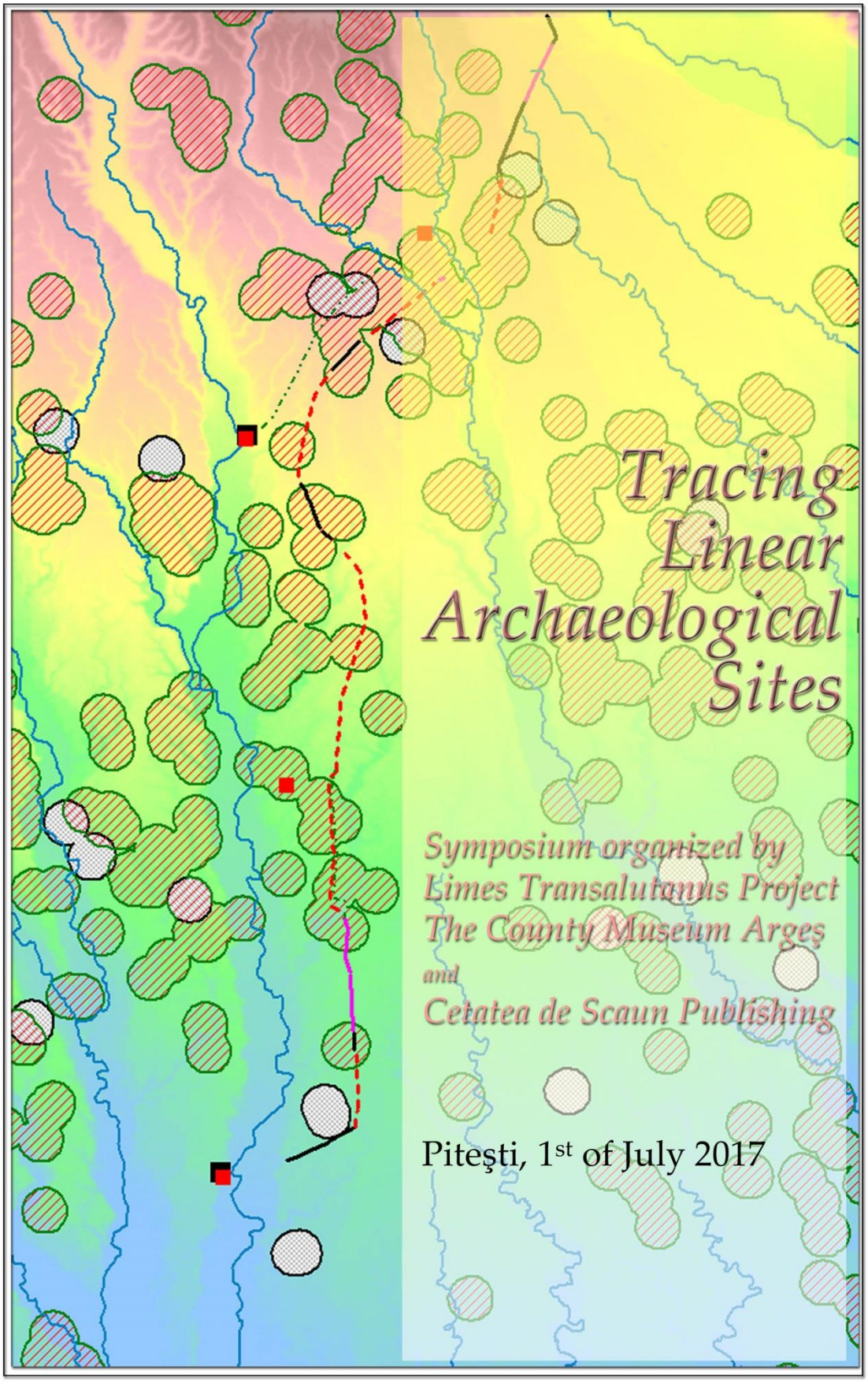

Tracing Linear Archaeological Sites

Symposium organized by
Limes Transalutanus Project
The County Museum Argeş
and
Cetatea de Scaun Publishing

Piteşti, 1st of July 2017

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LIMES TRANSALVTANVS Project

The County Museum Argeş

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Cetatea de Scaun Publishing House

Piteşti, 1-2 July 2017

edited by Eugen S. Teodor

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FOREWORD

This scientific meeting was organised close to the end of a research project known, on short, as *Limes Transalutanus*,[1] dedicated to a Roman frontier from the first half of the third century. This is not only a large scale project, developed along a 157 km 'line', but also one of the most ambitious in promoting recent and advanced technologies on field archaeology, ever performed in Romania.

As a consequence, the recommended topics for this symposium were the next:

- aerial reconnaissance
- UAV and photogrammetry
- LiDAR technologies
- field-walking
- geophysics
- cartography and toponymy
- landscape archaeology
- predictive archaeology
- perception studies (visibility, audibility)
- updates for *Limes Dacicus*[2]

Our aim is not to cover all those topics, but as many as possible, in order to give an outcome of the state of the Romanian research in archaeology. As concerns *Limes Transalutanus*, we couldn't resume in a one day meeting all our achievements in a three years project, rendering rather the latest developments, from the early 2017.

Proposing not a report of activity – which will be provided in late September 2017 – but a debate about the future of research in landscape archaeology, we have invited in Pitești colleagues with similar concerns and skills, in order to present their latest accomplishments in similar research projects. The choice for the city of Pitești have had multiple reasons: it is the northern end of our project; it is the home city of our partners from the Argeș County Museum; it is a very good starting point for a documentary trip in the mountainous sector of *Limes Transalutanus* (because we are already looking into the future.

The booklet issued contains the short communications received shortly after the Symposium.

Editor, Eugen S. Teodor

19th August 2017

[1] Having as full title *Tehnologie interdisciplinară de investigare a patrimoniului arheologic. Studiu de caz: tronsonul premontan al Limes Transalutanus* (Interdisciplinary technology for archaeological field survey. Case study of Limes Transalutanus south of Argeș River), sponsored by the Ministry of Science and Innovation, through its management unit UEFISCDI (https://uefiscdi.ro/), identified with the code PN-II-PT-PCCA-2013-4-0759, see also the project website http://www.limes-transalutanus.ro.

[2] As known the frontier of the Roman Province(s) of Dacia, north of Danube, the longest frontier in Europe (around 1500 km). A National Limes Committee is working, mainly since 2016, for gathering the documentation needed for including *Limes Dacicus* in the European UNESCO linear site known as the Frontiers of the Roman Empire.

Short communications

Comment des lignes peuvent elles faire partie du patrimoine historique?

Philippe Fajon

DRAC Normandie /

UMR 7041 ArScAn Archéologies Environnementales

Ce texte est une étape dans un long processus d'analyse des paysages de Roumanie dans une démarche dynamique et historique. Elle vise à comprendre comment les évènements du passé et les fonctionnements des sociétés qui nous ont precedées ont façonné nos paysages actuels. Vous pourrez trouver des compléments à la première partie de ce texte dans : Fajon, Şandric, Oberländer-Târnoveanu, 2016. Les parties 3 et 4 feront l'objet de développements ultérieurs.

1 – Dans de nombreux pays, des travaux de recherches de plus en plus fréquents associent des informations historiques ou archéologiques avec les outils de la géographie (cartographie, modélisation graphique, SIG ...). Nous pouvons sélectionner quelques exemples: les forêts allemandes et française sont maintenant analysées avec la technologie LiDAR dans des programmes associant des scientifiques de différentes disciplines; les sites archéologiques de la côte norvégienne sont étudiés et cartographiés avec des drones; les archéologues écossais et britanniques ont utilisé depuis longtemps une cartographie des sites (*dot-mapping*) comme un outil scientifique et ont apporté ce concept dans de nombreux pays d'Europe (Autriche, République tchèque, Slovaquie, Hongrie et aussi en Roumanie). Aucune de ces techniques n'est plus émergente qu'une autre dans le cadre de l'archéologie roumaine.

Par une brève description des fondements de l'archéogéographie, telle qu'elle a été définie en France, nous allons mettre en avant le rôle des phénomènes linéaires dans la construction du paysage : la transmission directe, l'isoclinie, l'isoaxialité, la résilience, etc. (ceci sera expliciter lors de la présentation orales).

La première idée développée par les archéogéographes est de considérer qu'une ligne dans le paysage n'est pas un héritage direct d'une période. C'est le témoignage directe ET indirecte d'un ensemble de phénomènes qui peuvent s'étaler dans le temps. C'est le concept de la lecture de la morphologie du paysage actuel comme un palimpseste. Nous appellerons cela la ‘compilation morphologique’.

La deuxième idée importante est de remettre en question les modèles géo-historiques construits par des chercheurs précédents, par exemple: les routes romaines sont toujours rectilignes, les parcelles circulaires sont le signe de défrichement médiéval, une parcelle orthogonale régulière est le signe d'une cadastration romaine et ainsi de suite. Nous appellerons cela ‘traverser la crise des objets géohistoriques’.

Une troisième idée est d'étudier d'abord la morphologie d'une zone avant de parler de la chronologie des éléments de paysage ou du patrimoine morphologique.

Ensuite, seulement après cela, le dernier besoin est de recueillir dans l'Histoire les événements les plus importants connus qui peuvent être signifiants pour les phénomènes de construction morphologique. Nous appellerons cela ‘identifier les temps de la morphologie’.

Un rappel méthodologique et épistémologique des risques et des avantages de ces fondements montrera comment l'hybridation entre les formes naturelles et les formes dérivées d'anthropisations programmées du

paysage obéissent à des règles récurrentes. C'est tout le défi de définir de nouveaux objets géographiques et morphologiques, qu'ils soient lies à des phénomènes programmés, auto-organisés, ou simplement hybrides.

Toutes ces idées trouvent leur origine dans un renversement des épistémologies où le site archéologique (ou l'artefact) n'est pas pris en compte pour lui-même, mais comme un signe de temporalités. La lecture du temps dans le sens de la 'longue durée' devient plus importante que l'identification de la place chronologique d'un site.

2 – Dans le prolongement de notre présentation de Bucarest en 2015 (Fajon, Şandric, 2015), nous pourrons montrer comment le 'système frontalier' du *Limes* en Roumanie n'est pas unique. Des exemples peuvent être choisis en France avec l'ancienne frontière fortifiée du Moyen âge entre le Royaume de France et le Duché de Normandie; dans les Alpes, avec la frontière franco-italienne pendant l'Ancien Régime. En Roumanie, il est de plus surprenant de constater que l'influence morphologique de l'antique frontière a pu jouer un rôle bien au-delà de sa fonction d'origine : limite entre Muntenie et Valachie, limite partielle entre départements, axe de penetration des troupes turques, ainsi que piste de transhumance dans la plaine Boian.

Mais d'abord, revenons à une approche théorique du système frontalier.

2-1 – Le *Limes Transalutanus* (ou au moins le concept qu'il est censé représenter) n'est qu'une partie d'un long système de frontières autour de l'empire romain. Pour mieux comprendre mon approche, je propose de procéder en une analyse en deux temps. Tout d'abord, une approche totalement théorique sur le concept de frontière comme une partie de la gestion du territoire et de son organisation. Dans un deuxième temps, nous verrons le cas spécifique du *Limes* en Roumanie.

2-2 – Le concept de frontière

Pour demander ce qu'est une frontière ou une limite de territoire, nous devons imaginer et donner une réponse à une question préliminaire: une frontière, pour quoi faire?

Bien sûr, ce n'est pas une question nouvelle. Par exemple, Etienne Balibar, en 1996, a coordonné une grande étude intitulée ´Qu'est-ce qu'une frontière?´. Edité par Jacques Lévy et Michel Lussault dans leur ´Dictionnaire de la Géographie et de l'espace des sociétés´, en 2003, ils nous ont donné de longues pages à ce sujet, la notion de frontière est considérée comme quelque chose de très important, et pas seulement dans le domaine de la géographie matérialiste. Plusieurs points méritent d'être développés ici, à mon avis, car ils peuvent être utiles pour notre compréhension collective.

Revenons à Jacques Lévy qui nous montre l'intérêt global du concept de frontière dans le journal ´SociologieS´ en 2010. Il a fait la démonstration, en prenant l'exemple de la Palestine, que la ´limite´ n'est pas toujours au même endroit, que la matérialité ne place que l'artefact de la limite. Dans un sens géopolitique, la matérialité et l'immatérialité de la frontière sont strictement associées. Levy dit que

> *´nous devons d'abord admettre que la matérialité n'est qu'une des composantes de notre monde et que l'immatérialité n'est pas irréelle, simulée ou métaphorique´*.

C'était sans aucun doute la même chose au deuxième siècle de notre ère.

Ainsi, la frontière en tant que séparateur matériel et/ou immatériel, pourrait être définie comme une relation entre deux espaces censés être séparés. Dans le même temps, c'est un signe d'un territoire global qui se divise en deux parties. En tout cas, la frontière est caractérisée par un besoin de représentation. Il est utile de savoir qui se trouve de l'autre côté de la frontière, l'un des points fondamentaux de la cartographie... placer les éléments d'une société humaine dans l'espace et définir les différences qui séparent deux sociétés. Et cela, même si la séparation n'était pas réelle dans notre pensée collective. Une grande réflexion à propos de cela a été proposée par Solange Chavel, de l'université de Poitiers, en 2012 pour les ´Lundis de la philosophie´ de

l'Ecole Normale Supérieure de Paris. J'utilise moi-même les définitions créées par Solange Chavel pour étudier le cas spécifique du *Limes*. Bien sûr, dans le contexte actuel des questionnements qui agitent l'Europe et le Proche-Orient autour du problème des migrations, ces interrogations intéressent beaucoup de personnes, confirmant les paroles de Jacques Levy. Mais la question de l'origine de la frontière a grandit dans ce contexte, au-delà des développements de Michel Foucher dans son livre ´L'invention des frontières´.

Revenons maintenant à une lecture géographique. Tout d'abord, nous pouvons garder comme précaution d'usage que rien ne dit que les logiques d'implantation sont les mêmes dans toutes les régions périphériques de l'empire romain, dans un sens géopolitique, tout comme en termes de stratégie militaire. Cependant, une pensée récurrente pour tous les chercheurs dans le domaine est de qualifier la frontière comme un ´système ayant une épaisseur´. La théorie de la ´ligne bleue des Vosges´ qui sépare les Français et les Allemands entre 1880 et 1918 n'est qu'une ligne d'horizon et n'a jamais eu de matérialité sur la montagne des Vosges mais elle désigne une zone que l'on voit.

Beaucoup de géographes évoquent la naissance de la matérialité des frontières, à l'aide de marqueurs (pierres, panneaux, étiquettes), et donc l'opportunité d'établir une ligne sur une carte, au dix-septième siècle, avec l'apparition du concept de cartographie des limites. On pourrait aussi dire que c'est plutôt la carte elle-même qui crée le besoin de la frontière car elle permet aux propriétaires ou aux représentants du pouvoir de montrer l'étendue de leur territoire sans avoir à aller sur le terrain.

Une expression qui revient souvent dans la langue des sociologues et des philosophes ne concerne pas l'importance de la frontière, mais son rôle, et en particulier le terme ´porosité´.

En combinant ces différentes significations, les quatre idées fondamentales développées par S. Chavel sont:

1 - la frontière est une ligne physique,
2 - elle sépare deux entités distinctes et différentes,
3 - elle n'existe que par le contrôle qui y est pratiqué,
4 - elle peut être ouverte ou fermée.

Elle oublie totalement la notion d'épaisseur de la frontière, qui est cependant conditionnée par la nature des entités qu'elle sépare, et par les méthodes de contrôle de la circulation qui lui sont associées, aussi bien longitudinalement que transversalement.

Mais en utilisant cette analyse, un peu ontologique, de certains termes associés à la notion de ´frontières´, et en pratiquant une sorte d'archéologie du savoir (théorisée par Michel Foucault) du *Limes*, et optant pour une lecture historique, géographique et environnementale des zones en question, il existe une adaptation prévisible et nécessaire entre le type de travaux et la qualité du terrain sur lequel la frontière est établie.

2-3 – Adaptation à la situation locale

La topographie des territoires où passent les *Limes Alutanus* et *Transalutanus* présente un certain nombre de caractéristiques fortes.

La vallée de l'Olt présente un profil asymétrique avec une différence d'élévation plus importante sur le côté Est. L'établissement d'une frontière (dans les conditions théoriques que nous avons vues précédemment) montre que nous pouvons établir une frontière sur ce type d'anomalie topographique. Mais les faits historiques nous mettent dans un équilibre de pouvoir où le nouveau pouvoir (l'Empire romain) est situé à l'ouest. Il ne peut donc pas laisser la situation topographique à son désavantage. L'interprétation de la ´côte´ Est de la vallée de l'Olt (comme une falaise) crée un territoire où la domination s'exerce de l'Est sur ceux de l'Ouest. La frontière ne peut être donc pas être placée sur cette ligne, ni sur la rivière elle-même. Cela créerai une relation de pouvoir au contraire de ce qui est désiré.

2-4 – un système

Ma proposition est la suivante:

En accord avec les besoins ´techniques´ et «fonctionnels» d'une frontière, et en s'adaptant à la topographie locale spécifique, on peut penser à une frontière avec une épaisseur significative, englobant tout le territoire entre la terrasse ouest de la vallée du Olt jusqu'à la ligne marquée et interprétée comme le *Limes Transalutanus*.

A l'Ouest, la zone de commerce et d'échange dans l'espace occupé par les troupes romaines ne nécessite que des installations militaires. Au sud, les points fortifiés sur le Danube (comme Sucidava - Corabia) sont reliés par des chemins, situés le long de la rive ouest de l'Olt, et dont l'origine peut remonter à avant la période romaine.

À l'Est, la démarcation physique par un fossé avec talus et un chemin, étudié par Eugen S. Teodor, et son équipe semble clôturer le territoire.

Dans l'intervalle, l'espace de la plaine alluviale, où la circulation peut être difficile en raison de nombreuses zones humides, est plus simple à contrôler. Le côté de la plaine Boian est ainsi inclus dans une zone sous contrôle. Ainsi, les points topographiques significatifs où les *oppida* Daciens sont localisés sont donc devenus inefficaces (c'est le cas de Sprâncenata). Et nous avons essayé par ailleurs de démontrer comment la 'Cetate' de Sprâncenata est en relation directe avec une route qui longe le rebord de la falaise du Sud au Nord (publication à venir).

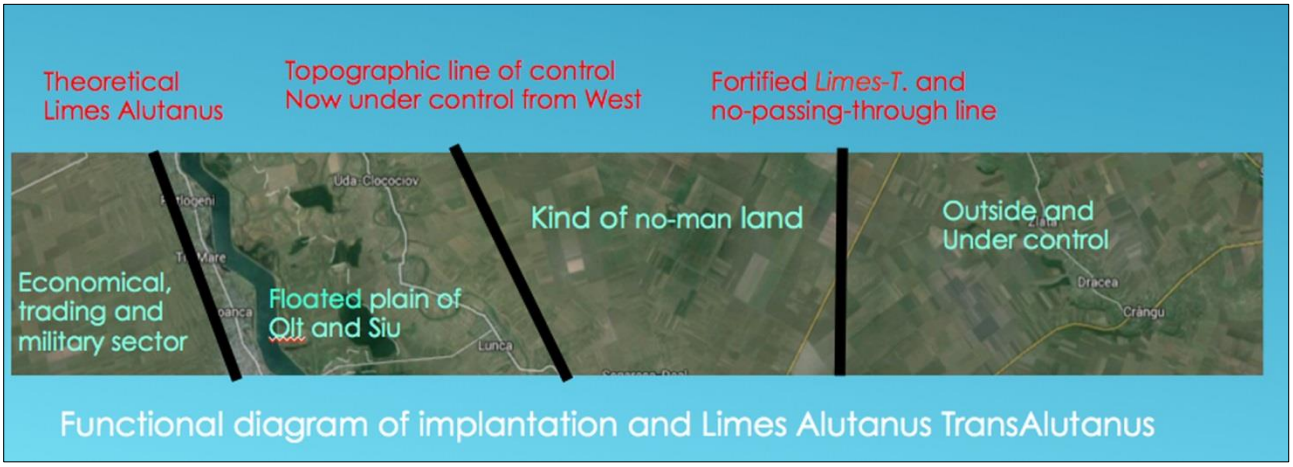

Figure 1. Diagramme analytique du limes romain dans la plaine Boian.

Avec ce système très contrôlé et adapté à la situation topographique, les frontières ont donc un aspect particulièrement fermé à l'image d'un rempart malgré le peu de hauteur du *Limes Transalutanus* qui est compensé par l'ensemble des composantes territoriales ainsi que son étendue (épaisseur).

