main sources of information we have about the war of 732 - 735, only briefly mention attacks by the Bohai navy on this Chinese seaport. In the Chinese annals only Bohai's attack on Dengzhou and the killing of the governor of this big seaport is discussed, damage to the city by the Bohai navy is completely absent from the narrative. However, on the basis of these materials we can analyze the reasons for and the results of Bohai's attack on the seaport of Dengzhou.

The materials provide information only about land operations during the war.

However, according "Xin Tang shu", in the war against Khitans at 696 - 697 (this war gave allowed for formation of the Bohai state) the Tang Empire used naval power very effectively. For example, China moved 50 thousands soldiers by sea to the rear of the Khitan army (A. A. Kim, 2011b). It was an important factor in China's victory in this war. So, it is clear that the Tang Empire had a large number of military vessels.

But the Tang Empire did not use this fleet for similar military operations against Bohai in 732 - 733. It is not clear why Tang did not make use of its substantial naval forces. However, clearly, if the Tang Empire had used its navy against Bohai in the war 732 - 735 Chinese annalists would have written about it. Because no such references are present in the records, it seems clear that Chinese naval power was not involved in the war.

As is known, the Tang Empire did not undertake any naval operations in the period 700 - 732. I believe that the Chinese fleet could not be destroyed by the navies of neighboring states, like Japan or Silla. This is because of two reasons; first, these states did not have comparably large navies, and second, if Japanese or Silla navies destroyed Chinese military fleet, medieval Korean and Japanese annalists would surely have written in their annals about a big victory at sea. So, it is therefore plausible that the Bohai fleet destroyed Chinese navy in Dengzhou.

In opinion of the author, the military fleet of the Tang Empire was located in Dengzhou for different reasons. Initially, China had hostile relations with Silla. Between Silla and the Tang Empire were located the lands of a large number of different nomadic tribes (like the Xsi, Khitans and others), as well as the territory of Bohai. Therefore China and Silla could not engage in a land war

between each other (moreover, initially Silla used Bohai as a buffer against potential Tang aggression), but they very easily could have utilized the sea as a field for war. Clearly, the Tang Empire noted this possibility.

Second, China had problems with the Khitans. These nomadic tribes did not have a fleet, and therefore the Tang Empire could move its army by sea to the rear of Khitan territory, like in the war in the 696 - 697.

Third, China concentrated military ships near the Shandong peninsula to deal with pirates, who sometimes attacked Chinese trade or diplomatic missions.

Clearly, Da Wuyi knew about importance of the seaport Dengzhou (it was biggest port in Shandong Peninsula) for China as a base for the imperial fleet and considered the possibility of an attack by Tang Empire from the sea. The Chinese fleet could be very effective against a Bohai army and could become a problem for the concentration of Bohai military troops, because they would be forced to potentially defend their own sea ports from attacks by the Tang Empire.

But to attack Dengzhou, the Bohai ruler clearly had new information about the system of defenses of this seaport, as well as the number and positions of Chinese ships. In the first year of the war Bohai destroyed Dengzhou very quickly; the Chinese army did not have time to bring in forces to support this seaport. Bohai's success confirmed that its navy had new information about the position of the Chinese imperial fleet and the situation in the seaport. Therefore one can surmise that Bohai utilized ambassadorial missions, hostages in the imperial court of the Tang Empire and trade groups to obtain such information.

However, Bohai ambassadorial groups and hostages were not important sources for information about Dengzhou. Clearly, diplomatic missions were present in Dengzhou after their arrival from Bohai, but they stayed in the seaport for only a short time and before proceeding to the Chinese Capital. Moreover, officers of the Tang Empire paid attention to members of the ambassadorial group, groups were limited in the reconnaissance and espionage activities they could undertake. Hostages located at the Chinese Imperial court and could not collect new information about the Chinese fleet. Moreover, they served as officers of the Tang imperial guard and cannot come to the sea coast.

Therefore it seems that Bohai used trade missions to obtain new information about the fleet of the Tang Empire. Clearly, Bohai sent a large number of trade ships to China and officers in Dengzhou could not watch all members of these trade missions. They arrived in China with ambassadorial groups, but when Bohai diplomats came to the capital of the Tang Empire, merchants stayed in Dengzhou or near of this seaport. The trade missions could come back to Bohai at any time and gave important information to commanders of the Bohai navy.

As is known, Da Wuyi used the Bohai fleet and pirates ships in the attack of Dengzhou (Samguksagi 1959: 219; Ki Ho Song, 1995, p. 69; Dyuk Gong Yu 2000, p. 53-54; **Parhaesa 1996, p. 33). Therefore, it seems likely that the Bohai ruler had estimates about the size of the Chinese navy, understood that his forces were not sufficient for a successful attack and asked pirates for help. Clearly, pirates supported the Bohai navy because they considered the Tang fleet a major impediment to their activities. Furthermore, pirates alone could not have beaten the Chinese fleet, but with the combined power of pirates and the Bohai navy they were successful in destroying the Tang Empire's naval base.

It appears that the Bohai attack on Dengzhou destroyed the main Chinese navy. The reasons for such a view will be discussed below.

In opinion of the authors, the second Bohai ruler considered different strategies for war and understood that he could not fight against both the combined against China and forces of Tang's army and fleet. Da Wuyi had time for this from 727 and could analyze situation. Clearly, Bohai did not have large number of the military ships and could not fight against a Tang fleet for prolonged periods. Moreover, the Bohai people did not have a good understanding of Chinese geography or where its many seaports were located.

Conversely, on land, the Bohai army was in a very comfortable position. As is known, the major part of the army of the Tang Empire was infantry. Clearly, the raw number of Chinese soldiers was vast. However, most part of the Bohai army consisted of the Mohe warriors. Mohe troops were archer cavalry. Cavalry had good conditions for

fighting in Manchuria. In spite of the fact that China had experience of fighting against nomadic tribes (like, Khitan, Turks and other) for a long time, the Tang Empire could not adapt to Bohai tactics. Moreover, the armies of the Bohai's allies-namely, Khitan tribes - were also archer cavalry. Therefore the Bohai and Khitan armies effectively fought against the Chinese army and were stopped only near Madoushan Mountain (near line of the Great Chinese Walls). Chinese forces were forced to resorting to blocking the roads with large rocks (A. L. Ivliev, 2005). Clearly, generals of the army of the Tang Empire used this strategy in order to limit the activities of the Bohai forces.

Moreover, we noted that in the "Xin tang shu" we can see that 5000 Shiwei and Mohe riders arrived to Madoushan for support of the Chinese army. Clearly, a force of 5000 warriors was a not large number to the Chinese army. However, Chinese historians mentioned these troops in the description of the military activities in the war of 732 - 733. Probably, the Tang Empire had problems dealing with rider groups of the Bohai's army and needed cavalry.