Avec le retrait de la frontière de l'Empire sur la rive ouest de l'Olt sous le règne de Philippe l'Arabe entre 244 et 247, il est probable que le contrôle de la traversée de la rivière Olt était resté prédominant. ... ou bien que le besoin de fermeture de la frontière orientale de l'Empire romain n'était pas aussi grand qu'il le semble.

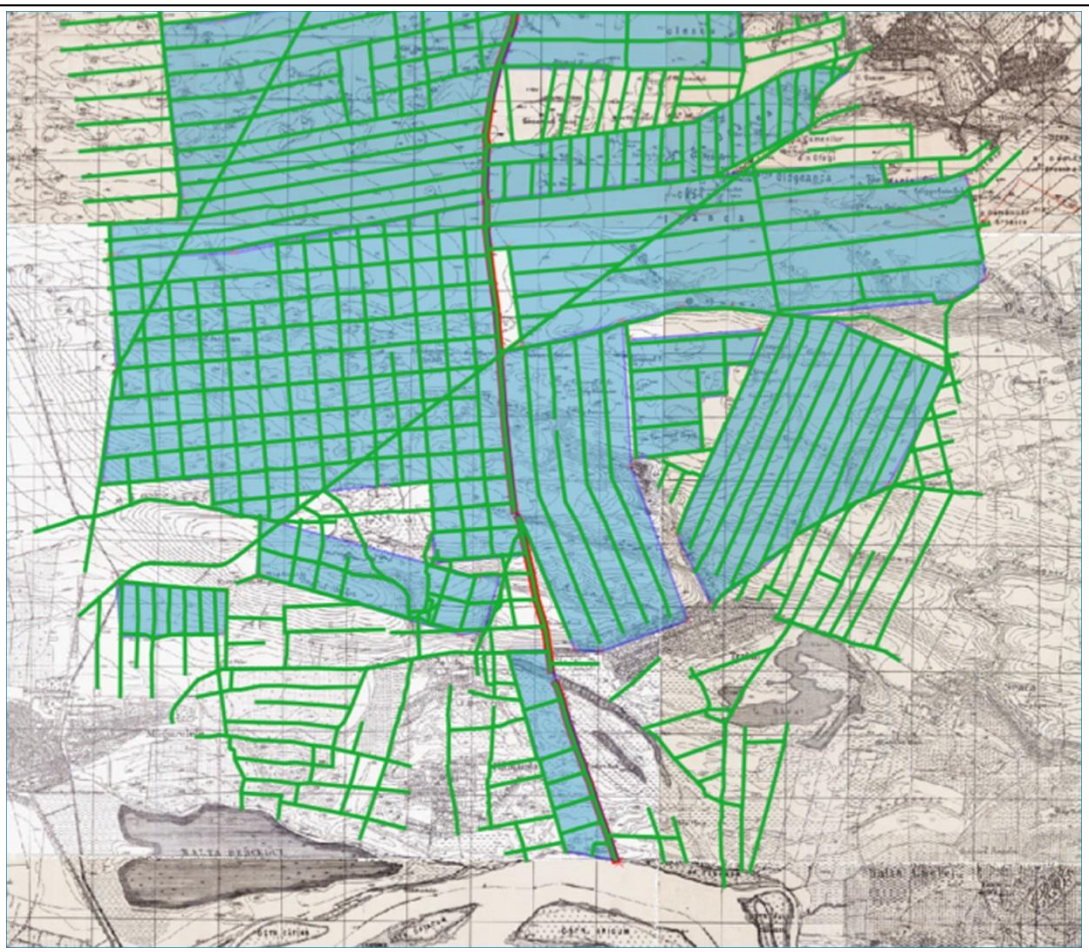

Figure 2: Analyse de la morphologie (carte de compilation) sur la partie extrême sud du Limes Translutanus*. Nous pouvons constater que les parcelles sont plus élaborées sur le côté ouest du Limes. Des zones vides existent dans la partie orientale.*

En rouge : la ligne fortifiée du Limes. En vert : éléments morphologiques hérités (sur place ou par transmission). Les elements pris en compte sont ceux figurant sur le Planul Director de Tragere*. En bleu : blocs de parcelles cohérentes.*

3 - La question de la valorisation et de la patrimonialisation des éléments linéaires hérités doit être rapidement observée. Plusieurs choses sont à prendre en considération.

- L'élément linéaire peut être le monument lui-même : l'ancien *Limes* en est un exemple. En termes traditionnels, c'est-à-dire une ligne de fortification (mur ou terrassement) ponctuée de forts et de tours et accompagnée localement par la garnison, mais on peut considérer que le *Limes* n'est pas qu'une ligne. C'est dans ce sens que Frontin utilise ce mot pour la première fois. Le trait linéaire n'est qu'un élément.
- L'élément linéaire est un héritage par glissement, par transmission, de direction, par isoclinie, ou isoaxialité, sans avoir aucune connaissance de la position exacte du segment de ligne morphogénétique; ou bien elle témoigne d'une résilience locale. C'est le cas des anciennes routes, dont les ramifications ont pu varier avec une grande amplitude.
- La ligne fait partie d'un ensemble plus large, la 'ligne' appartient à une structure qui possède une épaisseur et impose un changement d'échelle de lecture.

Dans le cas de *Limes Transalutanus*, et pour respecter les connaissances scientifiques et la compréhension du *Limes*, nous pensons que le dernier cas doit être privilégié. Cela aura des conséquences importantes sur les choix en termes de conservation, de protection, de restauration, de gestion et d'animation.

4 - Certains exemples de sites archéologiques linéaires qui ont fait l'objet d'une approche de conservation, ou qui ont été pris en compte pour une gestion spécifique, peuvent également être évoqués (la Voie Domitienne en Languedoc, la Chaussée Jules César en Ile-de-France et en Normandie, la Ligne Maginot de la Première Guerre mondiale, le Mur de l'Atlantique de la Seconde Guerre mondiale ...).

Si le mur d'Hadrien fait l'objet d'une importante considération patrimoniale, c'est le mur et les forts qui lui sont connectés et seulement eux qui sont considéré. L'échelle de lecture est réduite à l'élément construit sans le paysage environnant. Sur le *Limes Germanicus*, il s'agit de la structure linéaire et d'éléments ponctuels pris en compte. La lecture globale du patrimoine morphologique nécessiterait un changement d'échelle, mais la zone réelle du tampon de la propriété du patrimoine mondial est très limitée et déconnectée de la réalité historique du monument. Dans le cadre d'une demarche qui aurait pour objectif l'inscription du *Limes transalutanus* sur la liste du patrimoine mondial Unesco, il sera primordial de bien définir la zone tampon, et ce sera le véritable défi du projet.

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The Archaeological Concepts of 'Site' and 'Non-Site' from a Landscaper Perspective

Eugen S. Teodor

History National Museum, Bucharest

The research project I am managing – *Limes Transalutanus* [1] – is getting closer of ending the activity and drawing some conclusions. The Symposium we are hosting today has proposed topics related to lines and alignments, adequate for frontier studies. The problem I am going to address here is also connected to lines, but in a different approach: where to draw a line? Where – or what – is the difference between an archaeological 'site' and a 'non-archaeological' site (on short, a 'non-site')?

The project dealt with cartography, topography, aerial research, geophysical investigation (and others!), but lately mainly with field archaeology. It has been organised systematic surveys targeting civil settlements from the border areas, in order to evaluate the size and the density of those human collectivities. In the process, it have been noticed not only an unexpected diversity of patterns, but also some theoretical difficulties in defining an 'archaeological site'.

We are speaking here about an on-going research, just a bit of it is published – or almost[2] - and the reader has yet to wait for a complete report of the operations in the field. Of course, this cannot happen within a short communication. What I can do here is giving some examples of Roman settlements from the first half of the third century, choosing three different cases, but all emphasising the same trouble: the difficulty of drawing the line.

The methodology used will be unveiled only at the necessary level to understand the illustration provided, just because a full description is bulky.

I will start with a typical case, where the military *vici* appeared more or less where it was expected: the two Roman forts from Urlueni[3] and their civilian settlements (Figure 1). They are located on the high terrace of the right (western) bank of Cotmeana River, lifted about 20 m above the meadow, with steep slopes. At Urlueni, and the next 40 km southward, the frontier consisted in this high terrace, which is a natural barrier, and excellent observation 'tower' above a three km wide valley; there is why I have considered it a *ripa*, a segment of imperial border which do not need embankments or other artificial obstacles[4]. Just 250 m north of the forts, the military way was crossing the river, the frontier switching the banks[5] and the kind of fitting.

[1] Granted by the Ministry of Science and Inovation, through the management unit UEFISCDI, project code identification PN-II-PT-PCCA-2013-4-075, July 2014-September 2017.

[2] Teodor et al. 2017.

[3] As one can see at the Figure 1, the closest locality is Afrimești, today a village administrated by the mayor from Bârla. One century ago, Afrimești was considered a hamlet depending on the village Urlueni (located on the eastern bank of Cotmeana River). This is why the forts were recorded under the name Urlueni. As a general rule, I kept all the old names, even when the administrative geography changed (several times!), in order to avoid confusions. This is the case also for Flămânda (today Poiana) or Săpata de Jos (today Mârțești).

[4] Only one archaeologist pretended to have found and embankment on the western side of the valley, but the claim is unlikely (details in Teodor 2015, 59).

[5] For the geography of the *limes* between Urlueni and Piteşti see Teodor 2016, 31 with Fig. 2, and *idem*, 33, Fig. 3, for a zoomed detail.

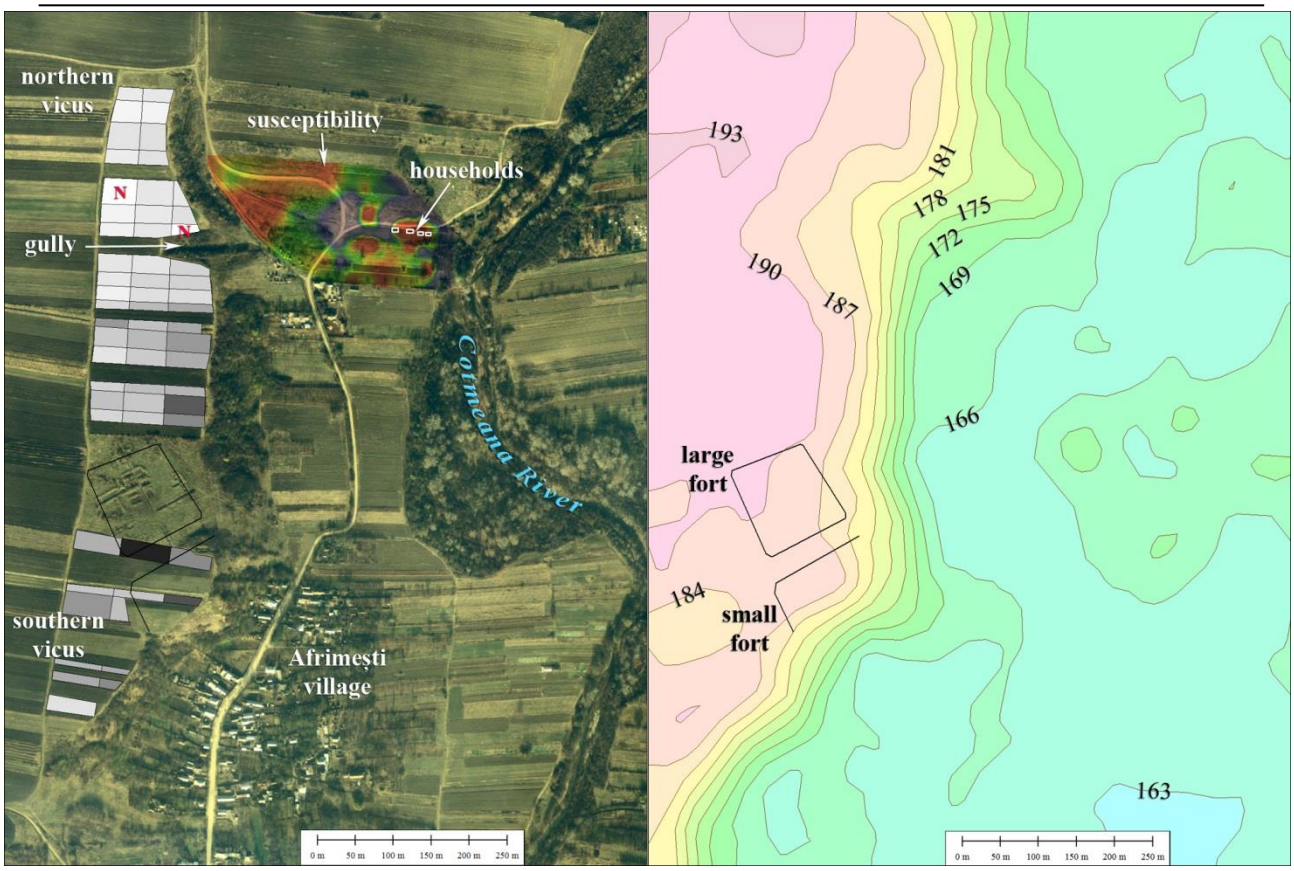

Figure 1. Roman forts and settlements from Urlueni (Argeș County).
Orthophoto (2012, res. 0.5 m) and reported results of the survey (left)
and altimetric contours (3 m, extracted from Alos Palsar DEM, res. 12.5 m, right)

The two forts are standing on the fringe of the terrace, separated only by a (large) ditch, and probably did not functioned together[6]. The remnants of their civil settlements are standing anyway aligned at the edge of the terrace, at the both ends of the forts, suggesting also two different settlements.

The areas in grey shades, from the Fig. 1, are presenting the statistic outcome of the field survey, performed in several occasions along the year 2016[7]. We checked all the land parcels available for an accurate evaluation, noting down any relevant artefact[8], and then making the analysis in the office. The information has been collected on three sorts of pottery (obviously imports, Roman 'regular' pottery and so-called Chilia-Military pottery), bricks, tiles, burned adobe, river pebbles[9], stones, mortars and small finds. The picture presented within the Fig. 1 is not analytical, but an overview, reporting the total number of objects to the

[6] The lines of the forts from the Fig. 1 will not be used for measurements, being an early approximation following the orthophotos. A detailed study of the UAV's made DEM was not yet accomplished. As concern the 'small fort', its dimensions are known from the early reports of Pamfil Polonic, in late 19th century, when the precinct was still intact (today is badly affected by erosion, due to the steep slope); see Teodor 2015, 61, Fig. 22.

[7] With the help and assistance of my friend and volunteer Florin Chivoci.

[8] The notes were made directly in a handheld GPS. We did not collect the artefacts, from several reasons. One of them was the fact that processing collected artefacts is time consuming (as we already tested with Săpata case; see further); second, because picking them up is another time consuming operation (there are 11 hectares, compared to less than 5 at Săpata), and we did not really had that time; third, because, as well known, artefacts displaced from the site but not processed are lost artefacts (see Drewett 1999, 5).

[9] Not counted, of course, but evaluated in five classes of frequency, from 5 (very many) to 1 (very sparse).

surface of each sub-parcel. The darker is the shade of grey, the larger is the number of objects (or, more exactly, the score given by reporting the sum of the artefacts to the surface of the parcel). The greatest number of objects was recorded to the southern corner of the large fort, 122, giving the top score of 13.52.[10]

Regarding the general plan, one can see that the density of artefacts is progressively decreasing from the middle (the forts) to the margins of the 'site'; but where the 'margin' is? The parcels noted with N gave null results; nevertheless, two hundred meters northwest the artefacts continued to pop up, even in small numbers (from 1 to 11, on an average surface of 1000 square meters). How we will render such a situation within a terminology as 'archaeological site'?

To make things even harder, the international literature concerning the military *vici* rejects the agriculture as one of the possible occupation for the inhabitants of the civil settlements[11]. Making agriculture is a good opportunity to lost things on the field, as happens today with the plastic PET, or in the 19th century with the 'market pots'. Looking at the Fig. 1 – I am not sure any more. The main argument for rejecting the agriculture as a mean of live, on the frontier, is the relative absence of the agricultural implements *inside* the *vici*, observed by digging; what about the field survey?

The northern settlement seems to end before the ravine which is cutting the terrace, looking much as an anthropic intervention, reducing the estimate surface of the settlement from 5.5 hectares (obviously too much for a fort stretching only on 1.3 hectares) to a reasonable 3.3 hectares, if not less. The hypothesis that the gully was a road heading the river is strengthening by the fact that we have found a third settlement in the meadow, close to the river bank. In the fresh tiled land we were able to count exactly four households, with remnants dispersed on intervals of an average of 11 m[12]. Interesting to note, the orientation of the gully descending the slope is going exactly south of these four houses in a row.

A complementary research was done in this northern area of the meadow, in order to estimate the size of this third settlement, using a lesser known geophysical mean: magnetic susceptibility[13]. Neglecting the red shades from the western part (which could be a perverse effect of the slope itself), in the meadow one could count at least other four reddish spots, recommending anthropic alterations[14]. If so, in the meadow there are at least other 10 Roman households, accompanying the Roman road (as usual!).

To conclude this: how many 'archaeological sites' do we have there? And how many 'civilian settlements' do we have? Legally speaking – only one. Archaeologically speaking is far more difficult: the *vicus* from the terrace is 200 far from the village from the meadow, being connected by a straight road. This is a situation picturing the crisis of the 'archaeological site' concept.

We will proceed now with the second case, which is Săpata, located 25 km north of Urlueni, as the crow flies. Giving the fact that the full report is prepared for publication – expected almost in the same time with this symposium[15] – I will provide here only the minimum set of information: the forts from Săpata are located on an isolated high terrace, natural defended from three sides, with a smooth access no wider than 80 m, northward. The expected position of the civilian settlement is on that high terrace, because the forts are taken less than half of that plateau. Unfortunately, the entire surface is covered by a neglected orchard, with dense bushes and tall grass, improper for a regular archaeological survey. All what was known about the location of the *vicus* was suggested by a small plough land located southwest of the forts.

[10] In the calculation was also implied a correction for visibility, giving the fact that the quality of observation was not equal in all the worked parcels of land.

[11] See Teodor et al. 2017 for details.

[12] This is going well with the typical *vicus* 'property', of 50 x 10 m, with the width aligned to the road (in this case, road is to the south); see de details (including literature) in Teodor et al. 2017.

[13] Performed by dan Ștefan.

[14] Some actual households are to be found in the area; the field is yet pretty clean, with no excess of obvious recent artefacts ('no excess' because they are pretty much everywhere in some amounts).

[15] Teodor et al. 2017.

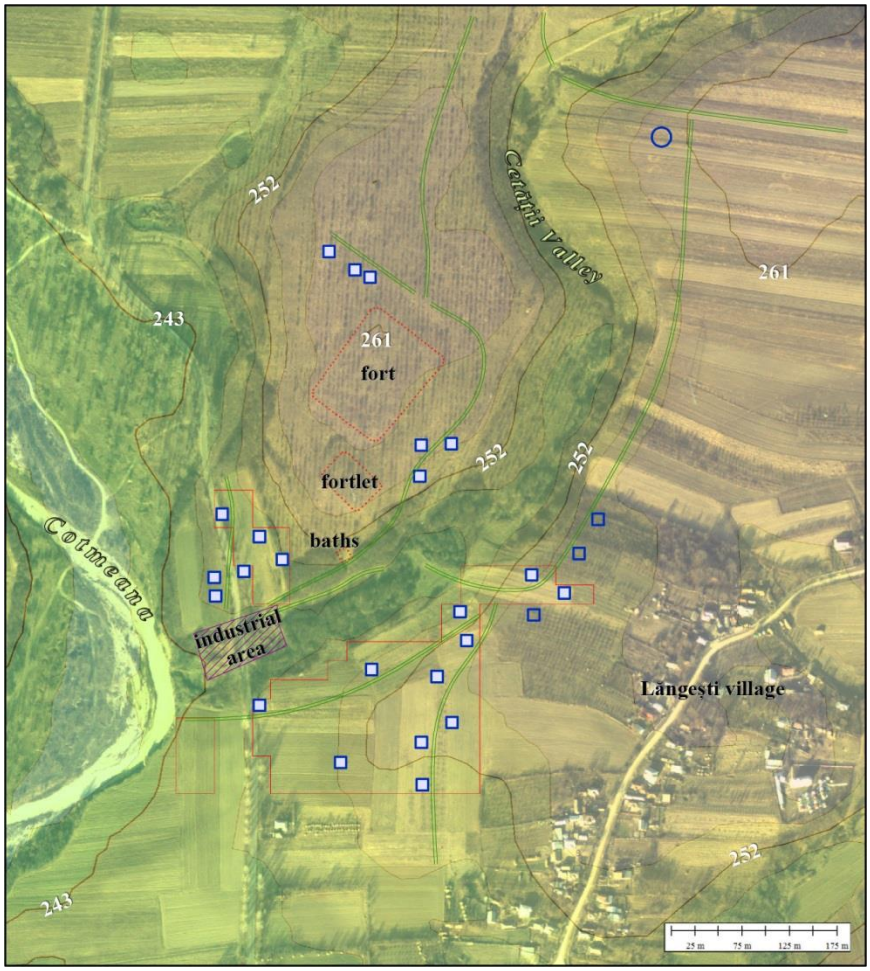

Figure 2. General plan of the civilian settlement from Săpata de Jos (Argeş County).

The blue squares are pointing out the most likely location for the households from the vicus. *The blue circle is an isolated discovery, very likely a watch tower.*

Taken from Teodor et al. 2017, fig. 21.

The surprise came in the early spring 2016, when our (already introduced) volunteer Florin Chivoci made the announcement that he found plenty of archaeological remains on the opposite bank of the Cetăţii Valley (i.e. Fortress Valley, but the name is from the late 19th century). Why 'surprise'? Because usually the civilian settlements are standing close of a fort, near one (or two) of its gates. A first visit in the field proved that the discovery was real, the main part of the settlement being located there. In April 2016 we made the most complex application of this project, involving about ten people, in order to make a systematic surface survey, collecting all pottery and small objects, but also data for construction materials spread on the field.

Complementary on this has been made a geophysical investigation, using the only mean usable in dense vegetation, which is magnetic susceptibility, in the summer of 2016.[16]

The situation presented in the Figure 2 is an overview of the works done in 2016, with the likely positions of the households (or other utilities, as workshops), gathering data from both surface survey and magnetic susceptibility applications. Surprising or not, the high plateau located north of the main fortress is almost empty, a situation which we finally have explained by the difficulties of providing fresh water on the spot. As a result, the civilians were dispersed in four different areas:

[16] Performed by Dan Ştefan. A new set of measurements were taken later, in March 2017, but the data is not processed at the time I am writing this note (May 2017). The evidence presented here, at the Fig. 2, will not be changed essentially by this new investigation, having to add, probably, three new squares on the lower terrace located east of the forts, along the contour line 252 m.

- three households on the northern plateau (suggesting a road heading northwest?)
- other three[17] living clusters on the eastern terrace, near the forts, but closer to the water!
- seven clusters on the lower terrace located southwest of the forts, but also something like an industrial area (with very strong susceptibility signal), near the Cetăţii Rivulet;
- 11 (sure, but probably 14) clusters of the settlement's remains on the other side (left) of the Cetăţii Valley, making roughly half of the civilian settlement.

And here is my point: what do we have here, besides already known historical monuments (the two forts and the Roman baths)? Four civilian settlements? Or maybe two? Or just one, because one fort can have only one *vicus*?[18]

Beyond the difficulty of drawing 'archaeological sites' in the picture from the Fig. 2, one can add the administrative jam: Cetăţii Valley is not only the border between two villages, but also the limit of two 'communes' (which are independent bodies of the law): Săpata (on the right bank of Cetăţii Valley) and Lunca Corbului (on the left bank). Therefore, we will have not one, but two 'archaeological sites', sharing the same name: the military *vicus* of the Roman fort from Săpata. What can be more confusing than that? Could two different mayors share the responsibility for the same historical monument[19]? Maybe in Germany, but not here… Here the garbage from Lunca Corbului is discarded on the neighbour's lands, which it happen to be also historical monuments, protected by law.

Let's have now the third case, which is, by far, the most difficult. This is Bratcov case.

Approaching the medieval town Roşiorii de Vede, the frontier embankment is splitting: one branch is continuing northeast, heading the town, to the edge of the high terrace of Vedea River; the other is branching up, south of the TBC Hospital, it is making a large turn northward, crosses Bratcov Valley and bends again, heading northwest. The two branches of the frontier are reunited again about one km north of the Măldăeni Hamlet[20], two km west of the railway station Roşiorii de Vede and one km south of the Scrioaştea village. The junction is located about the spot where the railway to Craiova is crossing the road to Piteşti and it is not visible anymore, due to the drastic alteration of the soil occasioned by the railway construction works.[21]

This is the only place along *Limes Transalutanus* where a variant of the frontier is known, and this emphasizes the strategic relevance of the place where the Roman border meets Vedea Valley. Vedea is the main water stream in western Muntenia, thus a strategic corridor.[22] This is also the place where the main direction of the frontier is changing from northeast to northwest. Except this detour near Roşiorii de Vede, the frontier reaches Vedea terrace only a few kilometres upstream, west of Scrioaştea village. Surprising enough, the embankment descends in the riverside and continues there another 3 km, up to the fort Gresia.

[17] Could be finally six households, adding the investigation from 2017.

[18] The discussion is supplementary complicated by the presence of the two forts, in fact a small fort and a fortlet. Without details, I will say only that I am pretty sure that the forts did not function in the same time.

[19] The term is generic. In legal terms the half of the settlement located in Lunca Corbului will be, probably, just an 'archaeological site'. The funny thing is that the County Cultural Office from Argeş recorded a 'vicus' many years before any information about it was available. What will they do now, that we know exactly where it is? Probably nothing. Funnier still is that, conforming to the brand new Theses for the Cultural Heritage (September 2016, see http://www.cultura.ro/sites/default/files/inline-files/TEZE_PREALABILE_CODUL_PATRIMONIULUI_fin041016.pdf), the old fashioned concept of 'archaeological site' will be replaced by 'cultural landscape'. Nice! I am eagerly to find out how will be divided the 'landscape' on administrative grounds!

[20] The main village with the same name is located two km westward.

[21] The railway is ascending slowly the high terrace of Vedea, through an excavation having a cross section of 57 x 6 m; all the soil was displaced in sides, raising the foot level and obliterating the route of the Roman constructions.

[22] Just 11 km west of the TBC hospital there is a well-known Chilia-Militari settlement, Dulceanca (apparently later than the Roman province). A cluster of similar settlements are located only 15 km downstream, near the city of Alexandria. For a distribution map of Chilia-Militari settlements see Teodor et al. 2015, 126, Fig. 19.

'Surprising' because the next 40 km northward there is no embankment on the western terrace of the corridor Vedea-Cotmeana, this section of the frontier being a *ripa*. The unusual embankment made in lowlands, between Scrioaştea and Gresia, is another proof for the strategic relevance of the Vedea Valley, and the expected pressure from downstream.

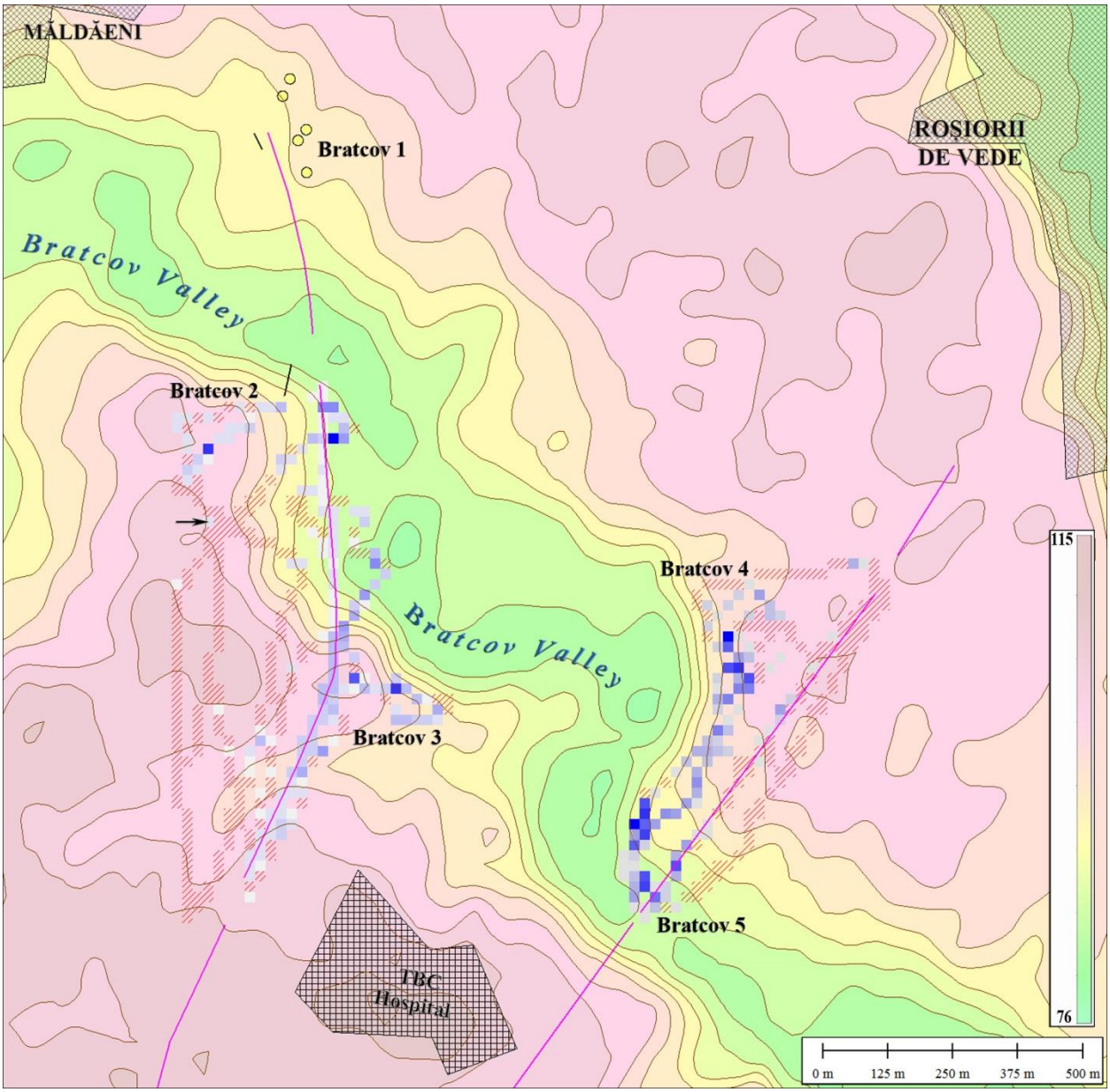

Figure 3. The Settlements from the Lower Bratcov Valley.
Legend: pink lines – frontier embankments; black lines – Roman roads;
dark blue squares – dense living area; light grey squares – sparse archaeological remains;
red hatches – areas with no archaeological remains; arrow – stone balls;
contour lines at 3 m in altitude.

The topographer Pamfil Polonic new only the western variant of the frontier, which, for a change, is almost invisible on Google Earth[23] or Romanian orthophotos (three editions). When I have started studying this frontier, the eastern variant was far more visible on available imagery, on the both sectors: south or west of the town[24]. My guess, from the very beginning, was that the western variant is the original, because it is shorter, but less safe, leaving Vedea Valley not surveyed downstream Roșiori[25]. The research made within the present research project is providing the archaeological proofs.

Documenting the western branch of the frontier took some time and many small steps. In October 2014 was checked in the field the sector north of Măldăeni (slightly burned). In the same day we looked after the continuation south of Măldăeni, along the Bratcov Valley. In the first instance nothing was noted, but an embankment on the opposite bank (proved later to be a road, not the palisade). In November 2014 was made the first UAV mission west of the hospital (see Fig. 3), clarifying the southern route between the hospital and the place where Bratcov rivulet is crossed.[26] In the spring 2015 the archaeological traces from the northern side of the Bratcov Valley where hunted down, establishing the approximate route of the embankment[27]. In 25th June 2015 geophysics happened in the same area, mainly in the upper part of the field, easier to walk. Magnetometry was done in a place strongly burned (suspecting a tower), proved to be a road with the drains filled with burned matters (thus with some buildings around). East of the line of the embankment was performed a susceptibility application,[28] in order to map obvious remains from the surface. About five clusters of 'anthropic activity' were spotted. Looking now at the whole picture (because it exists, see Fig. 3), I am pretty sure that the settlement (named Bratcov 1) is greater, stretching to the rivulet bed, another 200 m southward.

The activity moved on the opposite bank of the valley in 3rd July 2015, aiming to check the all length of the embankment. The southern half is very clear on the field, being strongly burned and much better conserved (although tiled…) than the next half. At the edge of the terrace the direction is changed (typical), heading north, descending into the meadow and being difficult to follow; why? Because the slope is not a friend of the embankments of any kind, but mainly because it is not burned any more[29]. With the same occasion we[30] noticed that the archaeological stuff was dispersed mainly on the outer face of the embankment, thus not connected with military activities, but with a civilian settlement, after the great fire. We made the way back following a route on the higher terrace from west, finding the road[31] and the site named Bratcov 2, at the Fig. 3, settlement stretched from the meadow to the hill, oriented towards the valley from north. In the same day

[23] Years ago was visible only north of the Măldăeni hamlet (see Historical Imagery on Google Earth). On the current version (April 2017) one can see one km segment west of the hospital, but nothing of the rest.

[24] For a complete geography of the split border, see Teodor 2015, 164, Fig. 74.

[25] View Shed Analyses performed for Scrioaştea Tower (for location and research see Cătăniciu 1977, 343-344; for comments Teodor 2015, 160-161 with the Figs. 71-72,) showed unexpected differences in a direct comparison with a (theoretical) tower from Roșiori (located in the upper part of the town's cemetery). The tower from Scrioaștea (spelled also Scrioștea) have a great view along the frontier both southwest and northeast, but is plainly 'blind' looking downstream Vedea. For a change, to position from the town's cemetery controls perfectly Vedea Valley, for at least 25 km, mainly on the western bank (which is of highly interest). Good to know, both are located on the same high terrace of Vedea, at less than 5 km each other.

[26] Using mainly the DEM, more helpful than the orthophotos.

[27] In difficult conditions, on lands with a very fragmented structure of property, with dozens of parcels in different stages of the growing vegetation.

[28] Data collected by Mihai Florea and processed by Dan Ștefan.

[29] Therefore it is not a 'system' of construction, with burned adobe, as Ioana Bogdan Cătăniciu has thought (1977, 340-341), and I also believed it for a while. Now I can say that sectors are burned, and others are not, and this is the same from the Danube onward, till Vedea. The strongly burned sectors are 300-400 m long (possibly longer), interrupted by not burned sectors (longer as a general rule). It was obviously a systematic job undertaken by somebody.

[30] I had as comrade, that day, my colleague Mihai Florea.

[31] Conserved only on the slope from the northern edge, which is not ploughed.

and in the same way back Mihai Florea found two stone balls, very small, but also very likely for artillery purpose. The place is in the middle of nowhere, with no archaeological remains on four hectares around, although the position is great (flat high field, with a perfect view southeast).

The next year, 2016, was fully dedicated to field archaeology and settlement surface research. As one can guess, as the top priority were the civilian settlements of the forts, the large settlement from the Bratcov Valley was put in a long row and… didn't make it.

The activity of gathering data on the settlements from Bratcov Valley was resumed in late April and early May 2017, all by myself. Due to the dimensions of the objectives (32 hectares on the western bank of the river and 15 hectares on the eastern bank) I had to choose a new strategy, never tried before, which I would call a 'statistic survey'. The aim of the method is not to cover completely the surface, as in a 'systematic' survey, but to walk in distant transects, in order to evaluate the dimensions and the edges of the archaeological sites. Nevertheless, the notes taken (on GPS, as usual), served also to a quantitative assessment, on the followed routes. It came up the full picture of the Figure 3.

The search in the area located west of the valley had as objective, first of all, to check the (improbable) hypothesis of a Roman fort on the high terrace located west of the western branch of the embankment. As one can see, except the settlement named Bratcov 2, nothing special exists in the area. East of the embankment was located and delimited the settlement Bratcov 3, located mainly on the terrace, with an extension in the meadow. The steepest part of the slope was not checked, being covered with pastures. Bratcov 3 settlement is estimated as having an area of 5.3 hectares, being composed by at least 7 clusters of archaeological remains.[32]

The eastern branch of the embankment wasn't been thoroughly checked from November 2012. After a fist visit, a 'recognition' mission aiming to evaluate the size of the problem, the job was designed to answer two questions: to prove that the settlement of the Roman Age is strictly contemporary with the Roman frontier and to asses the dimensions and the relative density of the remains. In order to answer the first, has been chosen a route driving outside of the line of the former frontier. The result was null, and the outcome is that no part of the settlement is beyond the line of the frontier[33]. As concerns the settlement, it has two cores, one on the higher terrace, on north (noted Bratcov 4) and one on the lower terrace, in south (noted Bratcov 5). Of course, one could consider it like a single settlement, unusual lengthy (over 700 m), near the edge of the terrace (sharper in north, smoother in south), but also to observe that the main clusters are located in north and in south. The density is not great, overall; the best scores for each unit (20 x 20 m) is recorded in the settlement noted Bratcov 5, of 20 points, is made of notations like Pottery 3 (out of 5, on the density scale) or Burned adobe 4 (which means 'much', but still is not the maximum). Compared with the settlements researched near the forts, the settlements from Bratcov have similar values of density as those recorded for Putineiu or Crâmpoia, but lower than some areas recorded for Valea Urlui, Băneasa or Urlueni.

The recorded density of archaeological remains has to be evaluated against the supposed chronology, which is very short. If the frontier was firstly built around the year 200, as largely supposed, and ended in 245 (a much safer limit), it was struck by a huge fire, sometime in the middle time life, and it was rebuilt and reused for a generation, or about 20 years. All settlements recorded in Bratcov Valley fall in the second phase of the frontier. Interesting to note, the western branch of the embankment in not burned, not only on this segment, but also anywhere south of the valley.[34]

[32] Being a statistical coverage of the field, the estimation should be reported to the area actually seen, the sum of cluster rising up to 10-12 clusters

[33] Except down, near the water stream, where dispersed (and sparse) materials were found as far as 50 m east of the line. I suppose that they were rolled on the slope, by tilling.

[34] A small segment of burned adobe line could anyway be found west of the town, for a very short segment (about 100 m), having the same chronology.

Altogether, a gross estimation of households is over 50, in Bratcov area, which is larger than for any military *vicus* investigated on the frontier. Not only that we miss a fort near Roşiorii de Vede (although the strategic importance would ask one),[35] but the structure of the settlements from Bratcov is not similar with any other known settlement along the frontier. They are stretched along the edge of the terrace, with some clusters into the meadow, similarly with the situation of the *vici* (*vicus*?) from Urlueni, but less denser, more dispersed, as fully civilian settlements would be, outside walled towns. On the other hand, they cannot be 'usual' civilian settlements, not only because they are located in a frontier zone, but also because they share a tiny space (they all fit inside one square kilometre), with low resources for a larger community. One way or another, they have to be beneficiaries not only of the Roman protection, but also of the Roman goods, because they couldn't feed themselves, lacking resources (others than exchanges). And, notably, they are Roman citizens.

Of course, one can suppose functions related to frontier services, as would be a *statio*; but only one of those 'settlements' (clusters of archaeological remains) could be that; what about the other four? I will not try to solve the puzzle, not being a proper historian of the Roman Age; I am an archaeologist and just give here a report of the facts seen in the field.

Beyond historical problems raised by the clusters of settlements recorded in Bratcov Valley, this short communication aims to stress the caducity of the concept of 'archaeological site'. These three cases – Urlueni, Săpata and Bratcov – provide plenty of reasons to question some practical issues of the archaeological practice.

Where is ending the northern settlement from Urlueni? Near the gates of the larger fort, or hundreds meters further, where Roman sherds still popping up? Of course, no one would spend money to dig into the agricultural hinterland of a settlement (at least not in Romania); but does this knowledge matter? It is not the 'archaeological landscape' a much fitted concept in order to understand the resources a community use in order to live?

Transferring such data in a repertoire, how do we'll manage the information about the 'upper' settlement from Urlueni, and the cluster of households from below? Are they two different 'archaeological sites'? Probably yes, because there is an apparent 200 m gap in between. In fact – no, because we know that all clusters of living inside a certain radius (one mile? one *leuga*?)[36] around the fort make together a single community – the followers of the militaries from a garrison. The short life span of *Limes Transalutanus* is helpful in understanding that all those clusters are pretty much contemporary.

Săpata case is stressing another issue: two halves of a civilian settlement located on the opposed banks of a small valley, corresponding to different administrative territories from our days. Of course, for practical reasons they have to be separately recorded, into the national database, although the research would need a unique plan of investigation, although dealing with two different territorial authorities.