But in 733, the Chinese Emperor sent word to the Bohai exile Da Menyi and asked him to help the army of the Tang Empire. The young brother of the Bohai ruler arrived at Madoushan Mountain (A. A. Kim 2011). As discussed above, the Chinese generals needed information about Bohai army from Da Menyi. Moreover, this Bohai exile knew both armies and could compare positions and specifics of the Bohai and Chinese military troops in this conflict. Probably it was helpful, because shortly after the arrival of Da Menyi the Bohai army retreated from Madoushan.

The successful military activities of the Bohai forces demonstrate one important thing: Da Wuyi was completely prepared for war with China. The Bohai army and navy were mobilized before the war; Bohai diplomats had close contacts with the pirates. Therefore we can surmise that Bohai would have started a war whatever the case, but successes by the army of the Tang Empire were a good reason for a Bohai attack.

The first victories of the Bohai forces in the war were unpleasant surprises for the Tang Emperor. The Chinese were quickly put in a difficult situation – in 732, the Tang Empire faced favorable conditions on its eastern frontier – Khitan and Xsi forces had been destroyed and the Chinese army was in a position to dominate. But after the Bohai attack, the situation was changed fundamentally – the Bohai navy destroyed Dengzhou and the Chinese fleet moored there. Furthermore, soldiers of the alliance of Bohai, Xsi and Khitan were located near the Great Wall of China and Tang armies could not defeat them. Moreover Turkic forces elected a new Khagan and this made the situation more dangerous for the Tang Empire – Turks could attack the Tang Empire from west, because Chinese armies fought in the east.

At first, the Tang Emperor arrested Bohai's advance and sent their ambassadors south (A. L. Ivliev, 2005, p. 456). The Tang Empire mobilized its forces, but Chinese officers understood that these forces would be insufficient to deal with the situation. Therefore the Tang Empire requested assistance from Silla and suggested a combined plan of attack on Bohai's flanks (**Parhaesa 1996, p. 3; Giu Cheol Han, 1994; Si Hyeong Park 2000).

Silla had antagonistic relations not only with Bohai at that time, but with Tang China too. Moreover, Silla had lost territories as a result of struggles with its northern neighbor. Therefore this Korean state needed to improve relations with the Tang Empire. Clearly, Silla sought to use this opportunity to take back lands from Bohai because Silla officers knew the military potential of China and understood that Bohai could not successfully fight against the Tang Empire – at least if Silla was also aiding Tang.

As stated above, China needed an alliance with Silla too, probably, more than Silla needed the proposed alliance. Clearly, Tang could not obtain information about relations on the Korean Peninsula and a possible alliance between Bohai and Silla could be very dangerous for Tang Empire. Moreover, the Chinese army had problem with armies of the Khitan, Bohai, Mohe and Xsi. War on the southern border of Bohai would be helpful for the Tang Empire, because Da Wuyi would not be able to concentrate his forces in two distant areas at once. China also needed to finish the war rapidly because there was a risk that the Turkic Khaganate could attack the rear of the Tang Empire.

Therefore China sent Kim Sarang to Silla. Kim Sarang was a member of the ruling dynastic family of Silla and hostile in the Tang Empire. His arrival was an important gesture to Silla. Silla's

leaders understood the meaning of this gesture and contacts between both sides were established. So, in a difficult situation Tang's army along with the Silla army built up an alliance consisting of several tribes (Shiwei, Heishui Mohe), thus forming a phalanx that could march against Bohai.

We should note an interesting fact though: the Tang Empire gave the Silla king a new rank – commander for sea military activities (**Parhaesa 1996, p. 102; ***Samguk sagi 1959, p. 219; Dyuk Gong Yu, 2000, p. 54). Thus Silla was compelled to provide safety in the sea and fight against the Bohai navy. This seemingly confirms what was stated above about the destructiveness of Bohai's attack on Dengzhou; Tang was forced to bestow a naval rank on its ally, in order to get their naval military aid.

Kim Sarang became the mediator that facilitated coordination of military activities by Silla and the Tang Empire against Bohai in this war. According to "Samguksagi", Silla mobilized 100,000 people for war against Bohai (***Samguksagi 1959, Nan Hee Ku 2011, p. 396) and sent armies to the north to support the Chinese army, which attacked Bohai separately from Silla.

As stated above, however, Silla's expedition proved to be unsuccessful – snowfall and bad mountain roads led to the destruction of the Silla army, more than half of the Silla soldiers were lost and the remainder was forced to retreat***.The Tang army fought with Bohai military troops, but could not win and was also forced to retreat**.

In spite of the failure of the Silla expedition, his attempt to intervention greatly influenced the course of the war. Silla demonstrated the possibility of an anti-Bohai encirclement, a fact that surely did not escape the attention of Da Wuyi. Bohai's position thus had changed. It forces now faced a war on three fronts – from the west (Tang Empire), the north (Shiwei and Heishui Mohe) and the south (Silla). Certainly, Bohai was prepared for a war on its western and northern frontiers, but the addition of a southern front was clearly too much for Da Wuyi. Moreover, Japan decided not to come to the assistance of Bohai. Bohai's allies – the Khitan and Xsi – could not support Da Wuyi against Silla, because they were located in areas of modern-day Manchuria. The Silla expedition was therefore a tactical military defeat for its army, but more importantly constituted a strategic political victory which changed the course of the war.

Nonetheless, Silla considered this expedition a failure and wanted revenge. Hence, Silla requested that the Tang Empire participate in a new joint strike. However, China had other plans, which we shall discuss below.

Da Wuyi understood the complicated position he now faced and wanted peace with China. Things were complicated by his younger brother, however. At first, Da Menyi took up residence in the Tang Empire and sought to wage a political struggle against his older brother for control of Bohai. Moreover, China was interested in using him against Da Wuyi.

Second, the course of this war confirmed Da Menyi's initial judgment: Bohai ultimately was not in a position to fight and defeat the Tang Empire in a protracted military conflict. Da Wuyi as ruler of Bohai could not be seen to recognize the opinion of his younger brother lest he lose standing in the eyes of both his subjects and in relations with allies and other neighboring states.

In our opinion, this understanding of the situation was what drove Da Wuyi to send assassins to murder his younger brother Da Menyi. However, killers were arrested and executed by the Chinese (Dyuk-Gong Yu, 2000, p. 75). On the one hand, Da Menyi was acting as an advisor to the Tang army and knew much about Bohai's forces. His murder of would therefore be helpful to both Da Wuyi and Bohai's military. On the other hand, Da Wuyi also probably saw his brother as a potential pretender to the throne and therefore as a political threat. Russian scholar Alexander Ivliev believes that Da Wuyi wanted to the finish war with China and has described the war as being a proxy conflict between Da Menyi and Da Wuyi (****Gosudarstvo Bohaj, 1994; A. L. Ivliev, 2005). So, we can see a rather paradoxical situation – in spite of the fact that Da Menyi`s initial judgment about the dangerous of conflict with China being right, Da Wuyi sent assassins to murder his young brother in the Tang Empire. After this incident, the Bohai ambassadorial mission arrived in China to ask for peace and forgiveness (Ivliev 2005).

At that time both sides wanted to peace. Not long time ago, the Khitan military had defeated Tang forces on the battlefield. The Turks had supported Khitan tribes in this military encounter. China saw this battle potentially the opening salvo of a long conflict with Khitan tribes and the Turkic Khaganate. Clearly, the Tang Empire needed peace

on it's the eastern frontier – i.e. with Bohai. Moreover, peace with Bohai gave the possibility of support from Shiwei, Silla and Heishui Mohe in war with the Turks –allies can send military troops for Chinese side.

Bohai too, as stated above, was in a complicated political and military position. In spite of victories in period of 732 - 733, Bohai could not support a long-term war with China and its ally Silla. Moreover, Bohai's people did not support the young brother of the Bohai ruler against Da Wuyi and Tang leadership must have noted this fact. Therefore, the Chinese Empire quickly made peace with Bohai.

There is however some debate among scholars over when the war actually ended. Usually, scholars from other countries consider 733 as the year when the conflict ended because this was when Bohai's peace mission arrived in China. But Korean specialists believe that that the war finished in 735, this would mean that the war spanned four years.

Historians from Korean peninsula believe that, in spite of the fact that Bohai's ambassadorial mission arrived in the Tang Empire in 733, China was not able to stop its allies from continuing their operations against Bohai. China did not have speedy lines of communication with Shiwei, Heishui Mohe and Silla. Clearly, China's allies wanted to benefits from this war, especially, Silla, which had lose a substantial part of its army. Korean scholars also have considered another fact – in 735, Tang Empire ceded land to Silla, (these lands were located in south of the Phaegang River and formally were under protectorate by China) (**Parhaesa 1996, p. 34, 103; Jin-Hun Jung. 1999, p. 49; V. M. Tihonov 2003, p. 213-214). These lands were probably a reward for Silla's intervention in the conflict.

As we can see, the peace between Bohai and China itself was declared in 733. But Tang "presented" land in Phaegang River to Silla in 735. Therefore it can be surmised that the decision by the Tang Empire was a subject for discussion among Chinese nobles.

The Phaegang River has become the object of discussion between scholars, researching Bohai history. Some historians believe that Silla occupied these lands, but Tang Empire did not recognize Silla's claim to this territory (**Parhaesa 1996, p. 123). It seems though that Bohai had an interest in controlling this area. So, these lands became the object of conflict between Bohai and Silla. We do not know who lived in these lands at the time, but China ceding this territory to Silla clearly added to frictions present between Bohai and Silla. Certainly, Bohai could have controlled these lands, but was not able to fight against both China and its allies. Therefore it had to concede these lands to China, but the Tang Empire gave them to Silla. Bohai was to fight for control over these lands for a long time after this war. Silla sent expeditions to the Phaegang River throughout the 8th and 9th centuries (A. A. Kim, 2011a).

Among historians there are a number of different opinions about the consequences of this war. Many Korean scholars believe that the war ended with a victory for Bohai. They have paid especial attention to the Dengzhou attack, the expedition of the Bohai army to Madoushan (**Parhaesa 1996; Si Hyeong Park, 1995, 2000), but have not written about the actual results of the war. Chinese specialists believed that Bohai was a Chinese provincial power (Hong Sung, 2001; Feng Yao, 2001) and these military activities were not war, only a rebellion against central imperial power. They consider that the conflict finished positively for China. Soviet scholars, under political pressures, supported the position of Korean historians (A. P. Okladnikov, 1959; A. P. Okladnikov, A. P. Derevinako, 1973).

In the opinion of the authors, this military conflict was very much a war because Bohai was not a Chinese province or autonomous "region of Tang Empire". Nonetheless, the war finished with the effective defeat of Bohai - it effectively had to cede lands to Silla, and its period of domination on the Korean peninsula ended. For a long time after, Bohai did not (and perhaps could not) mount military operations against either China or its allies. Bohai had interest in war against Silla as revenge for conflict 732 - 735, but looked for alliance with Japan for this and did not try fight against Silla alone (A. A. Kim, 2011b).

It is important to remember however that the Tang Empire did not try to destroy the Bohai state. On the other hand, the Tang Empire did not consider the destruction of Bohai as in its vital strategic interest. Clearly, the Tang Empire needed to be careful on its eastern frontiers. China wanted to support Silla and to weaken Bohai. But Chinese officials remembered well that the destruction of

Koguryŏ by Silla and Tang forces led to Silla's occupation of almost the entire Korean peninsula and the expulsion of Tang forces from the peninsula.

Thus, Tang had fought a war against the two other states on the Korean peninsula – Paekche and Koguryŏ, but it was Silla, not China, that ultimately reaped the benefits.

Clearly, Tang's leadership carefully considered the aims of their war against Bohai and came to the conclusion that the destruction of the Bohai would merely allow Silla to occupy much of its lands – thus further strengthening Silla's power in the region. Tang clearly did not see such an outcome as being in its geopolitical interest. Thus, when Silla asked China to attack Bohai again**, ***, the Tang Empire probably considered this as being part of an attempt by Silla to seize Bohai lands, as it had done with Koguryŏ. When viewed in such a light it is not surprising that the Tang Empire did not accede to such requests. Tang wanted to keep Bohai as a buffer, a counterbalance to Silla's power on the Korean Peninsula.

At the same time, however, Chinese officials sought to use Da Menyi against his brother. Such attempts though proved to be unsuccessful. In spite of Da Menyi's assistance to Chinese army at Madoushan, his value proved to be limited. The Bohai people did not support him against his older brother, Da Wuyi, and China could not put him on the Bohai throne.

So, as we can see, the victory of the Tang Empire and its allies in war with Bohai was not total. The reasons are not to be found in Bohai's military strength, but distrust between Tang and its allies.

Notes

1. In the Soviet Union, scholars used the Chinese for identification of names in the Bohai (Parhae) state. Therefore, this article uses Chinese names for Bohai rulers. Russian specialists in Korean and Bohai studies began to use the name "Parhae" only from the 2000s.

Bibliography

*__Istoriia stran zarubezhnoj Azii v srednie veka__ (История стран зарубежной Азии в средние века / The history of foreign Asian states in the medieval period)/ edit. by A.M. Goldobin and al., Nauka, Moscow, 1970.

**__Parhaesa__ (발해사 / The history of Bohai). redact. by Song Ki-ho (송기호/ /宋基豪), Han Gju-chŏl (한규철/ 韓圭哲) & Lim Sang-sŏn (임상선/ 林相先), Hanguksa (한국사/ The history of Korea). vol. 10, Kuksapŏnchanwiwonhwae, Seoul, 1996.

***__Samguk sagi__ (삼국사기 (三國史記)). *Istoricheskie zapiski treh gosudarstv* (Самгуксаги. Исторические записки трех государств / Samguksagi. The historical records of three states), Vol. 1. / translated by M.N. Pak and al., Nauka , Moscow, 1959.