Bratcov presents the most confusing landscape. It have been identified on the field several clusters of archaeological remains, split conveniently in 5 settlements[37] inside one square kilometre. They are not connected to any known fort, thus they would be 'independent' settlements. Nevertheless, due to the fact that they are granted as contemporary, on a span time no longer than two decades (or so), the natural resources at hand barely could provide the resources for living.

The settlements noted Bratcov 1 to 3 are lined along the first phase embankment, burned and abandoned. The first and the second settlements are separated only by the course of Bratcov rivulet. Between the second and the third – there is no gap, but a very diffuse occupation; is this one settlement or two? The distribution of the main clusters of remains is suggesting rather two, because the middle of a settlement cannot be almost empty.

[35] Teodor 2015, 184, 202.

[36] Rogers Flynt 2005, 143 (with literature).

[37] Take note that could be more! The area facing the settlement Bratcov 2, east of the valley, has not been investigated.

The other two – numbered 4 and 5 – are located across the valley, eastward. Their middle area is still denser than in the cases from the opposite bank, but again the main clusters are suggesting two different settlement cores. Obviously, the traditional concept of 'archaeological site' cannot deal properly with such realities.

Getting off the 'site' is revealing, most of the time, that outside is life and many shades of used territory, in former ages.[38]

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[38] Besides Roman Age remains, in the Bratcov area can be found not only sherds of the modern Age, but also relatively many prehistoric sherds, very likely Hallstatt, mainly in the meadow part of the Bratcov 3, and in the area of Bratcov 5, so – both in the very low positions. Those results were excluded from the statistic presented at the Fig. 3.

A Roman Frontier crossing the City

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The Roman frontier known as *Limes Transalutanus* was probably established at the turn of second and third centuries. It was crossing western Muntenia, climbing the Southern Carpathians and descending in the south-eastern corner of Transylvania, ending at the great bent of the Upper Olt River. It measures about 320 km, from Danube to the Upper Olt, and the city of Piteşti is almost its half (155 km afar from Danube). This is also the place where the border is crossing the most relevant water stream from its entire route: Argeş River.

The place has an obvious strategic relevance, for at least two reasons: first of all, the main cluster of Chilia-Militari settlements is laying just downstream[1], on the main corridor crossing the plain from east to west; second, it was locking the access to the road driving in mountains, to the Bran Pass. The place couldn't miss the military force, but no fort was preserved. The closest garrison southward is rather a fortlet, Albota, located roughly 10 km from the Argeş River bank, near the junction Teleorman-Albota; the nearest fort northward is Purcăreni, located 9 km farther, at the confluence between Doamnei River and Târgului River. The place where the medieval town Piteşti is located is itself a relevant junction, where Doamnei River şi shedding in Argeş River.

The frontier line itself is not well known in the area of Piteşti. A cropmark is barely visible on aerial imagery, for 600-700 m long, northeast of the village Albota, at about four km south-southwest of the city, and the things are going worst[2]. We know the same line from the notes made by Pamfil Polonic in the late 19th century[3]:

> *Two km northeast of the village* [Albota] *we meet again the Troian* [the popular name of the embankment], *which is* [added: *1 km eastward* (?)] *parallel with the county road* [cut: *at 1 km east of it*][4] [added: *and drives to the Argeş River bank*]. *The embankment is* [cut: *very well profiled in the plough land*] [added: *well profiled*] *and has a height up to 1 m. Near Piteşti, about 500 m east of the railway station, it is ending to the bank of Argeş River.*

Polonic was describing the frontier obstacle like a *vallum* (Rom. 'val'), confirmed much later by an archaeologist which cut it out three times[5], although we recently have learned, in our own digging, that it is a palisade[6]. No matter the real nature of this enclosure, its ruined remains looks like a small embankment, more or less visible, depending of the conservation status. Near Albota village, where it is best preserved, the embankment is barely visible, rising 30-40 cm over the plain, flattened to a width of around 40 m.

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[1] Teodor, Bădescu, Haită, 2015, 124, Fig. 18. Mătăsaru is the best known site of this culture (having both a settlement and a cemetery) and it is located just two days travel downstream Argeş.

[2] In the orthophotos from the early 2000s this line was visible for about 2.3 km, giving us the certainty that it was going straight to the city.

[3] Full transcription of the Polonic's notes about *Limes Transalutanus* in Teodor 2015, 215-221.

[4] There are, in fact, 645 m. The error of estimation is not small at all, and this is good to know for other estimations (see further about the railway station from Piteşti).

[5] Bogdan Cătăniciu, 1977, 340-342.

[6] A brief report of those diggings is going to be published, in Romanian, in this late spring (Teodor 2017).

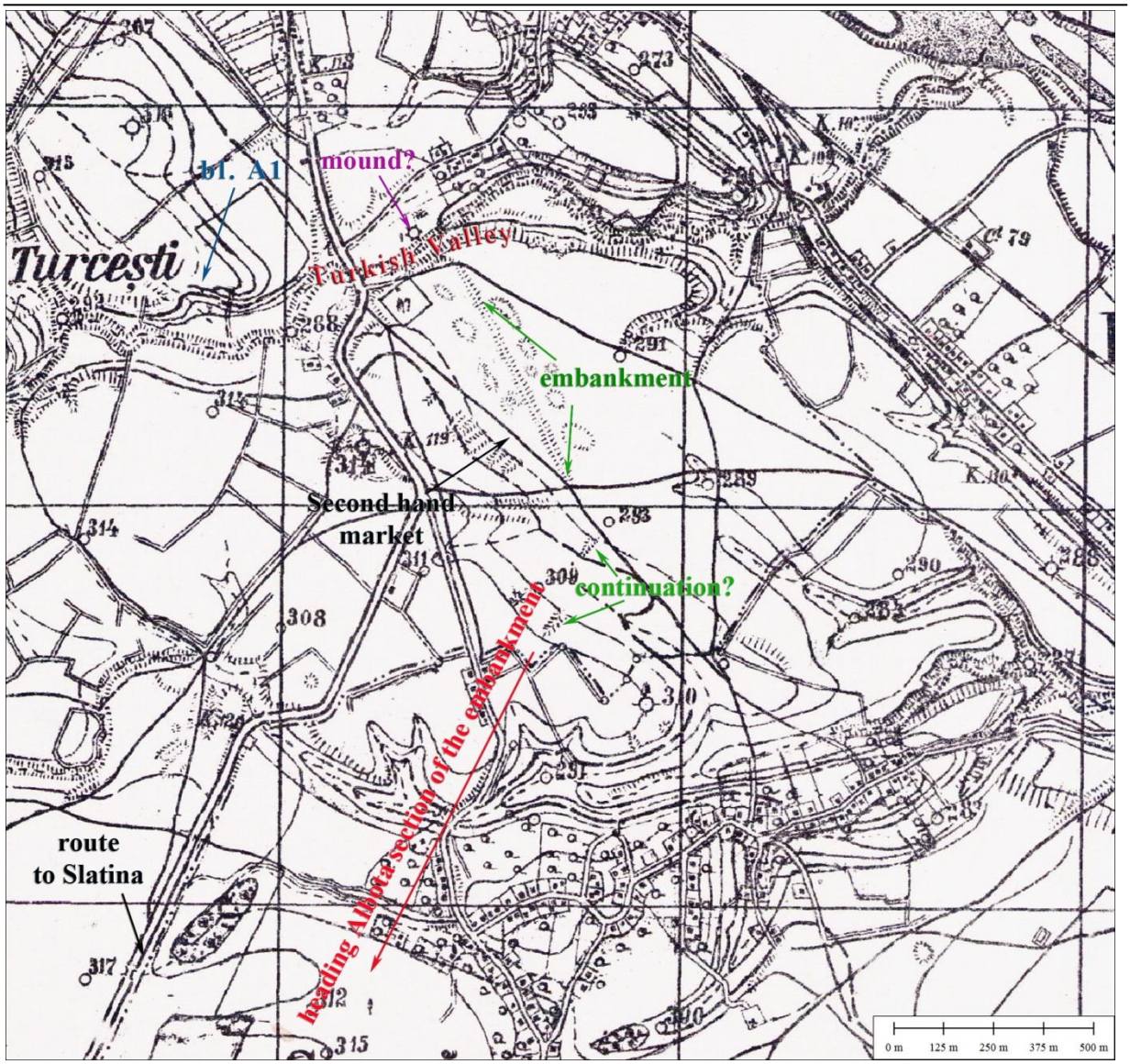


Figure 1. The Military Map known as Planul Director de Tragere, sheet 3648 from 1929.

Looking at the segment known from orthophotos, the embankment from Albota is heading directly the bank of Argeș River, just downstream the railway station. Looking yet at a military map published in 1929 (Figure 1), we might encounter a twist, near the city. An embankment is pictured there, suggesting a strong turn northwest. On the both sides of it there are figured out something like large concavities, which is the usual look of the monument on very flat areas, like this; these are fens produced by the very presence of the embankment[7]. The twist could be due to the strong profile of the Turkish Valley[8], safer for the setup of the

[7] The fact is produced by different causes: first because the rain water cannot flow, stacked by the embankment in the upper part of the field (the south-western part at the Fig. 1); second, because the palisade was reinforced with soil taken from the front side (north-eastern part at the Fig. 1).

[8] In Romanian named either Turceşti ('Turks'), as in the Fig. 1 or Valea Turcească ('Turkish Valley'), but more recently also 'Geamăna Mică'. As previously proved (Teodor 2015, 97, 145, 169; Teodor 2016 a, 179-184) the ethnic names of Tatars and Turks are frequently associated with Roman military monuments, in this part of the country.

defence in such a vulnerable place as the bank of the Argeş River; it is about 200 wide, 20 m deep, and has relatively slope sides.

The bent of the route of the palisade, suggested by the map from the Fig. 1, is located immediately east of the Second Hand Market of the city (mainly cars…) from our days[9].

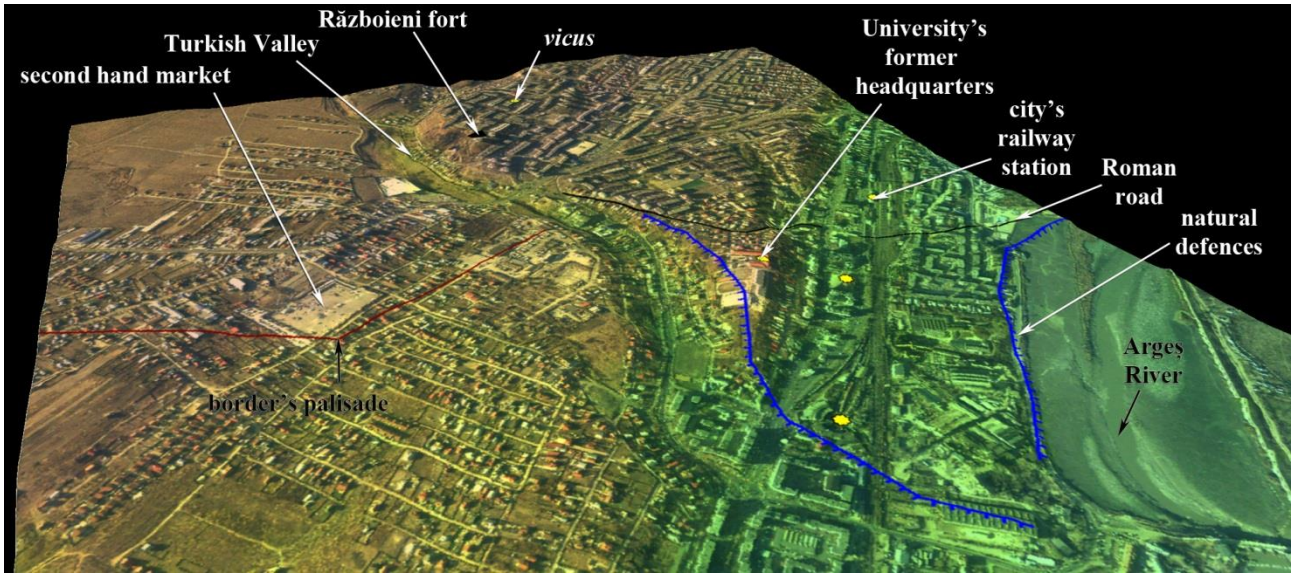


Figure 2. Situation of the Roman frontier next to the southern bank of Argeș River. Terrain model (SRTM-30) superposed by orthophotography (2012). View from north-northeast.

Looking at the Fig. 2 the tactical advantage offered by the Turkish Valley is obvious. Its mouth is located about one km south of the city railway station, not 500 m, as Polonic wrote, but this kind of error in larger distances is already known from previous examples. Relevant chance discoveries are known from the western side of the valley. The most interesting is a treasure of *aurei*, containing 21 gold coins minted in 240-243 by Gordianus III. It was discovered by chance by workers digging the basement of a block of flats in the area Războieni, in the 1970s, sniffed by police and hosted now by the National Bank. The exact location of the discovery varies depending on source, either the block A1, either A3-A4[10]. As well known, *aurei* were typical military payment[11], such a quantity being the equivalent of an officer salary for several years. The location is great, the best possible for a fort, in the area, naturally defended on three sides[12], with a clear view southward, looking at the route of the frontier, and eastward, looking at the turn made by the palisade and along the Turkish Valley.

[9] There are claims that on the position of the Second Hand Market would have been discovered 'traces of a tower' (Dicu 1986, 27), information which is both uncertain and plausible (any strong turn is a vulnerability, thus a tower is necessary).

[10] A1 following the County Repertoire (Măndescu et al. 2014, 139), but A3-A4 (? there is no block A4 in the area) after the numismatist which published the treasure (Dima 2012, 133). The difference is not relevant, those blocks being grouped together, in an area covered usually by a fortlet. Our figures follow the location mentioned by the County's Repertoire. The working hypothesis mentioned by Mihai Dima, that the hoard could have been found at the demolishing of some previous buildings, thus in secondary position, is not credible, the blocks of flats being made in an area previously not inhabited, at the city's fringe.

[11] Most of them found on typical military environment (Dima 2012, 140).

[12] Revealing a common scheme with the next three forts heading south: Albota, Săpata and Izbășești (Teodor 2015, 75 with Fig. 30, 84 with Fig. 36; 92 with Fig. 39).

Figure 3. Airplane snapshot (29th July 2015) heading south-west, picturing three landmarks: block A1 (aurei hoard), Second Hand Market (the turn of the frontier's palisade) and the Agronomic Institute.

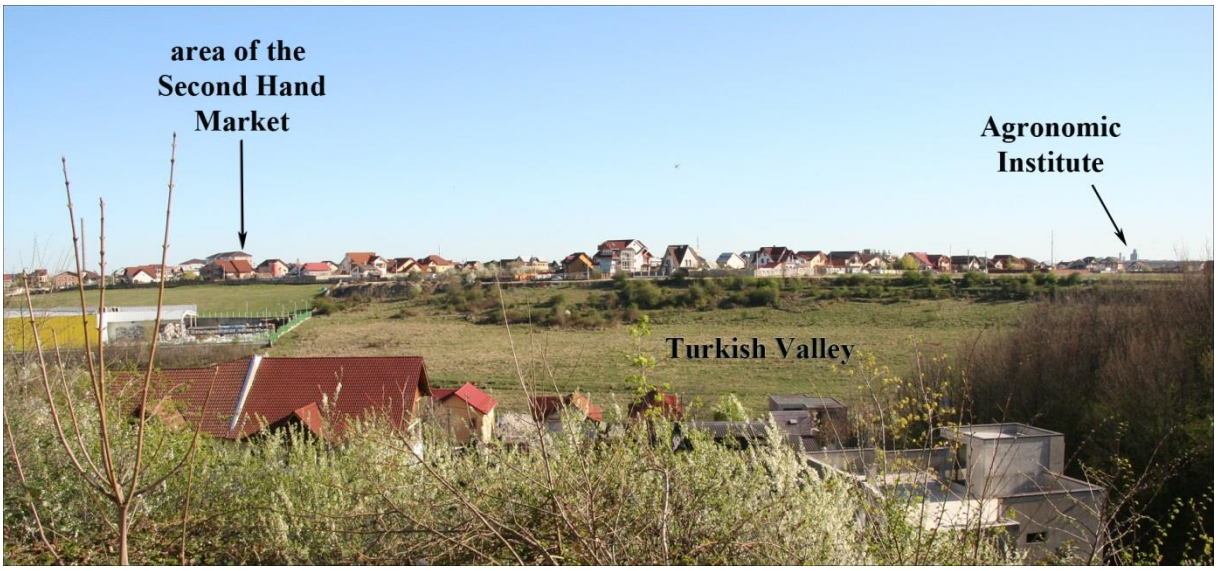


Figure 4. Snapshot taken in the front of the block A1, heading southeast.

The idea that the place of discovery of the *aurei* hoard is the location of a lost fort is substantiated by the fact that in the close vicinity, to southeast, the County's Repertoire mentions a 'Chilia-Militari' settlement[13]. The

[13] Nania 2003, 79; Măndescu et al. 2014, 136, no. 358.

discovery was made by Ion Nania, an amateur archaeologist, in 1966, in a time in which the so-called 'Chilia-Militari culture' was hardly defined; briefly, it is supposed to be developed by the local population, in the Roman Age. As we later repeatedly said[14], a distinction between 'Roman provincial' and 'Chilia-Militari' cultures is difficult to make even in our time, by the most trained archaeologists, when speaking of some sherds collected from the field. Our best guess, today, is that if we can speak about a fort on the high terrace from Războieni, the civil settlement next to it should be a military *vicus*.

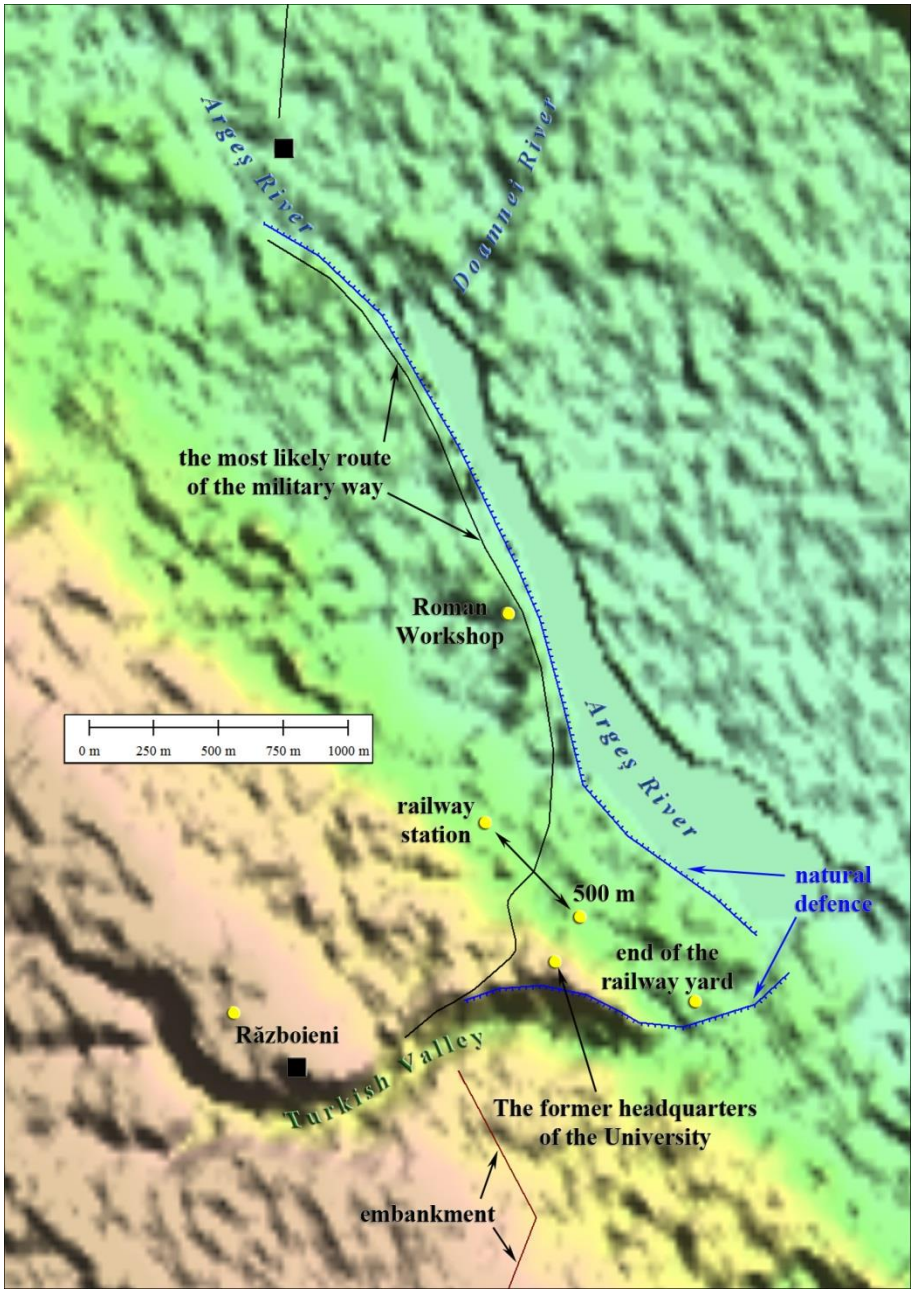


Figure 5.
Discoveries related to the limes *in the area of Pitești city.*
SRTM-30.
Squares: supposed Roman forts.
Circles: other sites or landmarks.