****__Gosudarstvo Bohaj (698-926) i plemena Dal`nego Vostoka Rossii__ (Государство Бохай и племена Дальнего Востока России / The Bohai state (698 - 926) and tribes of Russian Far East), edit. by E. V. Shavkunov and al., Nauka, Moscow, 1994.

Han Giu Cheol (한규철/ 韓圭哲), 1994, __Parhaeŭi taekwankaesa__ (발해대관계사/ The history of Bohai foreign policy relations), Tosochulban Sinsovon, Seoul.

Ivliev Alexander L`vovich (Ивлиев Александр Львович), 2005, *Ocherk istorii Bohaia (Очерк истории Бохая / The sketch of Bohai history)*, in Zh. V. Andreeva (ed.) (Ж. В. Андреева), __Rossijskij Dal`nij Vostok v drevnosti i srednevekov`e: otkrytiia, problemy, gipotezy__ (Российский Дальний Восток в древности и средневековье: открытия, проблемы, гипотезы / The Russian Far East in ancient and medieval periods: discoveries, problems, hypotheses), Dal'nauka, Vladivostok, p. 449 - 475.

Jang Kuk Jong (장국종/ 張國鍾), 2001, __Parhaekuk kwa malgaljok__ (발해국과말갈족 / The Bohai state and Mohe tribes), Tosochulphan Jonsim, Seoul.

Jung Jin Hun (정진헌/ 鄭鎭憲), 1999, __Parhaesa saryowa Parhaesa insik pyonjon – Koryosidaeui „sase" sillin Parhae kisaryil junsimyiro (nonmun)__ (발해사 사료와 발해사 인식을 변전 – 고려시대의 «사세» 실린 발해 기사를 중심으로 (논문)/ The sources about Bohai history and evolution of understanding of the Bohai history - on the base of materials, which contained in «Sase» of the Koryo period (research article), in: *Parhae konguk 1300 chunyon (698-926)* (발해건국 1300 주년/ The 1300 years

anniversary of the Bohai state establishment), Hakyonmunhvansa, Seoul, p. 39 – 62.

Kim Alexander Alexeevich (b) (Ким Александр Алексеевич), 2009, *Plan sovmestnogo napadeniia Bohaia i Iaponii na Silla (План совместного нападения Бохая и Японии на Силла/ Plan of the joint attack of Bohai and Japan against Silla)*, Russia and the Pacific, nr. 2. p. 70 - 73.

Kim Alexander Alexeevich(a), 2011, Relations between Bohai and Silla from the seventh to the ninth century: a critical analysis, Acta Orientalia, Vol. 64 (3), p. 345 - 356.

Kim Alexander Alexeevich (Ким Александр Алексеевич), 2011, ***Istoriia gosudarstva Bohai*** (История государства Бохай / The history of Bohai state). PGSHA, Ussuriysk.

Ku Nan Hee (구난희/ 具鸞姬), 2011, ***8 segi joenban Parhaeyi tongasia wegyowa kui seongkyok 8*** (세기 전반 발해의 동아시아 외교와 성격/ The characteristic of Bohai and his foreign relation in East Asia in the first half of the 8th Century), in 8 segi tongasiaui yeoksasang (8 세기 동아시아 역사상/ Historical situation in the East Asia in 8th century), Tongbukayoeksajaedan, Seoul, p. 367 - 421.

Okladnikov Alexei Pavlovich (Окладников, Алексей Павлович), 1959, ***Dalekoe proshloe Primor'ia: Ocherki po drevnei i srednevekovoi istorii Primorskogo Kraia*** (Далекое прошлое Приморья: Очерки по древней и средневековой истории Приморского края / The distant past of the Russian Maritime Region), Primorskoe knizhnoe izdatelstvo, Vladivostok.

Okladnikov Alexei Pavlovich (Окладников, Алексей Павлович), Derevianko Anatolii Panteleevich (Деревянко, Анатолий Пантелеевич), 1973, *Dalekoe proshloe Primor'ia i Priamur'ia* (Далёкое прошлое Приморья и Приамурья / The distant past of the Maritime and Amur regions), Dalnevostochnoe knizhnoe izdatelstvo, Vladivostok.

Park Si-Hyeong (박시형/ 朴時亨), 1995, ***Parhaesa*** (발해사 / The history of Bohai), Tosochulpan ironkwansilchon, Seoul.

Park Si Hyeong (박시형/ 朴時亨), 2000, *Parhaesa yongu wihayeo* (발해사연구 위하여 / Towards a study of Bohai history), in ***Parhaesa yongu wihayeo*** (발해사연구 위하여 / Toward a study of Bohai history), Jongchi Chulphan, Seoul, p. 7 - 68.

Song Ki-ho (송기호/ /宋基豪), 1995, ***Parhae jŏngchi yŏksa yŏngu*** (발해 정치 역사 연구 / The study of Bohai political history), Ilchokal, Seoul.

Sung Hong (Сун Хун), 2001, ***Mohe, Bohaj i chzhurchzhjeni*** (translate from Chinese to Russian by A. L. Ivliev) (Мохэ, Бохай и чжурчжэни/ Mohe, Bohai and Jurchen), in *Ancient and Middle Ages history of Eastern* Asia, DVO RAN, Vladivostok, p. 80 - 89.

Tihonov Vliadimir Mikhajlovich (Тихонов, Владимир Михайлович), 2003, ***Istoriia Korei*** (История Кореи/ The history of Korea), T.1. (S drevnejshih vremen do nashih dnej/ С древнейших времен до наших дней/ From ancient times to Modern days), Muravej, Moscow.

Twitchett Denis, 1979, ***The Cambridge History of China***, vol. 3. Sui and T`ang China, 589 – 906. Part 1, Cambridge University Press , London – New York – Melbourne.

Yao Feng (Яо Фенг), 2001, *Politika nacional`noj avtonomii imperii Tan v otnoshenii Bohaia* (translate from Chinese to Russian by A. L. Ivliev) (Политика национальной автономии империи Тан в отношении Бохая / The policy of national autonomy by Tang Empire toward Bohai), in *Ancient and Middle Ages history of Eastern Asia*, DVO RAN, Vladivostok, p. 90 - 97.

Yu Dyuk Gong (유득공/柳得恭), 2000, ***Parhaego*** (발해고 / The study of Bohai), Hangukjoncheonso, Seoul.

Appendix 1

List of Bohai rulers

Da Zuorong (大祚榮), 698 – 719.
Da Wuyi (大武藝), 719 – 737.
Da Jinmao (大欽茂), 737 – 793.
Da Yuanyi (大元義), 793 – 794.
Da Huayu (大華與), 794 – 795.
Da Sonlin (大嵩璘), 795 – 809.
Da Yuanyu (大元瑜), 809 – 812.
Da Yanyi (大言義), 812 – 817.
Da Mingzhong (大明忠), 817 – 818.
Da Renxiu (大仁秀), 818 – 830.
Da Yizhen (大彝震), 830 – 857.
Da Qianhuang (大虔晃), 857 – 872.
Da Xuanxi (大玄錫), 872 – 894.
Da Weixie (大瑋瑎), 894 – 907 (?).
Da Yinzhuan (大諲譔), 907 (?) – 926.

Norme de redactare

1. Annales D´Universite "Valahia" Targoviste, Section d'Archeologie et d'Histoire, acceptă lucrări ca articole ştiintifice originale, lucrări de sinteza despre o temă specifică elaborate intr-o limbă străină de circulaţie internaţională (franceză, engleză, germană). Acurateţea traducerii este obligaţia şi responsabilitatea autorului.

2. **Scrisoare de inţentie**. Autorul corespondent (persoana de contact) trebuie să specifice foarte clar că lucrarea trimisă nu a mai fost publicată, trimisă sau acceptată la altă revistă şi că autorii (dacă sunt mai mulţi) sunt de accord cu trimiterea lucrării în forma actuală spre publicare.

Lucrările trebuie trimise electronic redactorului şef (mcarciumaru@yahoo.com) într-un singur ataşament (sau fşsier) în format PDF, incluzand întregul text, tabelele şi figurile, aranjate conform normelor revistei. De asemenea, autorii trebuie să trimită textul şi tabelele şi în format MS Word, iar figurile într-un document separatîin format JPG sau TIFF. Autorii sunt responsabili pentru calitatea imaginilor, care trebuie trimise în forma finală la rezoluţie de minim 300 dpi.

Documetul trimis trebuie să fie insoţit de: (1) scrisoarea de intenţie, (2) lucrarea, (3) titlul figurilor, (4) figurile/planşele, (5) tabele.

Lucrarea nu trebuie sa depaseasca 25 pagini, inclusiv bibliografia si trebuie sa fie scrisă in Times New Roman (TNR), 11 justified, dimensiunile paginilor vor fi cele corespunzatoare formatului A4 (21 x 29,7 cm) si se vor lasa 2,5 cm pentru fiecare margine. Paginile nu vor fi numerotate. Lucrarea trebuie sa conţina un rezumat obligatoriu în limba engleza şi eventual un al doilea rezumat într-o altă limbă, dar diferita de cea in care este redactat textul lucrării. Rezumatele in limba engleză sau în alte limbi acceptate de revistă trebuie să includă si titlul articolului.

Prepararea lucrării

Lucrarea trimisa trebuie să fie aranjată după cum urmeaza: (1) titlul, (2) numele autorului/autorilor, (3) adresa autorului/autorilor, (4) rezumat, (5) cuvinte cheie, (6) lucrarea, (7) biblografia, (8) explicaţia figurilor, (9) figurile, (10) tabelele;

Titlul: Acesta trebuie sa fie scurt, specific şi informativ. Se va scrie în TNR 13, bold, centrat.

Autorii: La două rânduri sub titlu, centrat, în TNR 11 italic, se va scrie numele complet al autorului/autorilor (cu asterisc).

Adresa: Dupa doua randuri libere, in TNR 10 justified, se va mentiona adresa autorului/autorilor (cu asteriscurile meţionate la autori), inclusiv adresa de e-mail.

Rezumatul: urmeaza dupa doua randuri in TNR 10 (bold numai **Rezumat:**), între 300-500 de caractere, care nu trebuie sa conţina prescurtări sau citări. Trebuie sa reprezinte o sinteză a lucrării incluzind metodele folosite, rezultatele principale şi, eventual, scurte concluzii. Rezumatul în limba engleza este indispensabil, precum şi traducerea titlului.

Cuvintele cheie: După două rânduri, sub rezumatul în limba engleza, cinci sau şase cuvinte cheie; atunci când lucrarea este insoţită de un al doilea rezumat într-o altă limbă, vor fi traduse şi cuvintele cheie în limba rezumatului;

Textul principal:

1. Urmează instrucţiunile de mai jos pentru subtitlurile paragrafelor:

-Primul subtitlu de paragraf - literă mare, bolduit şi aliniat la stânga paginii).

-Al doilea subtitlu de paragraf - litera mare numai la începutul cuvântului, aliniat la stânga paginii).

-Al treilea subtitlu de paragraf - caracter italic, litera mare numai la inceputul cuvantului, aliniat la stânga paginii).

2. Caracterul "italic" va fi folosit pentru termeni sau abreviaţii de genul "et al.", et collab. "etc".

3. Unităţile de masură trebuie sa fie reprezentate prin simboluri apartinind Sistemul International de Măsură.

4. Autorii citati:

a - Sistemul de trimiteri bibliografice este unic, şi anume cel britanic, adica note în text, iniţiala prenumelui va precede numele autorului, după care se va menţiona anul apariţiei lucrării respective, exemplu – (M. Otte, 1995), iar când în text se utilizează un citat, care se va pune între ghilimele, citarea va cuprinde pagina (M. Otte, 1995, p. 56-57).

b - Dacă numele autorului face parte dintr-o propoziţie, numai anul se pune in paranteza, de exemplu "….M. Otte (1995) a demonstrat.....".

c - Pentru cazul a doi autori care trebuie citati, se va pune numele celor doi si anul, (M. Otte, P. Noiret, 2004), iar pentru cazul mai multor autori (mai mulţi de trei) se va cita primul autor urmat de "et al", (M. Otte et al., 2006).

d - Autorii trebuie asezati în ordine alfabetică şi se va folosi a, b pentru cazul in care un autor trebuie citat şi are mai multe lucrări în acelaşi an. Se pune virgulă

între același autor și punct și virgulă când apare un alt autor citat (M. Cârciumaru, 2002; M. Carciumaru, 2002b; M. Anghelinu, 2005).

Bibliografía

1 - Titlul **BIBLIOGRAFIE** se va redacta în TNR, 12 bold, centrat, cu majuscule;
2 - Se vor include autorii citați în text, precum și autorii figurilor, tabelelor, planșe etc. citate in text;
3 - Se vor aranja autorii în ordine alfabetică după numele primului autor și apoi după numele celui de-al doilea autor. Daca unul dintre autori este citat cu mai multe lucrări, se aranjează în ordine cronologică;
4 - Pentru lucrările cu mai mult de doi autori se aranjează după numele primului autor și apoi în ordine alfabetică;
5 - Nu se vor prescurta numele revistelor şi ale editurilor citate;
6 - Pentru cele mai multe dintre situații urmează exemplele de mai jos:

a - Lucrări în reviste:

Numele autorului/autorilor, Inițiala prenumelui autorului/autorilor, Anul, Titlul articolului (italic), Numele revistei, Tome/Volum, Număr, Paginile.