Downslope, on Turkish Valley, one could mention also a chance discovery made on the left side of the valley, at a construction site of what is known today as the old building of the University, in the early

[14] Teodor et al. 2015, 92-93, 125, 128; Teodor 2016 c; Teodor et al. 2017, last four paragraphs.

1990s[15]. The archaeologically remains were observed also by an amateur archaeologist, Paul Dicu, and assigned to the Roman Age. This discovery was not credited, missing from the County Repertoire, although the position is great, as we shall see.

The next two discoveries, going upstream, on the right bank of Argeş River, we owe to the same Paul Dicu, which kept an attentive eye on the public works. First site is the south-eastern side of the main park of the city, located on the Argeş River's bank. He claimed to be identified there remnants of a Roman workshop producing bricks, pottery and clay statuettes. If so, the Roman road was following the bank of the River.[16]

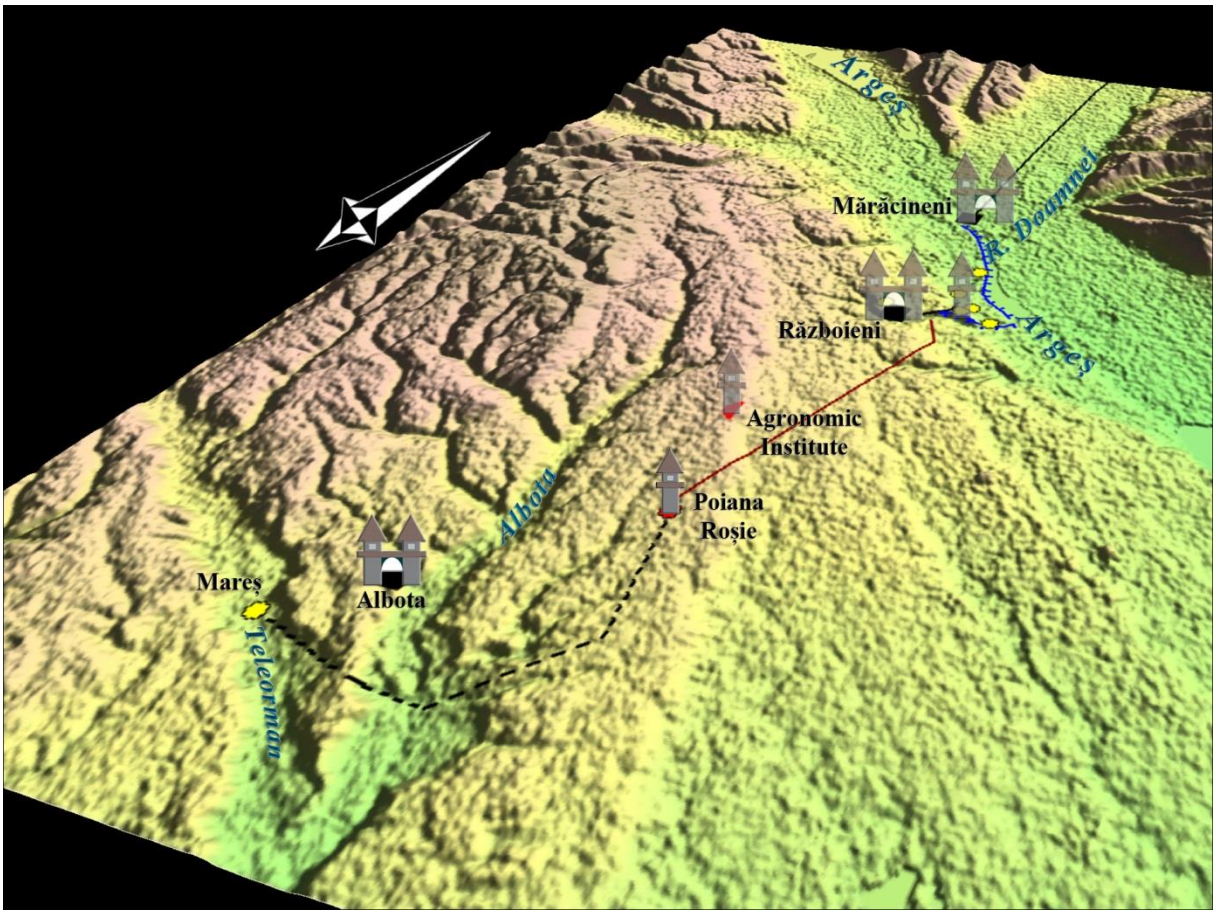


Figure 6. General plan of the limes *between Albota and Mărăcineni. SRTM-30.*
Legend: red line – embankment; black line – Roman roads;
dashed lines – probable routes; double tower – fort; simple tower – watch turret

Other important information left by Paul Dicu is about a Roman fort[17] on the left bank of the river. Following the sketch of the published map,[18] the location would be about 350 m west of the bridge crossing Argeş River from Piteşti, in the area of the lanes of access to highway, if not south of them. The reasons why

[15] Dicu 1986, 28.

[16] This time the discovery is mentioned by the County Repertoire (Măndescu et al. 2014, 139, no. 378), although considered 'uncertain'. The artefacts were not donated to the local museum, being kept in a personal collection, a fact which makes the 'uncertainty' even darker.

[17] He said 'camp' (Dicu 1980, 40), but the description of the remains does not fit a temporary camp, but a regular fort of the *limes.*

[18] Dicu 2000, 46, Plate II.

we believe Dicu were developed in a previous work[19] and will be not retaken here, except one detail: to location of this fort (named after the closest village, Mărăcineni) in relationship with the confluence Doamnei-Argeş follows a similar pattern as in the case of the fort Purcăreni (the next northward) and the confluence Râul Târgului-Râul Doamnei, an analogy Dicu did not get it. Fort Mărăcineni was located about 800 m upstream the confluence, and fort Purcăreni about 1000 m upstream the previously named junction.

If so, the general picture of the Roman frontier between the fort Albota and the left bank of the Argeş River looks like in our Figure 6. Leaving alone the complicated facts of the Roman route south of the village Albota, we will try to check how organic the connection between the mentioned sites is. In military terms, 'organic' means a test of visibility. Such tests, performed five years ago, proved that between the Albota fort and the area from Piteşti one need a relay of visibility, and this couldn't be elsewhere than in the position taken today by the Agronomic Institute, about the half way between Albota and Mărăcineni. Some years later we've learned that from that location came Roman bricks and pottery, found at the foundation of the new – than – Institute, in the early 1970s[20].

Figure 7. View Shed Analysis between the forts from Albota and Mărăcineni.

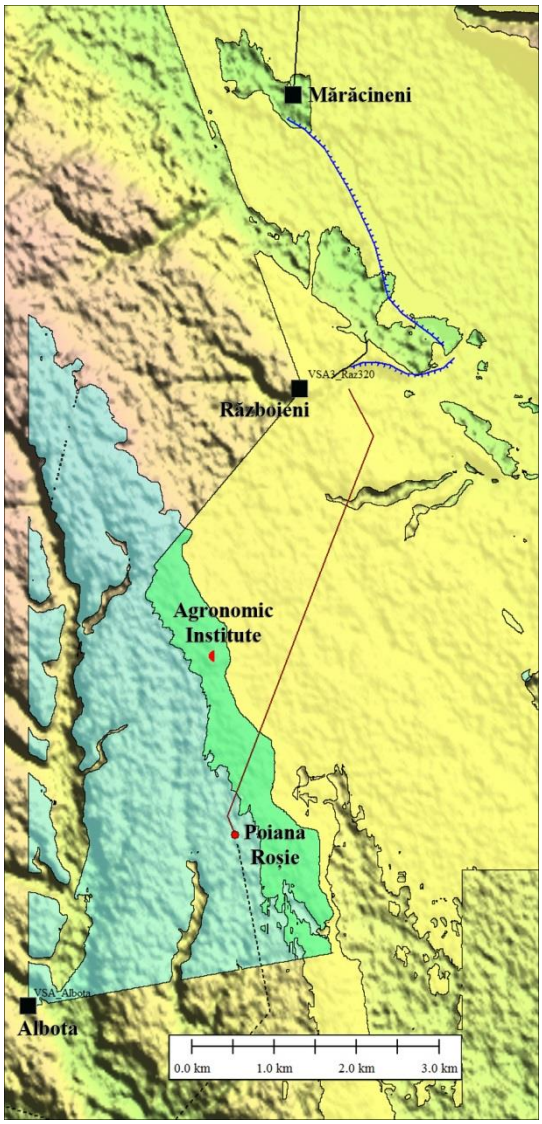
Digital Elevation Model made of a Numerical Model Terrain (ANCPI), resolution 5 m, superposed to SRTM-30.

Legend:

- *dark red line – known embankment*
- *black line – Roman road*
- *dashed line – supposed Roman road*
- *combed line – natural defence*
- *black squares – forts*
- *red dot – a watch tower (documented)*
- *red half-circle – supposed watch tower*
- *pale blue areas – visible from Albota fort*
- *pale yellow areas – visible from Războieni fort*
- *green area – visible from both*

The parameters used in VSA are 8 m for both the observer and the observed (relationship tower to tower).

The areas of field effectively visible from both places are considerable smaller.



[19] Teodor 2015, 98-99

[20] Needless to say – without an archaeological supervision. See Măndescu et al. 2014, 36, no. 6.

Another fact has to be fixed before proceeding with the Visual Shed Analysis: the field research made within the project *Limes Transalutanus* revealed a new watch tower in the location named Poiana Roșie (the Red Glade), at the southern end of the embankment. The reason of the strong turn of the frontier immediately north of the tower is not completely understood, but the general meaning is clear: to avoid the difficult terrain from the proximity of the fort Albota. The reason why the embankment disappear is quite a different issue and will be not discussed here.[21]

The Visual Shed Analysis (Figure 7) shows a fact known from 2012: the fort from Albota and the area of the city Piteşti have to be connected by a halfway relay, and the perfect option is the location of the Agronomic Institute. Interesting to note, the tower from Poiana Roşie is outside the area of common visibility; obviously, this tower was not meant to be a relay south-north, but the watch-dog for the entire area east of Albota fort, mainly the Albota Valley and its tributaries (see again Fig. 6).

As for the hypothetical watch-tower from the Agronomic Institute, at least one fact has to be spelled: it is the most distant watch position from the entire studied line of the frontier. From the gate of the Institute to the embankment there are 800 m; true enough, the visibility upon the fields from east is perfect. The fact is interesting, as long that no other known tower is located farther than 120 m; the researcher has therefore to keep in mind such a possibility and to study it if the terrain is favourable.

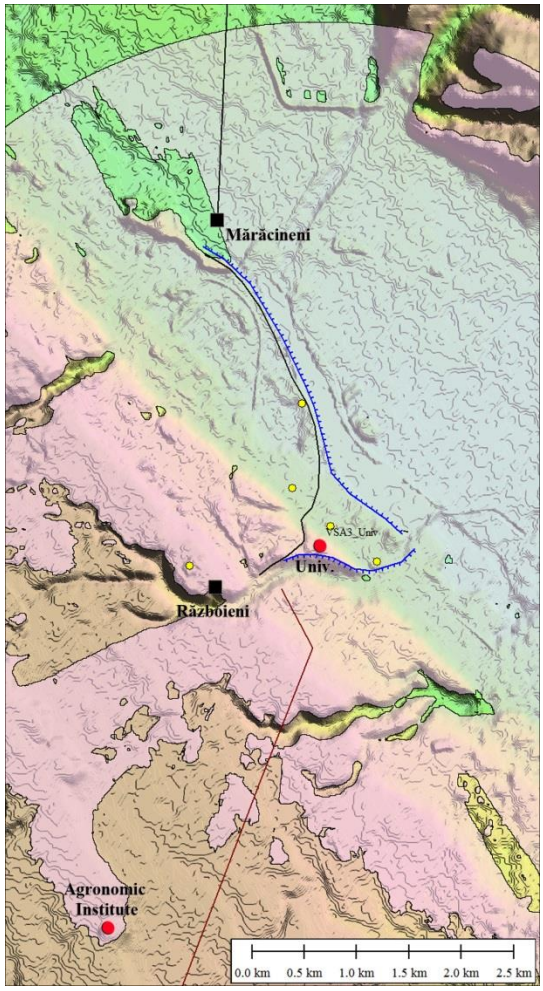
Figure 8. Visual Shade Analysis from the location of the former headquarters of the University (Univ.) – the red dot.

Radius at 5 km.

Terrain model at 5 m.

Both parameters at +8 m (tower to tower).

The legend as in the Fig. 5.



[21] See yet Teodor 2016 c, especially 52-53.

Another fact is that the supposed forts from Războieni and Mărăcineni cannot see each other, although the distance is rather small: 3.5 km. But this is the general rule: the forts are not designed to see each other, not only because the distances are generally higher, but because the reasons of their locations are completely others: to stay safe, possibly hidden, in positions with the best natural defence the terrain could offer (Izbăşeşti, Săpata and Albota are three examples, all located south of Piteşti, in the same area).

When interested about the shared visibility areas from two different points (as forts, for example), one has to determine separately the areas of visibility from each, as already done for the Fig. 7. Making the same for the presumptive forts from Războieni and Mărăcineni, we saw that the shared visible areas are many, as all the left bank of Argeş River, except exactly the spot where Mărăcineni fort is hypothetically located. The most useful areas of the kind are yet those locate more or less at the half distance; as would be the hilltop from the left side of the Turkish Valley, just above the Argeş meadow (see again Fig. 2), and the northern half of the road connecting the two points. Given the difference of altitude (298 m at the University and 266 m near the city park, where a 'Roman workshop' was claimed), which means a difference of visibility on the other side of the river, in *barbaricum*, the ideal place to build a watch-tower is the place from the University. Figure 8 pictures the visibility areas from this point.

The two forts are located at the fringe of the observation area,[22] which is interesting, but not a surprise at any cost; this is rather the common situation: the main military objectives are located at the end of visibility area.[23] A bit of surprise, yet, is the fact that from a tower made in the location of the University would be visible the tower built at the Agronomic Institute. This is suggesting an 'enhanced' signaling network, shortening the time in which a warning could reach more distant forts, like Albota.

It's time to approach a sort of conclusions for this short communication.

The most striking fact, reviewing this paper, is the number of times we mentioned an amateur archaeologist. In fact, none of the discoveries inside the city of Piteşti are due to a professional connected with heritage studies (because the police are not from the matter). Indulging ourselves, we could mention only a numismatist (which is an 'archeologist' of a certain kind) as bringing essential information into the subject. The case Piteşti is one of the most obvious failures of the local authorities to protect and preserve the cultural heritage, at the level of municipal management, but also of the County Cultural Office (Direcția Județeană de Cultură), which is a branch of the Ministry of Culture. Examples could be taken from any horizon of time, as the 1970s, when both Roman fortresses were leveled with the bulldozers, but also in 1990s, when the first building of the University was made, or, more recently, in 2010s, when the route to Câmpulung was modernized, including the bridge from Purcăreni (Roman fort, historical monument of national relevance, code AG-I-s-A-13371), implying large scale works with no archaeological assistance. Of course, we are not interested in small talk about 'patriotism'.

[22] In one case could be just a technical problem. The pocket where the visibility is lacking, west and northwest of the Roman fort from Mărăcineni, at the Fig. 8, and is due to an 'artefact' (as usually known in topography, an error of representation within the digital elevation model). This model, with a very good resolution (5 m) is based on a file received from ANCPI (the national authority for topography and mapping), which lacks the needed corrections for forests (but not for buildings!). Unfortunately, for this area the terrain model Alos Palsar (resolution 12.5 m) is not yet released, and SRTM-30 is a little too coarse for our needs. A test performed on the last showed not only the visibility between the University and Mărăcineni fort (as expected), but also between the position of the block A1 from Războieni neighbourhood and the supposed location of the fort from Mărăcineni. The difference was made by the same small forest from the right bank of Argeş, upstream the bridge. Other results, discussed earlier, as the visibility for the Agronomic Institute and the tower from Poiana Roşie, are the same as discussed above. Unfortunately, the resolution of SRTM is too low to offer granted result. We have to wait for LiDAR products in order to be able to perform truly reliable visual analyses. Till then, Alos Palsar would be good, when and where available.

[23] About how Romans did it – an intricate and intriguing accomplishment – is completely other debate, not tackled here.

What is lost – is lost forever, because the cultural heritage is 'irreplaceable', as everybody knows. Our working hypotheses about the route of the Roman frontier inside the modern city cannot be verified today much more than we already did it. Our effort to sketch an image of the lost frontier has two folded reasons: first, to understand better the Roman defensive in this crucial place, dealing with great dangers coming from east (and which finally brought its end); second – to draw some 'hot areas' where local authorities should be more cautious granting building permits with no conditions regarding the protection of the heritage.

Another conclusion is about the great importance of the landscape archaeology and visibility studies between the main elements of the landscape. Such modern means cannot replace a displaced monument, but can give hints about the areas in which an archaeologist has to pay more attention.

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O locuire de epocă romană pe *Limes Transalutanus*, la Valea Stânii (comuna Țițești, județul Argeș)

Dragoș Măndescu
Ion Dumitrescu
Muzeul Județean Argeș

În sudul satului Valea Stânii, com. Țițești, jud. Argeș se află o zonă deosebit de bogată și interesantă din punct de vedere arheologic: în punctul „Vărzărie" – o așezare de epoca bronzului și o necropolă hallstattiană, în punctul „Piscul Lilieci" – urme de epocă romană (fragmente ceramice descoperite în perieghеză – Fig. 1) și vestigii medievale, la care se adaugă un follis bizantin de la Justinian descoperit întâmplător. Această zonă de interes se află la o distanță de numai 1,3 km est de Râul Târgului, aproape de vărsarea Râului Argeșel, și la 5,2 km nord-est față de castrul de la Purcăreni, de pe limesul transalutan.

Fig. 1. Fragmente ceramice de epocă romană descoperite în perieghеză la Valea Stânii-„Piscul Liliecilor"

Având ca obiectiv cercetarea necropolei hallstattiene de incinerație din punctul „Vărzărie", săpăturile sistematice din toamna anului 2016 au fost concentrate asupra zonei nord-estice a cimitirului respectiv. Alături de câteva fragmente ceramice de factură Militari-Chilia, lucrate la roată, cu nisip în pastă, descoperite în zona mantalelor de piatră ale tumulilor hallstattieni 9 și 10, cercetarea noastră a prilejuit și documentarea a unui insolit complex de epocă romană. Este vorba de o groapă, foarte probabil de scos lutul, descoperită în

jumătatea nordică a tumulului 10, reperată la -0,4 m, după demontarea mantalei din bolovani de râu şi înaintând în steril până la adâncimea de -0,83 m. În grund groapa era rotundă, cu un diametru de 0,45 m în partea superioară. Aproape de fund, diametrul se măreşte până la 0,67 cm. Umplutura gropii era alcătuită din pietricele mărunte, mult cărbune şi nisip galben-roşcat. Considerând că aveam de a face cu un complex de factură funerară, legat fără îndoială de tumulul 10 (situaţii asemănătoare fiind documentate şi pentru alţi tumuli din necropolă, în gropile respective fiind descoperite, pe lângă cărbuni şi cenuşă, şi oase calcinate şi uneori piese de inventar funerar), l-am tratat ca atare. Din bogata cantitate de cărbune din groapă am extras o probă, selectată pentru programul de datare absolută a necropolei, derulat prin colaborarea cu laboratorul Universităţii din Poznan. În urma calibrării datei radiocarbon obţinută pentru proba de cărbune din groapa respectivă (Poz-88889), a rezultat data absolută 135-332 AD, cu cea mai mare probabilitate (35%) în sigma 1 (68,2%) de 213-260 AD.

Acest complex arheologic are o relevanţă sporită pentru situaţia sitului de la Valea Stânii. În primul rând, demonstrează că din punct de vedere al obiectivului arheologic de epocă romană, avem de a face foarte probabil cu o locuire. Apoi, această zonă de locuire nu se limitează doar la punctul „Piscul Lilieci", documentată acolo prin fragmentele ceramice specifice descoperite în periegheze, ci înaintează şi către sud-est, către cursul Râului Argeşel. Datarea cu mare probabilitate în limitele primei jumătăţi a sec. III poate oferi noi perspective pentru studiul aşezărilor aflate în imediata apropiere a limesului transalutan.

Obiectivul de epocă romană de la Valea Stânii este cu atât mai important cu cât în arealul avut în vedere, de la cursul Râului Argeş – în sud, până la aşezarea de la Podu Dâmboviţei – în nord, harta răspândirii culturii Militari-Chilia nu înregistrează vreun monument arheologic, ci numai o mare pată albă.

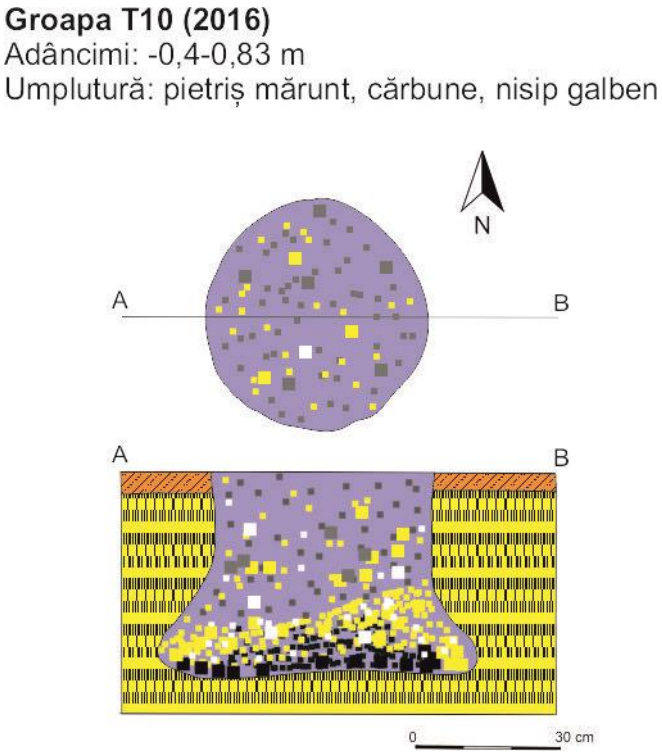

Fig. 2. Groapa de epocă romană din tumul 10 (hallstattian) de la Valea Stânii-„Vărzărie".

Anything new about the Trajan's *Valla* in Southern Bessarabia?
An argument for beginning an interdisciplinary investigation

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Dan Ștefan

National Museum of the Eastern Carpathians
Sfântu Gheorghe

Almost 70 years ago, Radu Vulpe was the first to warn about the insubstantial nature of available data regarding the dykes in southern Bessarabia:

> *'In the present state of research, we cannot claim a certain date or identify the populations who erected them, but by means of indirect reasoning. Even their very layout is known just in a very scanty style, through partial and swift investigations, and, at times, only based on indirect information, unverified by scientific methods. But even for the dykes which were one-time examined more seriously, the resulted data have proven so deficient and frequently incorrect, that a remake of their exploration comes as a must.'* [1]

It would seem that not much has changed in the years since, as the renewed researcher in the field of archaeological cartography, I.V. Sapožnikov, complains, while reopening in 2011 the topic by analysing 17th and 18th centuries maps, about the paradox of not having still, in the specialized literature, the complete list of the region's dykes, a fact that didn't stop however the various scientists *'to dispute about their dating and cultural affiliation for decades, putting forward various concepts that are often mutually exclusive, without having a complete and sometimes not even loose idea about the general topography of all these structures.'*[2]

1. What has been recorded about the dyke's layout until now?

According to the available syntheses on the topic[3] the research history of these earthworks should start with Miron Costin and his mention of the Trajan's Road stretching from Tisa till Don, from which the *Southern Trajan's Vallum* was part[4]. Dimitrie Cantemir in his *Descriptio Moldaviae* wrote about a '*vallum* between two ditches' which crosses Europe from Hungary till Northern Black Sea areas. The map attached to the manuscript attributed to Cantemir records in Southern Bessarabia a road, *Via Traiani,* as linking the river's Prout mouths with the Dniestr. These two sources grounded, in fact, the dominating approach to the creation of subsequent cartographic documents of the north-western Black Sea shores, a current therefore referred to as 'pseudo-Cantemirism'[5].

[1] Vulpe 1950, 163.

[2] Sapožnikov 2011, 215.

[3] Radu Vulpe (1950) reviews in detail the older concerns on the topic, while a newer bibliographic synthesis on the matter of linear fortifications belongs to Costin Croitoru (2004; 2007). A significant contribution, reiterating the Russian and Ukrainian bibliography, is that of Sapožnikov (2011; 2013).

[4] Vezi si Sapožnikov 2011, 207.

[5] For example the map by R. le Sieur Janvier (Măndescu 2012, 82-83).

A first break with this tradition seems to be the map by von Bauer[6], created during 1770-1774, which depicts a somehow more detailed[7] image of the *Lower Trajan's Vallum.* The lack of a clear legend prevents however a better understanding of how these monuments were perceived, as roads or something else.

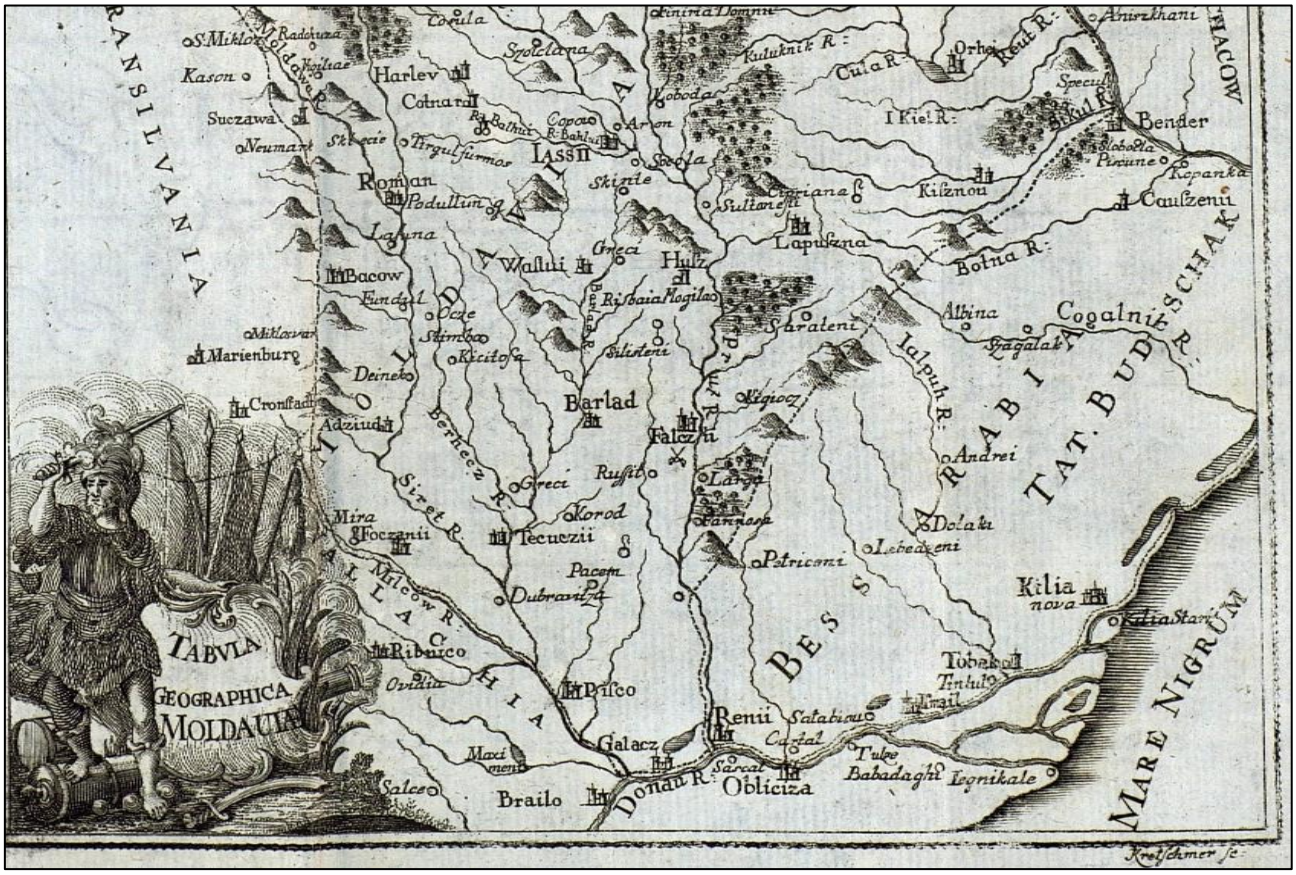

Fig. 1 Map attributed to Cantemir.

The *Trajan's Vallum* was represented afterwards on the topographic plans created during the Russian-Turkish wars[8].

The first and only to date topographic description of the discussed earthwork belongs to the German geographer C. Uhlig[9]. He visited the dykes in Bessarabia, occasion on which he travelled along the *Southern Trajan's vallum*[10], too, documenting it by elevation profiles.

[6] http://teca.bncf.firenze.sbn.it/ImageViewer/servlet/ImageViewer?idr=BNCF0003495354 see also the map by Herbitz: http://teca.bncf.firenze.sbn.it/ImageViewer/servlet/ImageViewer?idr=BNCF0003494157

[7] Uhlig 1928, 204, 216.

[8] Cf. Sapožnikov 2011, Photo 3. The author presents an excerpt from the Plan of the Battle from Cahul (21 July 1770), drawn at scale 1:42000, kept today in the National Library of Russia Sapožnikov 2011, 232 No. 6.

[9] Uhlig 1928. See also Năstase 1937.

[10] Uhlig 1928, 197-202.

2. What has been said about the structure of the Southern Trajan's *vallum* until now?

2A *Vallum*[11]

None of the prior sources recalls the existence of a palisade-like structure. Uhlig even denies explicitly such a possibility[12].

2B Berma

An examination of the older bibliography reveals, first of all, that the *Southern Trajan's Vallum* is made up by various segments, different in structure. Vel'tman identified in 1820 at least two such segments, while Uhlig and R. Vulpe, when referring to the western side of the *Southern Trajan's Vallum,* talk about a segment with *berma* and one without. Radu Vulpe's map indicate that the segment with *berma* stretched between Vadul-lui-Isac and Tabacu[13],

2C Interruptions

Based on field observations and recordings in prior literature[14] the *Southern Trajan's Vallum* appears nowadays to be interrupted only where crossed by valleys. Uhlig[15] did not see other interruption, except the valleys, and with the exception of some contemporaneous and seemingly un-authorized interventions they cannot be identified until today. Sapožnikov tries to explain this situation as the result of erosion along time; the author invokes as proof a series of maps on which the *Trajan's Vallum* is not depicted with interruptions. The question remains: Were these valleys incorporated as such at the moment of the initial construction (or latest reconstruction)?

2D The ditch

The majority of the 20th century studies refer to the dyke as a fortification consisting out of an embankment (a *vallum*) and adjacent ditch dug towards north. In the 19th century (for example Vel'tman's description) the ditch was placed towards south. G.B. Fedorov speaks of both a southern and a northern ditch, the last one being apparently always deeper, fact which he read as indicative of the older age of the northern excavation[16].

3. Is it there any topographic connection of the *Southern Trajan's Vallum* with the Prut valley as Sapožnikov[17] presumes?

Most likely not.

4. What has been said about the building stages until now?

Some researches admitted the possibility that the dyke had multiple building phases. Sapožnikov, for example, proposes three such stages.

[11] Or in Romanian *Dâmbul* as Vulpe named it.

[12] Uhlig 1928, 201.

[13] Vulpe 1950, 12 Fig. 1.

[14] Uhlig 1928, 202. Compare also with Cebotarenko-Subbotin 1992, 104-105.

[15] Uhlig 1928, 202.

[16] Fedorov 1960, 74

[17] Sapožnikov 2011, 224

5. What has been said about functionality and relation to the territories behind the *vallum*?

We do not intend to analyse here the numerous hypotheses advanced so far along what are already centuries of bibliography. This is because their majority are based on indirect unverifiable reasoning[18]. In particular, I personally attempted a verification of such interpretative scenarios by looking to the distribution of the Roman provincial imports in *Barbaricum* during Dacia Province existence. If the *Trajan's valla* at the lower Danube were to be in opera at the time, they should have acted as a cultural, political and military border, but this was not apparent in the spatial distribution of the aforementioned finds.

Argument for an interdisciplinary approach

So then, could it be really possible to add anything new about the ancient *valla* of southern Bessarabia?

Unfortunately, despite the previous scholars' examinations of the so called *Trajan's valla* in southern Bessarabia, the fundamental questions of WHEN and WHY they were built are still un-answered. It seems that the traditional archaeological approach employed until now was insufficient.

We accepted the challenge of finding out if there is more to add to the matter by betting on the new technologies of non-invasive spatial and structural documentation to gain concrete insight over the dykes' topography and inner structure. For this, a pilot study, based on geophysical and remote-sensing investigations, was developed for the western sector of the Southern *Trajan's vallum* - which stretches on a length of approximately 16 km, between Vadul-lui-Isac and the storage lake built on Cahul River, between the villages of Găvănoasa and Vulcăneşti.

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[18] For those interested in doing otherwise, though, see the works of Croitoru, Vulpe and Sapožnikov

Geophysical and Aerial Archaeology contributions to the study of the inner structure and morphology of the "Southern Trajan s Vallum"

Dan Ștefan

Alexandru Popa

National Museum of the Eastern Carpathians
Sfântu Gheorghe

The western sector of the earthwork known as the *Southern Trajan's Vallum* was explored by the authors in the beginning of the summer of 2017. The investigated area is comprised between the rivers Prut and Cahul, more precisely between the village Vadul-lui-Isac and the artificial storage lake on the Cahul River, north of Vulcănești. General data regarding the problematic and historiography, as well as the argumentation for a re-examination of the monument in new interdisciplinary projects can be found in the present volume in the contribution of A. Popa and Ștefan D.[1]

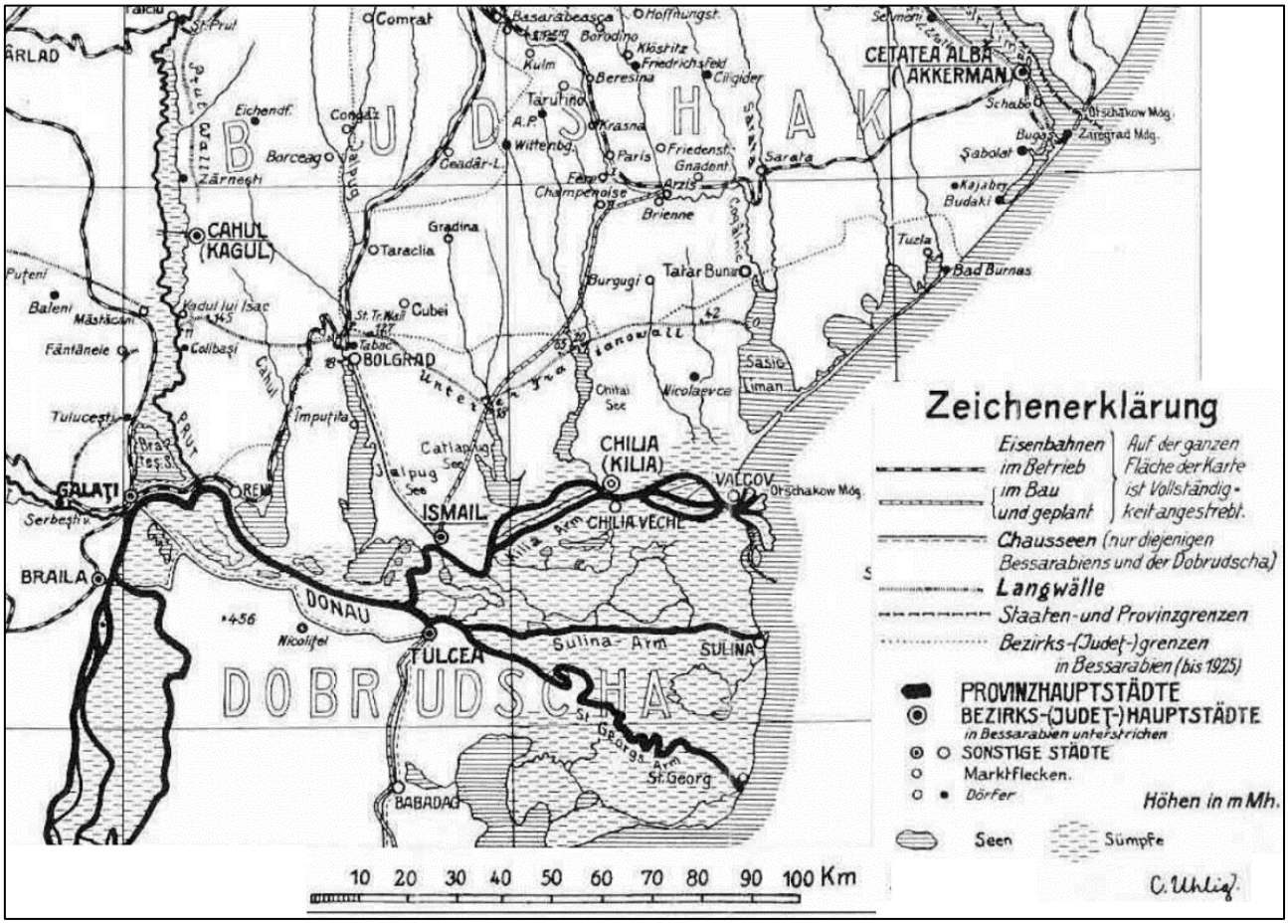

Figure 1. Uhlig 1928, tafel 32 (detail).

[1] See also, in this volume, the paper signed by E.S. Teodor about the same earthworks.

Nowadays the earthwork looks very impressive: the *vallum* measures 15 m in width and up to 4 m in height. The embankment is superimposed by a modern road, being accompanied, towards north, by a ditch with a maximum width of 10 m, and a maximum depth of 4 m.

In the beginning, a general surface survey allowed us to observe a certain variation in the morphology of the embankment and ditch. For this reason five distinct investigation areas were selected, as representative for the main morphological types identified in the field. They were labelled site 1, site 2, etc. (Figure 2).

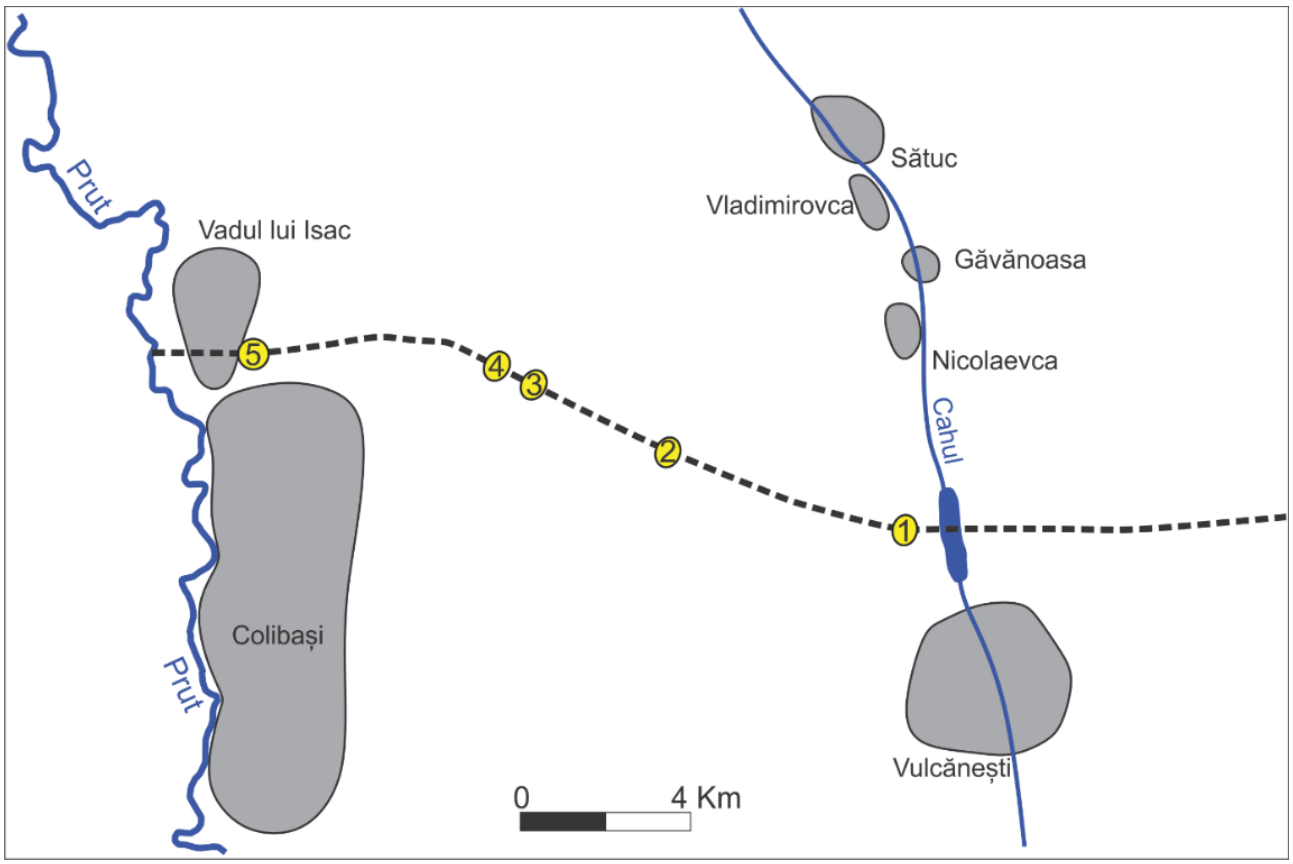

Figure 2. Localisation of the western sector of the Southern Trajan's Vallum with investigated sites (yellow) and modern villages (grey).