Demars P.-Y., 2008, *Paleogeographie de l'Europe dans la premere partie du Paleolithique superieur – Premiers travaux*, Annales d'Universite « Valahia » Targoviste, Section d'Archeologie et d'Histoire, Tome X, Nombre 1, p. 29-45.

b - Cărti:

Numele autorului/autorilor, Initiala prenumelui autorului/autorilor, Anul, Numele cartii (italic, bold), Editura, Orasul in care a fost publicata, Numarul de pagini, figuri, tabele şi planse, ISBN;

Carciumaru M., Anghelinu M., Nitu E.-C., Cosac M., Muratoreanu G., 2007, ***Geo-Archeologie du Paleolithique moyen, Paleolithique superieur, Epipaleolithique et Mesolithique en Roumanie,*** Editura Cetatea de Scaun, Targoviste, 187 p., 48 fig., ISBN 978-973-8966-38-3.

c - Capitole în cărti:

Numele autorului/autorilor, Initiala prenumelui autorului/autorilor, Anul, Titlul capitolului (italic), in Numele autorului/autorilor, Initiala autorului/autorilor [ed(s)], Numele cartii (italic, bold), Editura, Orasul unde a fost publicata, Numarul de pagini, figuri, tabele si planse, ISBN, paginile capitolului.

Carciumaru Marin, 1978, *Studiul paleoclimatic şi geocronologic asupra unor statiuni paleolitice din Banat*, in Florea Mogosanu, ***Paleoliticul din Banat***, Editura Academiei Romane, Bucuresti, 152 p., 53 fig., p. 83-101.

d - Lucrări prezentate la congrese

Numele autorului/autorilor, Initiala prenumelui autorului/autorilor, Anul, Titlul lucrarii (Italic), in Numele simpozionului sau a conferintei (Italic, bold), Editura, Orasul unde a avut loc etc., ISBN, Numarul de pagini a comunicării.

Carciumaru Marin, 1994, *Paleoenvironnement et chronostratigraphie du Paeéolithique moyen et superieur en Roumanie, Paleoecologie et geochronologie des industries du Paleolithique superieur ancien de la Roumanie,* in ***"El Cuadro geochronologico del Paleolitico superior inicial",*** *Museo y Centro de Investigacion de Altamira. Monografias*, No. 13, ISBN 84-8181-024-X, p. 15-23.

e - Teze (doctorat, master, licențe) și rapoarte nepublicate:

Numele autorului/autorilor, Initiala prenumelui autorului/autorilor, Anul, Titlul lucrarii (raportului), Universitatea, Institutul sau Compania, Orasul, Tipul lucrarii, Pagini:

Geneste J.-M., 1985, Analyse lithique d'industries mousteriennes du Perigord: une approche technologiques du comportament des groupes humains au Paleolithique Moyen, These presentee a L'Universte de Bordeaux I pour l'obtention du titre de Docteur, Universtite de Bordeaux I, 572 p.

f – Harţi:

Numele autorului/autorilor, Initiala prenumelui, Anul, Tipul, Titlul si numarul hartii, Scara, Editura, Orasul publicarii, Seria hartii, Numarul foii:

Patrulius D., Dimitrescu R., Dessila-Codarcea M., Gherasi N., Popescu I., Popa E., Bandrabur T. (redactori coordonatori si redactori), 1968, Harta geologica, Scara 1:200.000, Braşov, Comitetul de Stat al Geologiei, Institutul Geologic, Bucuresti, 68 p.

Titlurile figurilor

Titlurile figurilor se vor pune pe o pagină (pagini) separate, paginate consecutiv și vor fi incluse dupa bibliografie.

Titlurile figurilor trebuie să fie însoțite de numărul figurii și descrierea acesteia. Descrierea trebuie să fie clară și să conțină explicația tuturor simbolurilor folosite.

Figurile

1. Fiecare figură (hartă, grafic, fotografie) trebuie incluse pe pagini separate, fiecare figură fiind însoțită de numarul corespunzator din text și numele primului autor al articolului.
2. Figurile trebuie trimise într-un format cât mai apropiat de formatul final în care vrem să apară editate.
3. Dimensiunile caracterelor ce acompaniază figurile trebuie să aibă o marime între 8 si 12. Este indicat a se folosi o scară pentru dimensiunea reală și a se include unitațile de măsură.
4. Hărțile trebuie să aibă indicat Nordul geografic, să aibă cel puțin două coordonate pe fiecare axă și să aibă o scară grafică. Localitățile și siturile menționate în text este de preferat să apară pe hartă.
5. Sunt acceptate fotografii alb-negru cu un bun contrast precum și fotografii color (în limitele capacității de publicare și în funcție de interesul pe care il poate suscita). Ele trebuie să prezinte obiectul de interes într-o mărime adecvată.
6. Citarea figurilor în text trebuie să fie facută ca Fig. 1 - de exemplu.

Tabelele

Trebuie sa fie incluse pe pagini separate, pagini consecutiv paginate.
Marimea tabelelor trebuie sa fie aproximativ de 21 X 29 cm.
Citarea tabelelor in text trebuie sa apara ca Tab. 1 - de exemplu.

Manuscrisul trebuie trimis spre publicare în forma completă, respectând normele revistei. Editorii își rezervă dreptul de a returna autorilor materiale necorespunzatoare, pentru corectarea greșelilor. Dacă articolul va fi returnat de două ori, va fi publicat eventual într-un număr viitor. A treia respingere face imposibilă publicarea articolului în revistă.

Printing normes

1. The Annales D´Universite Valahia Targoviste, Section d'Archeologie et d'Histoire, accept contributions in the form of original research papers, review papers written in French, English or German. The accuracy of the translation is the author's responsibility.
2. In a cover letter, the corresponding author must clearly state that the submitted manuscript has not been published submitted or accepted elsewhere, and that all authors agree with the content and the submission of the manuscript.
All manuscripts should be submitted electronically to the Chief Editor (mcarciumaru@yahoo.com) in one single attachment in a PDF file, containing the text, the figures and tables and they must fulfill the requirements of the journal. The text and the tables must be submitted in a MS Word format and the figures in a separate JPG or TIFF file.
The authors have to be responsible for the figure quality which have not has more than 300 dpi in size in the final format.
The manuscript should be accompanied by: (1) cover letter, (2) manuscript, (3) figure captions, (4) figures, (5) tables.
The manuscript should not exceed 25 pages, including bibliography, written in Time New Romans (TNR), and font size 11, justify. The pages dimension is A4 (21 x 29.7 cm) with a 2.5 wide margin. The manuscript must contain an abstract in English and preferably a second abstract in a foreign language different from that of the manuscript. The abstract in other languages should include the title too.

Manuscript preparation
The submitted manuscript should be arranged as follow: (1) title, (2) author's names, (3) author's affiliations, (4) abstract, (5) keywords, (6) manuscript, (7) references, (8) figure captions, (9) figures, (10) tables.
Title: This should be short, specific and informative and be written in Time New Roman, size 13, in bold and centered.
Authors: Write the full name(s) of author(s) in TNR, size 12, font italic, centred below the title.
Affiliation: Write the affiliation(s), complete postal address and e-mail address in TNR, size 10, justify, below the author's name.

Abstract: It contains between 300 – 500 words and should not contain abbreviations or reference citations. The abstract should be brief and objective, and represent a summary of the paper that includes the methods used, the main results and conclusions. It should be written in TNR size 10 and the word "abstract" has to be in bold, as well as the translation of the title.
Key words: Five to six keywords should be given below the abstract. When there is a second abstract the key word will be translated also in the language of this abstract.

Main text:
1. Follow the structure shown below for the headings:
-First level (Bold capital and lower case, left)
-Second level (Bold capital and lower case, left)
-Third level (Bold italic, capital and lower case, left)
2. Italics should be used for terms or abbreviations in other languages "et al.", et collab, "etc".
3. Measure units must be represented by their symbol in the International System of Units.
4. Chemical and isotopic analyses as well as radiometric and paleontological dating must be referred to sampling locality and include coordinates.
5. References cited:
a) References are cited in the text by the initial of the author, last name of the author and the year (M. Otte, 1995). In the case of a citation of a paragraph, this will be put in quotation and the page will be cited (M. Otte, 1995, p.56-57)
b) If the authors´ name is part of the sentence, only the year is bracketed: "M. Otte (1995) determined…."
c) For references with two authors use the initial followed by their names and the year, (M. Otte, P. Noiret, 2004) and for those with three or more authors, use the last name of first author followed by "et al" (M. Otte et al., 2006).
d) References cited should be arranged chronologically; use a, b, c, etc. for references to one author in the same year. Separate with coma the references to same author and with semicolon the references to different authors: (M. Carciumaru,

2002 a; M. Carciumaru, 2002 b; M. Anghelinu, 2005).

References

1. The title "References" will be written in TNR, size 11, bold, centered, upper case.
2. Include only references cited in the text, figures, captions, and tables.
3. Arrange the references alphabetically by first author and then alphabetically by second author. If more than one reference of the same author(s) is included, arrange them chronologically.
4. For references with more than two authors, list alphabetically by first author and then chronologically.
5. Do not abbreviate journal titles or publisher names
6. For the most common cases, follow the examples:

a) Papers in periodical journals

Last name(s), Initial(s), Year, Article title (italic font), Journal title, volume, pages.

Demars P.-Y., 2008, *Paleogeographie de l´Europe dans la premiere partie du Paleolithique superieur – Premiers travaux*, Annales d'Úniversité Valahia, Targoviste, Section d´Archeologie et d´Histoire, Tome X, Numero 1, p. 29-45.

b) Books

Last name(s), Initial(s), year, Book title (Italic, bold), Publisher, City of publication, no. of pages, no of figures, tables, ISBN

Carciumaru M., Anghelinu M., Nitu E-C., Cosac M., Muratoreanu G., 2007, ***Geo-Archeologie du Paleolithique moyen, Paleolithique superior, Epipaleolitique et Mesolithique en Roumanie,*** Editura Cetatea de Scaun, Targoviste, 187 p., 48 fig., ISBN 978-973-8966-38-3

c) Chapters in books

Last name(s), Initial(s), year, Chapter title (in Italic), in Last names(s), Initial(s) (ed(s).), Book title(Italic, bold), Publisher, City of publication1. No. pages and figure, ISBN, chapter pages.

Carciumaru M., 1978, *Studiul paleoclimatic si geocronologic asupra unor statiuni paleolitice din Banat,* in Florea Mogosanu, ***Paleoliticul din Banat,*** Editura Academiei Romane, Bucuresti, 152 p., 53 fig., p. 83-101.

d) Proceedings from symposia and conferences

Last name(s), Initial(s), Year, Title (Italic), in Symposia/conference name (Italic, bold), Publisher (Italic), City of publication, ISBN, pages.

Carciumaru M., 1994, *Paleoenvironnement et chronostratigraphie du Paleolithique moyen et superior en Roumanie, Paleoecologie et geochronologie des industries du Paleolithique superieur ancien de la Roumanie,* in ***El Cuadro geochonologico del Paleolítico superior inicial***, *Museo y Centro de Investigacion Altamira. Monografías*, No.13, ISBN 84-8181-024-X, p. 15-23.

e) Unpublished thesis or reports

Last name(s), Initial(s), Year, Title, University, company, etc, City, Type of work, pages.

Geneste J-M., 1985, Analyse lithique d´industrie mousteriennes du Perigord: une approche technologiques du comportament des groupes humains au Paleolithque Moyen, These presentee a L´Universite de Bordeaux I pour lobtention du titre de Docteur, Universite de Bordeaux I, 577 p.

f) Maps

Author(s), Initial(s), Year, Type, Title and map number, scale, Publisher, City of publication, Map series, number of sheets.

Patrulius D., Dimitrescu R., Dessila-Codarcea M., Gherasi N., Popescu I., Popa E., Bandrabur T., 1968, Harta geologica, Scara1:200.000, Brasov, Comitetul de Stat al Geologiei, Institutul Geologic, Bucuresti, 68p

Figure captions

A list of figure captions should be supplied on a separate sheet(s), numbered consecutively and included after the list of references.

The captions should include the figure number and a figure description. The description should be precise and contain the explanation of all symbols and abbreviations used.

Figures

Each figure (maps, graphs, photographs) must be submitted on a separate sheet, be clearly identified with figure number and first author name.

Submit figures as close to the final size as possible.

Lettering should be between 8 and 12 points type size. Use graphic scale and include units of measure.

Maps must indicate the North, have at least two coordinate data on each axis, and have a graphic scale. Localities mentioned in text, should be included in maps.

Good, clear contrast black and white photographs are acceptable. The color photographs are accepted with restrictions (ask about this the editor managers). All the photographs should show the object of interest in an adequate size.

References to figures in the text should appear as Figure 1.

Tables

Tables should be submitted on separate sheets, numbered consecutively, and be identified by author's names.

1. Size of the tables should be of 21X29 cm.
2. References to tables in text should appear as Table 1.

The manuscript should be submitted to be published in a complete format and it has to fulfill the format specifications of the journal.

The Editor has the right of returning the manuscripts to the authors for further corrections.

If the manuscript will be returned to the authors twice, its publication will be postponed for a further volume of the journal.

If the manuscript will be returned three times the paper will be rejected for the publication in this journal.

Certifications pour inclure ***Annales d'Université Valahia Targoviste, Section d'Archéologie et d'Histoire*** dans une série de bases de données

From: BD Source Collection Management <bd-scm@elsevier.com>
To: mcarciumaru@yahoo.com
Sent: Friday, October 21, 2011 9:19 AM
Subject: Subscription Renewal 2012
If you are not responsible for subscriptions, please forward this letter to the right person within your organization.