The objectives of our examination were to attempt an identification and classification of the various types of morphological features characterizing the embankment, ditch and adjacent elements. For this we organized several UAV flights, employing afterwards aerial photogrammetry for the study of the micro geomorphology of the monument, on the basis of high resolution digital surface modelling, while various geophysical methods were applied in order to investigate the inner structure of the earthworks (magnetic prospecting and electrical resistivity tomography).

The investigations revealed a number of facts. Certain segments of the dyke, especially the eastern ones (sites 1 and 2 in Figure 2), have a considerable more flattened appearance (named ***type 1***). Thus, even if the width of the embankment measures around 15 m, the height does not exceed 1.5 m, while the ditch in many cases is almost entirely cogged up. This type of dyke is specific to flat relief, without slopes. The geophysical prospection here (Figure 3) revealed a clearly shaped ditch, wide, with a rounded bottom, and a highly resistive and homogenous embankment.

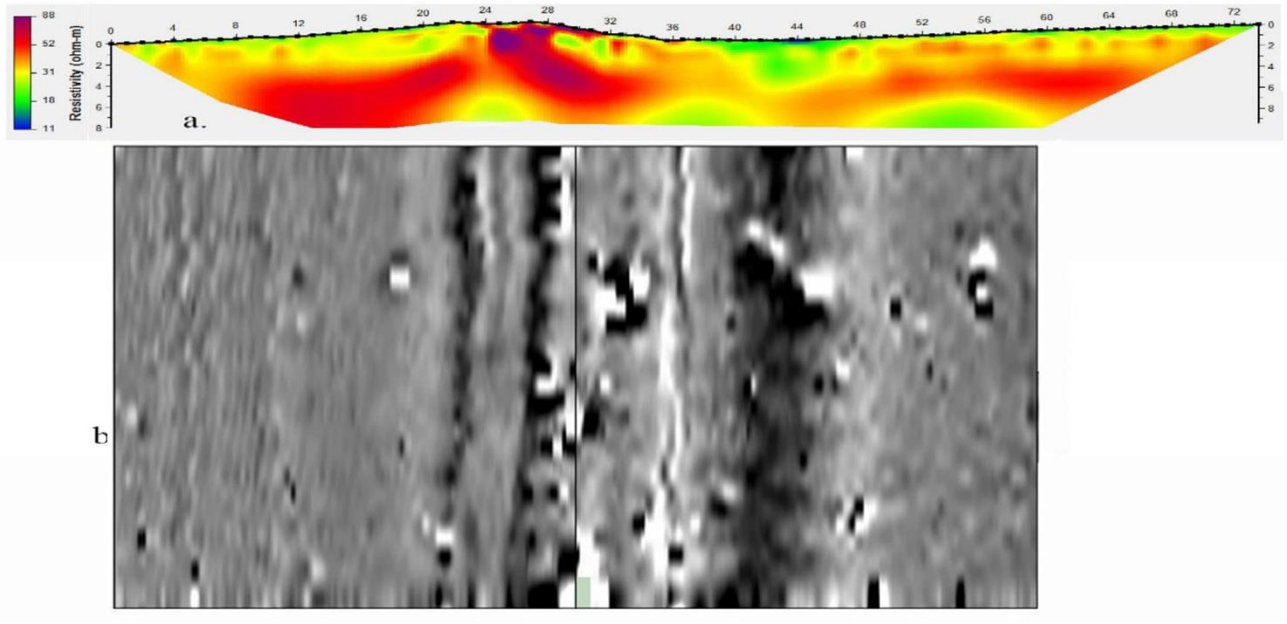

Figure 3. Site 2 in Figure 2; a - ERT profile over the vallum and ditch (south-north); b – magnetic map (30x60 m) corresponding with ERT b, same orientation;

In opposition with this situation, the western segments of the dyke, for example sites 3 and 5 in Figure 2, look rather impressive, exhibiting a 4 m high *vallum*, 4 m deep ditch, and an obvious and well preserved berm, despite the fact that the relief here has steeper slopes (named ***type 2***). Outside the ditch, towards north, a second smaller elevated ridge accompanies the structure (looking more or less like a *glacis*).

The results of the electrical resistivity tomography (Figure 4b) disclose the existence of numerous secondary interventions in the initial embankment core, both towards north and south, which apparently happened more than one time.

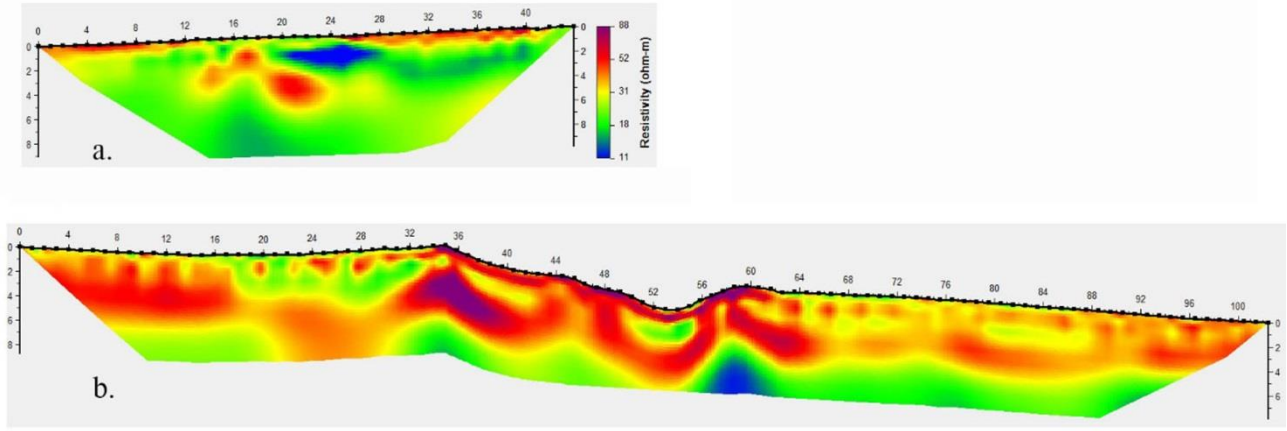

Figure 4. ERT profiles; a – site 4; b – site 3 (see Figure 2), orientation south-north.

The elevation profiles and ERT investigations of sites 3 and 5, therefore both on high and flat terrain, evidence the existence of a ditch-like structure, north of the embankment.

A particular situation inside the type 2 of earthwork (on western, higher sector) can be observed between the hills, in the areas where the earthwork is intersected by valleys and wetlands. On the surface the terrain is flattened, the embankment and ditch being unobservable making the dyke appear as if interrupted. Was this the initial situation at the moment of its construction – the dyke was never erected in the valleys (leaving room for bridges, for example)? The electrical resistivity tomography profile (Figure 4a) measured for one of these areas where the dyke is intersected by a valley, reveals, under the soil surface, the unmistakable shape of a *vallum* and ditch, nowadays flattened.

Concluding, it is clear now that the dyke, especially in its western sector, where it raises the highest, has several building phases. These interventions cannot be younger than one century ago, as 100 years old trees have been growing in the ditch from the area of the site 3; in the same time, they cannot be older than the moment in which Dimitrie Cantemir had described the Trajan's *valla* from southern Bessarabia. For us, the most likely hypothesis links the latest interventions with the Russian-Turkish Wars from the 1768-1774, especially with the defensive strategies implied by the Cahul Battle (1770), one of the largest battles of the 18th century.

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Planimetry and topography of the Trajan's Wall north of Danube's Mouths. Early Statements.

Eugen S. Teodor

History National Museum, Bucharest

There are several earthworks known as 'Valul lui Traian' (Trajan's Wall), all related with the geography of the Lower Danube. Middle Dobruja is crossed by three *valla*, from west to east, connecting the areas the modern cities of Cernavodă and Constanța. They were made in different moments, but aiming the same thing: to cut the province in its narrowest sector and control circulation north-south. In the archaeological literature, they are known as 'the great earthen wall', 'the stone wall', and the 'small wall'.[1]

Another *vallum* named 'Valul lui Traian' is stretching in the outskirts of the city Galați, closing a quarter of a circle between the Siret River and Prut River. This one is only about 26 km long, being known with the names of the villages standing at its ends: Traian (again…) and Tulucești.[2]

A third monument, known under the same label – Trajan's Wall – is stretching between Prut River (westward) and Sasyk Lake (eastward), north of the so-called 'maritime Danube',[3] a territory today split between the Republic of Moldova and Ukraine. In order to avoid misunderstandings we need a personalised name, like Prut-Sasyk earthwork.[4] This third objective will make the subject of this short communication.

The embankment has no proper archaeological investigation, leaving place for many hypotheses and speculations about the author, date and reason of building the strategic line, stretching 126 km. As a very recent development, in the spring of this year, my colleagues Alexandru Popa and Dan Ștefan were invited by the authorities of the Cahul County to document the line and to suggest actions to take for promoting the monument as a touristic attraction. In this context I was invited myself to visit the western sector of the wall, which happened just two weeks ago, on 14th June 2017.

As the main results of Popa and Ștefan investigations will be presented in the same Symposium dedicated to linear archaeological sites, I will make here only some very general evaluation of the planimetry and topography of the monument. The main problem to solve is related with the fact that the morphology of the wall is uneven, recommending different builders, probably in different times. The observation is not new at all[5] and it is confirmed by the latest research on the field.

Before talking archaeology, let's take a look at the general map (Figure 1). From a strategic point of view, the project is coherent and meaningful, being a shield of the Danube, closing access to the great river at about 30 km northward[6]. About the strategic importance of the river's mouths to the Black Sea one do not need arguments, because it was and it still is one of the key positions across Europe. We need to know only the fact that the ditch (at least the visible one) is located north of the embankment.

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[1] Tocilescu 1900; Hanson, Oltean, 2012.

[2] Croitoru 2004, 80-90, with the full literature review up to date. The earthwork is known also as Galați *vallum.*

[3] Meaning that maritime ships are allowed on this length, downstream the last bent of Danube, at Galați.

[4] Previously known also as 'Vadul lui Isac – Sasyk', the first being the name of the village located at the western end (e.g. Croitoru 2004, 90-107).

[5] Croitoru 2004, 91 (with references).

[6] Which is – good to know – a day of march for trained pedestrians.

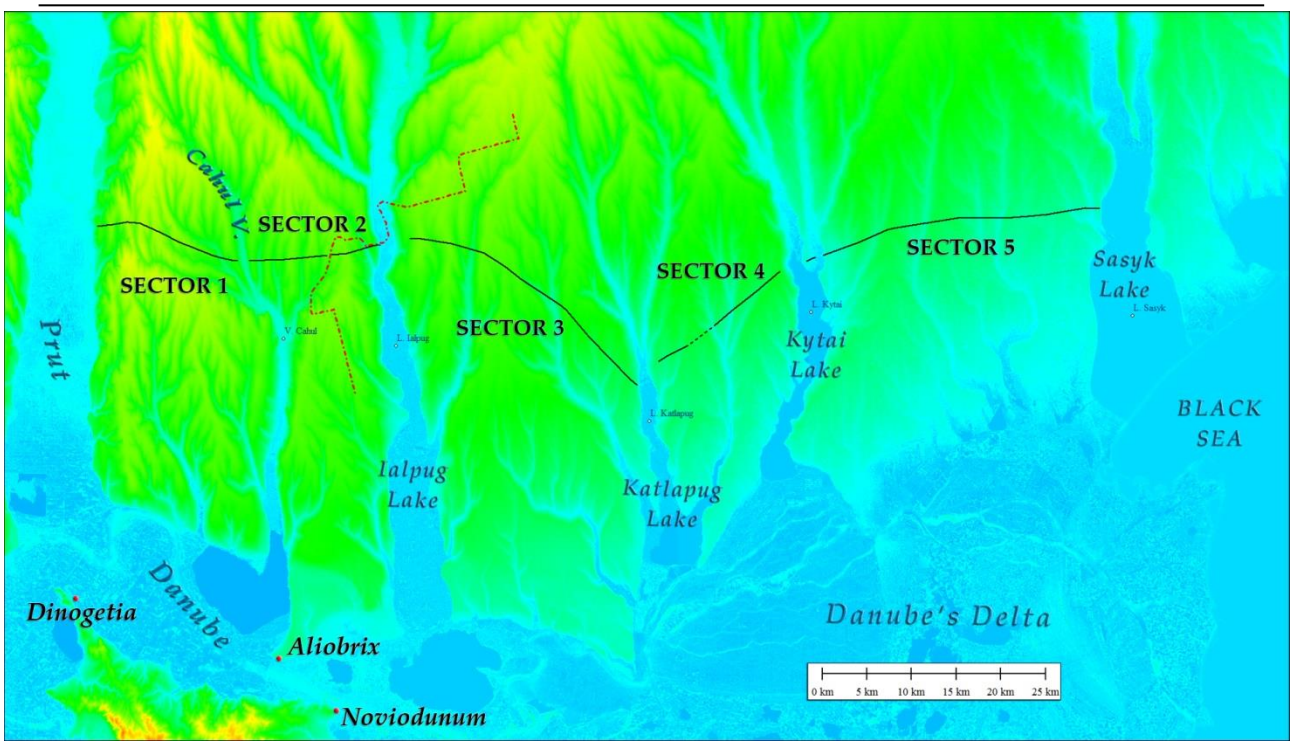

Figure 1. The Trajan's Wall located north of the Danube's mouths.
Red dotted line: the border between Republic of Moldova (west) and Ukraine (east);
red dots: Roman forts from the western area.

From a geographical point of view, the monument is split in 5 sectors, as clearly depicted at the Fig. 1.

From a total length of 126 km, the embankment is effectively made on at least 115 km,[7] the rest being waterways. Except Cahul Valley, in west, the other four interruptions of the wall are located at the shores of the lakes Ialpug, Katlapug, Kytai and Sasyk. All four are former maritime estuaries, having an altimetry very close to the level of the Black Sea (1 m for the first, 0 m for the rest); due to altimetry it is highly plausible that the deployment of troops was possible with flat boats, much faster than one day. Cahul Valley, for a change, is crossed at the minimum level of 32 m,[8] being obviously another case.

The western connections between the Danube line and the wall from north are more doubtful. The only Roman fort from the area which could provide troops for the wall is *Aliobrix* (allegedly Orlovka, Ukraine), but a land route between the fort and the wall is 46 km long, too much for a day of march; if no intermediary fort cannot be found on the eastern bank of Cahul Valley, such a solution cannot be validated. Ialpug Lake could be the right way for deploying troops for sectors 2 and 3. What about the western sector? Was it Prut River navigable in its lower course? Very likely it did. In this situation, the closest Roman fort was Dinogetia, located at the bent of the Danube.

The general plan of the wall, as an accolade, is difficult to be explained by the land issues; more likely, the line is suggesting the length of the navigable ways inside the territory, using the maritime lakes.

The data provided by the recent research performed by Alexandru Popa and Dan Ştefan suggest that at least in some areas (mostly nearby Prut River) the visible morphology is very likely due to relatively recent interventions, and not antique ones. This situation asked for an evaluation of the project. Is this project a Roman one, or not? This is the main issue this paper tries to fix.

[7] The route cannot be safely drawn when crossing villages, some parts being not measured.

[8] At the crossing point there is today an artificially pond and we cannot know, today, what is beneath.

An overview of the paths data, as reported by the GIS software, reveals that the western sectors are dealing with a more difficult terrain, as rendered in the Table 1. Not only that the effort needed to travel along the path is greater (see the column 'ratio'), but the slopes are also greater. If such calculations usually address the traveling costs, they should be similar when comes to build on slopes, due to stability problems of the wall.

Table 1. Overview of the paths main data

Sector	length	climbing	descending	vertical effort (m)	ratio[9]	maximum slope (deg.)
S.1	16596	375.6	367.4	743.0	4.48%	13.69
S.2	14746	341.3	401.3	742.6	5.04%	12.02
S.3	32592	406.9	403.6	810.5	2.49%	9.96
S.4	18858	291.1	295.8	586.9	3.11%	8.53
S.5	31636	260.0	245.0	505.0	1.60%	9.20

The efficiency of earthworks projects can be evaluated relatively easy seeing the ration between the width of the 'planning corridor' and the length of the path[10], expressed as percent, as in the Table 2.

Table 2. Paths and corridors in planning an embankment.[11]

Analysed earthwork	length (km)	corridor width (km)	percent
Limes Transalutanus, sector Flămânda-Gresia	48.818	3.081	6.31%
Traian-Tulucești, averages for 2 sectors	10.533	0.298	2.81%
Athanaric Wall, averages for 5 sectors	17.090	2.135	10.59%
Prut-Sasyk - sector 1	16.596	1.466	8.83%
Prut-Sasyk - sector 2	14.746	0.525	3.56%
Prut-Sasyk - sector 3	32.592	3.151	9.67%
Prut-Sasyk - sector 4	18.858	0.458	2.43%
Prut-Sasyk - sector 5	31.636	1.912	6.04%

The figures for the earthworks Prut-Sasyk are relatively good, worse than the embankment Traian-Tulucești, but better than Athanaric Wall[12]. Can such figures 'solve the problem'? Of course not; they can only suggest solutions and give comparison terms. Interesting to note, in the Table 2, that the sectors 2 and 4 have good figures, but they alternate with 'bad' sectors (1 and 3). Obviously, a good design of an earthwork is not only about the ratio between the corridor and the length[13]. We can see, on the map, some bents of the route which

[9] 'Climbing' and 'descending' have the same meaning (alteration of altimetry during traveling along the paths, in meters), depending the direction of reading the path (all from west to east). 'Vertical effort' is the sum of 'climbing' and 'descending'. 'Ratio' is reporting the vertical effort to the length of each sector.

[10] Technical references in Teodor, Croitoru, 2013.

[11] Comparative data from Teodor, Croitoru, 2013.

[12] In our study dedicated to Athanaric Wall (Teodor, Croitoru, 2013) the quality of 'Roman project' was rejected. Note yet that the width of the corridor can be as large as one third of the length (as a topographical stage, not as construction corridor), still being 'Roman' (Davies 1998, 5). We rejected Athanaric Wall as a Roman project not because the figures from the table, but on grounds of obvious awkwardness of many choices.

[13] For the theory of the problem see Teodor 2015, 106-107, with references.

surely have good reasons. I have chosen for a detailed analysis Sector 1, mainly because I already saw it and I can compare 'cold data' with intuition of the field.