ELSEVIER

Annales d'Universite 'Valahia' Targoviste, Section d'Archeologie et d'Histoire will be covered in Elsevier products

Dear Madam/Sir,

Elsevier is pleased to inform you that coverage of the above-mentioned title will be continued in selected Elsevier product(s) in 2012.
Coverage in Elsevier product(s) increases dissemination of your authors' work via sophisticated linking technology driving additional traffic to individual articles, promoting journal brand awareness, subscription, and pay-per-view sales. Please be assured that we never make the full text available to our database users or other third parties.
We seek your approval for the continuation of coverage and request you to complete and sign the attached Coverage Form. We kindly ask you to return a signed copy per email, fax or surface mail.
If you would like to know in which Elsevier product(s)* your publication is covered then please feel free to contact bd-scm@elsevier.com.
Thank you in advance for your continued cooperation.

Yours sincerely,

Monique Berkhof General Manager Secondary Content Production
Elsevier B.V.
Bibliographic Databases
Radarweg 29 **<bd-scm@elsevier.com>**
1043 NX Amsterdam

* Elsevier product(s) include among others Scopus (www.info.scopus.com), EMBASE (www.info.embase.com), Eng

The title "Annales d'Universite 'Valahia' Targoviste, Section d'Archeologie et d'Histoire" has been selected for indexing in Scopus

Certifications pour inclure Annales d'Université Valahia Targoviste, Section d'Archéologie et d'Histoire dans une série de bases de données

Monday, November 1, 2010 4:01 PM

From:

"The Scopus team" <contentqueries@elsevier.com>

Add sender to Contacts

To:

mcarciumaru@yahoo.com

Title: Annales d'Universite 'Valahia' Targoviste, Section d'Archeologie et d'Histoire
ISSN / E-ISSN: 1584-1855 /
Publisher: Valahia University Targoviste

Dear Marin Carciumaru,

The title mentioned above has been evaluated for inclusion in Scopus by the independent reviewers of the Content Selection & Advisory Board (CSAB). The review of this title is now complete. We are pleased to inform you that the CSAB has advised that the title will be **accepted** for inclusion in Scopus. Our apologies for the delay in getting back to you, which was caused by setting up new internal evaluation procedures, as well as an overwhelming amount of suggested titles in the past two years.

If you are a Publisher or Editor, you will be contacted, or might already have been contacted separately by our Source Collection Department to set up subscriptions for this title. The title will be added (or might already have been added) to Scopus as soon as we have access to the title. Please notice that it is not necessary to start sending us issues of your title in response to this email.

To increase the visibility that the accepted title is now added to Scopus, we encourage you to inform the users of your title on your website. You can find appropriate banners here (by scrolling all the way down).

Yours sincerely,

The Scopus Team

This title is indexed in SciVerse Scopus

Improving research results through analytical power

http://www.info.sciverse.com/documents/files/scopustraining/resourcelibrary/xls/title_list_oct_1.xls

IndexCopernicus Journals Master List

A B C D E F G H I J K L M N O P Q R S T U W V Z Y

Top of Form

Anesztеziologia es Intensiv Terapia	0133-5405	End of indexation	Not evaluated in 2010
Anil Aggrawal's Internet Journal of Forensic Medicine and Toxicology	0972-8066	End of indexation	Not evaluated in 2010
Animal Biology & Animal Husbandry - International Journal of the Bioflux Society	2066-7612	4.71	Evaluation Pending in 2010
Animal Cognition	1435-9448	End of indexation	Not evaluated in 2010
Animal Husbandry: Scientific Articles [Gyvulininkystė: Mokslo darbai]	1392-6144	3.95	Not evaluated in 2010
Animal Science Papers and Reports	0860-4037	Evaluation completed	Not evaluated in 2010
Annales Academiae Medicae Bialostocensis	0067-6489	End of publication	Not evaluated in 2010
Continued by: Advances in Medical Sciences	1896-1126	9.00	
Annales Academiae Medicae Gedanensis	0303-4135	End of indexation	Not evaluated in 2010
Annales Academiae Medicae Lodzensis	0458-1474	End of publication	Not evaluated in 2010
Continued by: Clinical and Experimental Medical Letters	1895-2089	6.15	
Annales Academiae Medicae Silesiensis	0208-5607	5.28	Not evaluated in 2010
Annales Academiae Medicae Stetinensis	1427-440X	9.00	Not evaluated in 2010
ANNALES D'UNIVERSITE "VALAHIA" TARGOVISTE SECTION D'ARCHEOLOGIE ET D'HISTOIRE	1584-1855	2.82	Not evaluated in 2010
Annales of National Institute of Hygiene [Roczniki Państwowego Zakładu Higieny]	0035-7715	5.90	Not evaluated in 2010
Annales Universitatis Apulensis series Oeconomica	1454-9409	New	Not evaluated in 2010
Annales Universitatis Mariae Curie Skłodowska Sectio D Medicina	0066-2240	End of indexation	Not evaluated in 2010

PREVIOUS 30 | NEXT 30

http://journals.indexcopernicus.com/masterlist.php?name=Master&litera=A&start=330&skok=30

ebscohost.com
Annales d'Université "Valahia" Târgoviste. Section d'Archéologie et d'Histoire: Romania: Universitatea **Valahia Targoviste**: 06/01/2008: 06/01/2008
ebscohost.com/titleLists/e5h-coverage.htm

Central & Eastern European Academic Source Database Coverage List

*Titles with 'Coming Soon' in the Availability column indicate that this publication was recently added to the database and therefore few or no articles are currently available. If the ‡ symbol is present, it indicates that 10% or more of the articles from this publication may not contain full text because the publisher is not the rights holder.

Please Note:

Publications included on this database are subject to change without notice due to contractual agreements with publishers. Coverage dates shown are the intended dates only and may not yet match those on the product. All coverage is cumulative. Due to third party ownership of full text, EBSCO Publishing is dependent on publisher publication schedules (and in some cases embargo periods) in order to produce full text on its products.

Source Type	ISSN / ISBN	Publication Name	Country	Publisher	Indexing and Abstracting Start	Indexing and Abstracting Stop	Full Text Start	Full Text Stop	Full Text Delay (Months)	PDF Images (full page)	Image QuickView	Availability*
Academic Journal	1584-1855	Annales d'UniversitÃ© "Valahia" TÃ¢rgoviste. Section d'ArchÃ©ologie et d'Histoire	Romania	Universitatea Valahia Targoviste	06/01/2008		06/01/2008			Y	Y	Available Now

http://ebscohost.com/titleLists/e5h-coverage.htm

AWOL - THE ANCIENT WORLD ONLINE

ISSN 2156-2253

Friday, October 22, 2010

Alphabetical list of Open Access Journals in Ancient Studies

[The version history of this list is at: Updates on the list of Open Access Journals in Ancient Studies]

This list includes 837 titles.

Have you found a broken link in this list? Let me know via the comments.

Annales d'Université „Valahia" Târgoviste. Section d'Archéologie et d'Histoire

AWOL, The ancient world online:

http://ancientworldonline.blogspot.com/2009/10/alphabetical-list-of-openaccess.html

LAMPEA - **Bibliothèque de Préhistoire**

>>> Site LAMPEA

Annales d'Université " Valahia " Targoviste - Section d'Archéologie et d'Histoire, Targoviste

1, 1999 - 2010

Revues [493]