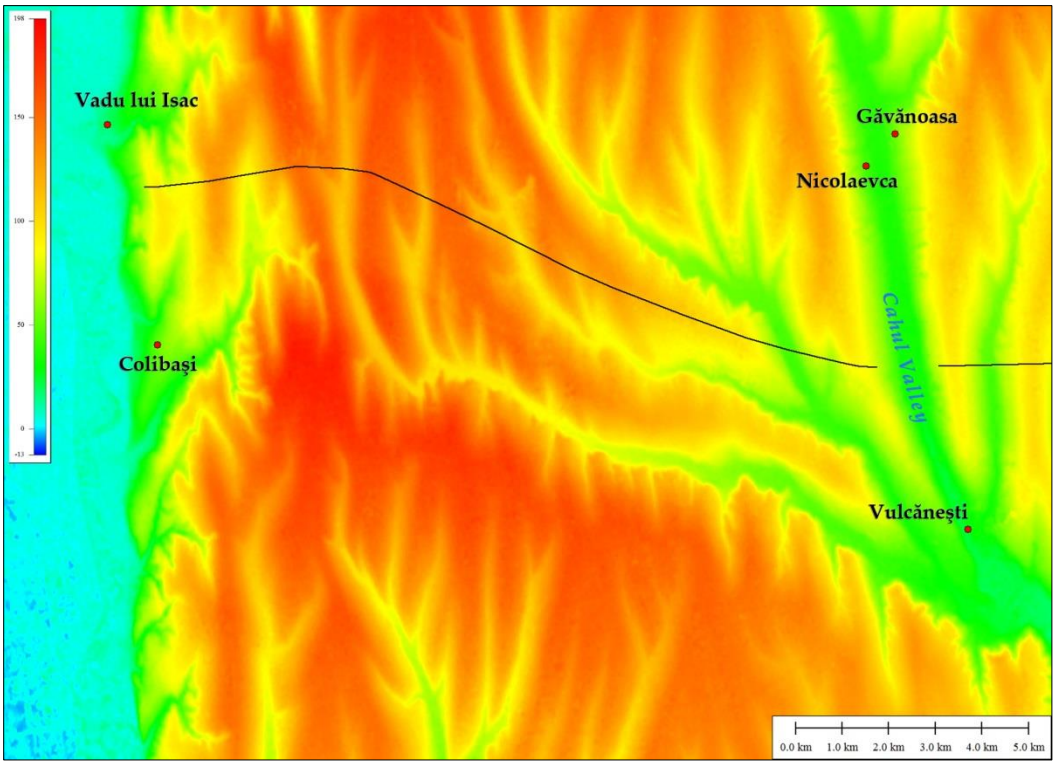

Figure 2. Map of the Sector 1 (Prut Valley – Cahul Valley).

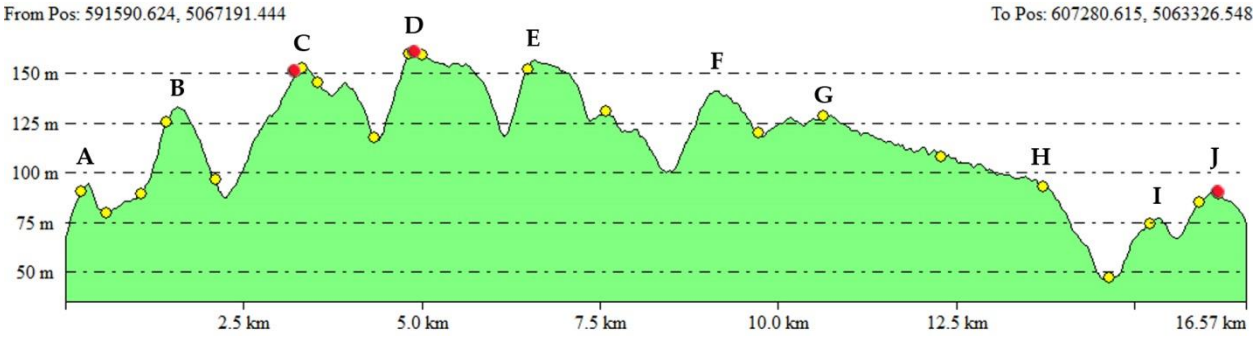

Figure 3. Altimetric profile along Sector 1 of the earthwork Prut-Sasyk. Red dots for strong directional inflections; yellow dots for small corrections.

I have noted within the Fig. 3 the heights on the route with letters, for making easy references. One should note that between the hilltops D and J the route is almost straight, with no turns, but with small corrections, very likely not intended. The segment is 11.2 km long, with at least 3 heights obstructing the visibility (E, F, and G). The longest straight line has 2140 m, crossing the peak F, which is awesome! Of course, such a thing cannot be imagined without a *groma*. Most of the second part of the route (F-H) goes along an interfluve, heading the crossing point J (previously established, no doubt). The last segment, east of the point J (Fig. 3), makes a strong turn (11.4^{o}) and is aligned with the beginning of the Sector 2 route, located across the valley, 1.7 km further, which is, again, an interesting technical performance.

The starting point of the Sector 1, south of the village Vadu lui Isac, is probably a 'given' point, in the project, possibly a river harbour, to be found south of the route. We can note also that the inflection points from C and D (which are not 'errors', but make part of the planned route), are made on the hilltops, which is a very 'Roman' habit[14]. We have to understand further why the landmarks from C and D were important for the designer. The next figure, 4, makes things quite clear.

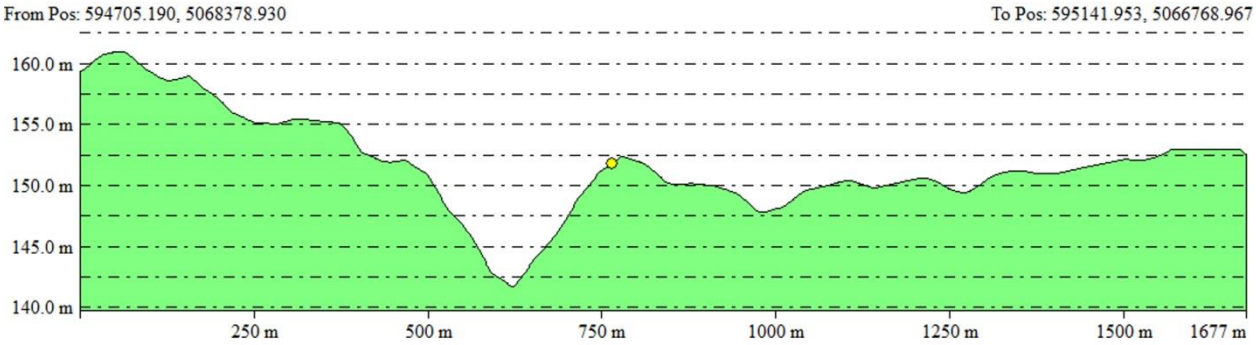

Figure 4. Cross-section of the hilltop C (see Fig. 3), heading south, where the yellow dot is the earthwork.

Immediately north of the landmark elected by the planner to make the wall, there is a secondary valley, oriented west-east, 250 m wide and 12 m deep, where the enemy could hide for a surprise attack. Planning the route just above that valley excludes such surprises.

Concluding, despite data from the Table 2, Sector 1 of the earthworks Prut-Sasyk is very well done, being planned and made with the assistance of skilled topographers. The western end of the embankment and the landmarks from C, D and J (Fig. 3) are part of the original design, the rest being just connecting lines, with joint errors in the usual limits (around 2^o). The average of the perfectly straight lines is 753 m,[15] usually crossing the visibility points. I have no doubts that this is a Roman project, a fact which does not exclude later uses and alterations.

The problem of chronology is difficult, having small support of data. As little as we know, a sort of time landmarks exists. The upper limit is a hoard of Roman coins, ending with Constans (337-350), found in the embankment.[16] The lower limit is the Roman presence near the mouths of Danube. Although not excluded, I do not believe that such a great work could be done without a steady presence of the Roman army on the left bank of the river. The fortress from Orlovka (probably *Aliobrix*) was functional along the second century, most likely between Trajan and Caracalla[17]. The construction of such an impressive building needs man power and some time, thus a solid military presence at the place, connected with one major crises: the *Sarmati* uprising (117), Marcomanic wars (ca. 170) or *Carpi* invasion (214).

My guess is that the earthwork does not have the meaning of a *limes*, but a large deployment of troops (or just a preparation for such a possibility), on a defensive line, in a crisis moment. Of course, even so one should find at least some temporary camps used during construction (for at least several months).[18]

[14] Davies 1998, 2. The reason is topographical, because measured points were located on heights.

[15] As comparison terms, the lengths of the straight lines along Athanaric Wall are varying between 420 m (average for Tecucelu area), 213.5 m (average for Iazu Epure), 107 m (average for Dealu Ciungilor), but also as low as 48 m on Dealul Galațiului. Calculations along *Limes Transalutanus* need remake after the recent project, but the average figures are around 500 m (with a peak of 711 m in Albota area), although the project is surely Roman! (but later?).

[16] Bondar, Bulatovič, 2001, 329.

[17] Bondar, Bulatovič, 2001, 327-328.

[18] For instance, behind Antonine Wall were discovered 18 temporary camps (around 2 ha each). None is visible on the ground, being discovered with the aid of aerial research.

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Valul lui Traian/Trajan Wall at Șuțești (Brăila County)
Interdisciplinary researches

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The impressive earthwork located in the vicinity of Șuțești village, Brăila County, on the right bank of Buzău River, has been well-known and mentioned in documents at least since the 19th century. The *Map/Charta of Southern Romania* from 1864[1] recorded its layout, as did the topographer Pamfil Polonic who visited the site and described it as a 2 to 4 m high and 20 m wide *vallum*, doubled towards southeast by two parallel ditches, in an unprinted report dated 18 May 1899, currently housed in the Romanian Academy Library[2]. Rooted in a strong and wide-spread Romanian popular tradition, the dyke entered the recent history as *Șanțiul lui Trajanu/The Ditch of Trajan* (*Charta* 1864), *Troianul* (at Polonic) or *Valul lui Traian/Trajan Wall*, on the Military Topographic Plans (1/20.000) from the 1950s.

In all these older cartographic sources, the earthwork is represented as stretching on a northeast-southwest direction, along approximately 900 m distance[3], blocking an 850 m long promontory of the Buzău high terrace, in its narrowest sector. Nowadays the dyke can be observed on a length less than 700 m, its northern sector being heavily affected by the building of the national road Brăila-Rîmnicu Sărat, the instalment of a modern cemetery and of a garbage dump. The southern sector was probably altered during agricultural activities dating from the Communist era. No others sectors were ever identified as continuing the fortification on the sides, outside the promontory. In fact, there was no need for a longer fortification. An analysis of the topography and morphology of the Buzău riverbed in this area, corroborated with a general map of ancient mounds – as a general trans-chronological indicator of circulation behaviour in a certain landscape, give reasons to interpret the elongated promontory blocked by the dyke, as a bridge head for a historical ford used along ages, for people circulating along a route linking the Danube mouths with the Curvature Carpathians[4], the closest to the huge wetland formed between the inferior valleys of Buzău, Rîmnic and Siret rivers. In this context, the *Trajan Vallum* from Șuțești should not be seen as a classic linear fortification – a segment of an ancient *limes*, nor a road, but a fortified gate with the obvious purpose of blocking and controlling the entrance on a major circulation route. Its general localisation and orientation of the ditches – towards south east – reveals some clues about the focal point of the authority controlling the road, respectively the gate, and that is anywhere northwards from Buzău river, but probably in the area of the Mountainous Curvature (either inside or outside of it). Even Pamfil Polonic, at the end of the 19th century, didn't regard the site as a segment of a larger linear fortification, but connected it strictly with the promontory which he interpreted as a huge fortress in its entirety. For the moment, there are no data to sustain the idea that the promontory was fortified on any other sides, while the dyke itself does not present any corners or turns to suggest its belonging to an enclosure.

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[1] http://charta1864.ro/charta.html, known also as Szathmári Map.

[2] Manuscript, book 10, page 13, *apud* Sîrbu, Croitoru, Pandrea, 2014.

[3] Polonic: 904 m. Nowadays the length of that portion of the promontory is 930 m.

[4] Ștefan M, Ștefan D., 2014; Teodor 2014.

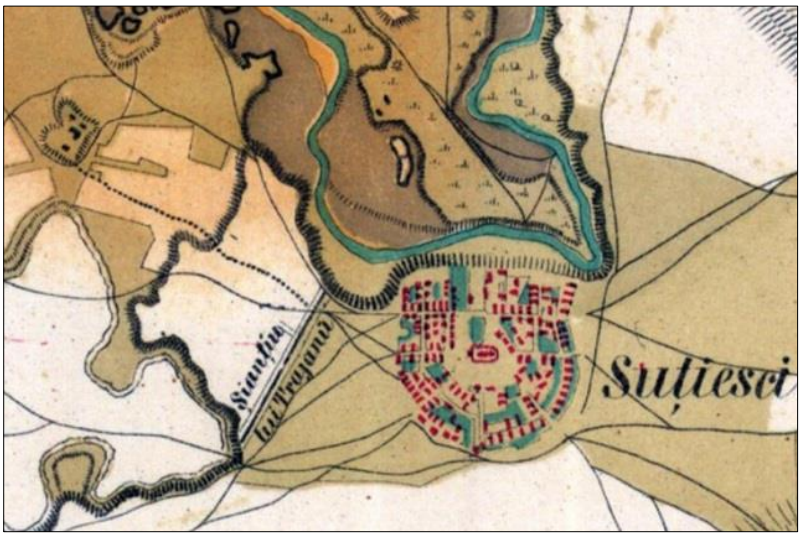
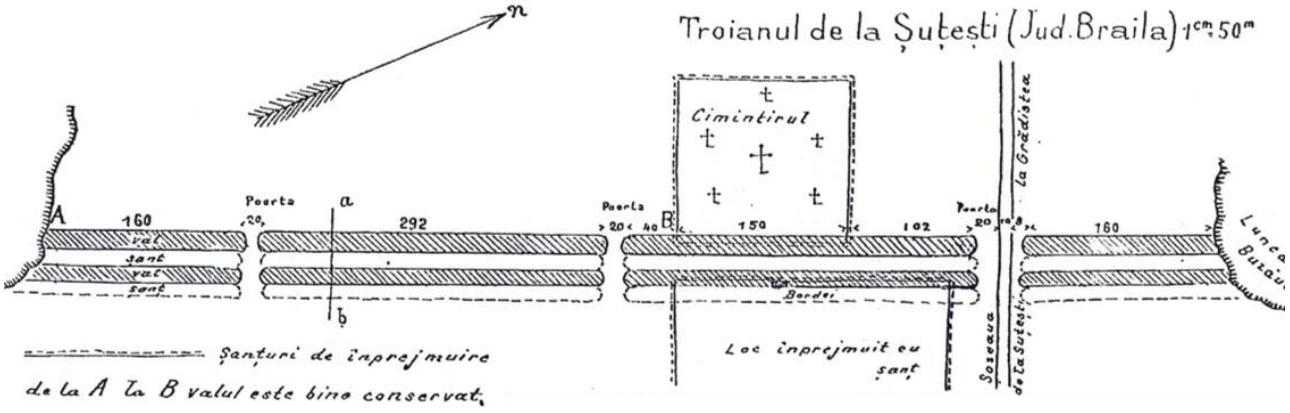


Figure 1. Old maps and plans depicting the monument

Fig. 1a - Charta of Southern Romania (1864)

Fig. 1b - Military Plan (1950s) overlaid on the SRTM model

Fig. 1c
Polonic's sketch
(late 19th century)



The excavations to date are those undertaken in 2006-2007 and 2012-2013 by a team of archaeologists from Brăila Museum: Valeriu Sîrbu, Costin Croitoru, Stănică Pandrea, Ionel Cândea. They cut the earth embankment in two places, revealing a complex and consistent inner structure of the *vallum*, proposing a building in two phases, identifying also the first ditch and various other secondary interventions, without however succeeding in finding any relevant archaeological artefact to establish by classical methods the

defensive project's chronology[5]. That is why some interdisciplinary prospections were carried out in late 2013, first with the purpose of illuminating any indirect data to help placing the dyke in a larger strategic and geomorphological logic and, secondly, to test the information offered by Polonic that a second ditch existed also, allegedly at 16 m towards east from the first[6].

Figure 2. Trench 2 (S.2) and cassette A, 2013

Legend:
1a – soil levelling, without removing all the humus; 1b – pits (60-100 cm diam., 40-60 cm deep) with rounded bottoms were dug in the local humus, along an alignment, spaced 20-50 cm; 1c – the palisade fixed in the pits was supported on the interior by a strongly compacted loess rampart (80 cm thick); the K-meter value of it was identical with the soil in which the first ditch was excavated, indicating that the first ditch belongs to the first phase of use; 1d – the upper part of the loess rampart was strengthen with large wooden beams, fixed inside it; radiocarbon dated; 1e – the embankment was raised by adding at least 3 more soil layers; 2 – pits for removing the first palisade; 3 - a row of deep large pits (1m diam.) were dug from the upper levels of the fortification, in its peak; penetrating at different depths (see fig 4 up); located at approx. 2 m interval. Interventions pits for extracting the last palisade are also visible on the profiles; it is therefore not entirely clear if the layers labelled here as 1e truly belong to the first phase; 4 – a large excavation on the inner side of the dyke (C in fig. 3).

[5] Sîrbu, Croitoru, Pandrea 2014; Sîrbu et al 2008; 2009; Cândea, Croitoru, Vernescu 2013; Cândea, Croitoru, Sîrbu 2014;

[6] Report in Ștefan M., Ștefan D. 2014

Using the available historical cartographic sources[7] to extract data about former wetlands and mounds, and also the general aerial[8] and satellite imagery to trace past riverbed movements in the Buzău River flow, the authors argued[9] for the use of Grădiștea-Șuțești as a major passing point, especially due to the relief configuration that makes the inferior valleys of Buzău, Râmnicul Sărat and Siret rivers to fall into the lowest part of the Romanian Plane, along the tectonic fault Vrancea-Galați, forming a 25 km radius area, which before modern river regulations, was inaccessible to systematic crossing. In fact, the European Flood Directive still places the entire space in the red flood zone, even after all the recent hydrological work[10]. The use of the passing point (ford) from Șuțești-Grădiștea as the closest to this huge wetland, during prehistory, is attested by the finds from *Movila Crestată* – an important late La Tène site[11], located at less than 2 km north-east from the dyke, the Middle Bronze Age graves belonging to a steppe culture with imports from the Inner Carpathian Curvature Monteoru culture[12], found at 3 km north from the dyke, inside the same ford, and by the finds belonging to Basarabi complex from Popina Șuțești, at 1.7 km towards north[13].

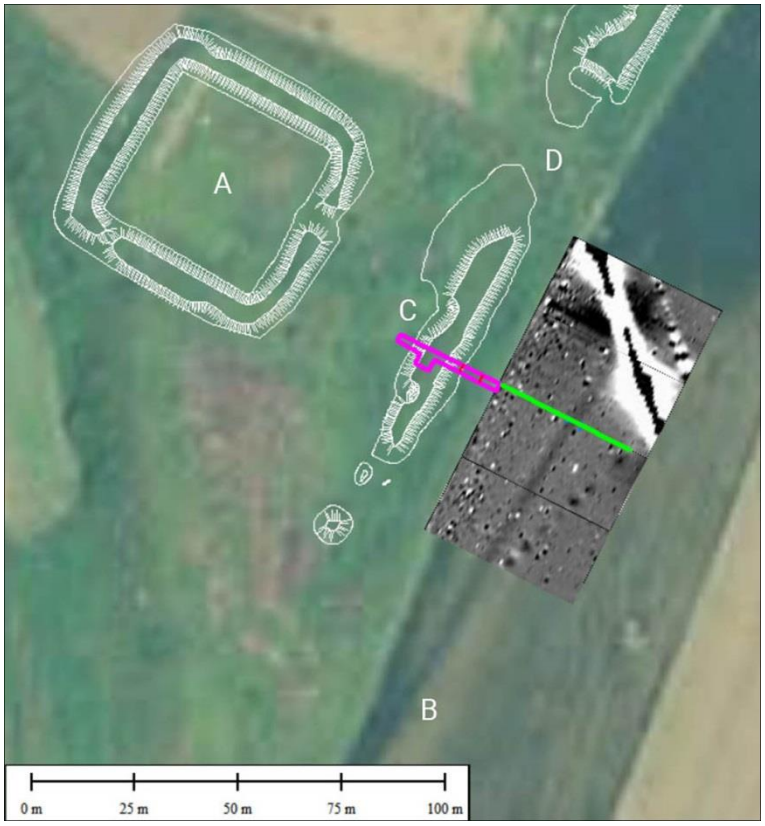


Figure 3
Legend:

- *with pink Trench 2 (2012-2013);*
- *with green ERT profile 1;*
- *A – earth enclosure built post 1950s;*
- *B – second ditch visible on ANCPI aerial image 2010;*
- *C – secondary intervention in the embankment visible on Trench 2 profiles too;*
- *D – opening in the embankment corresponding to the metallic pipe*

The second ditch was identified using geophysical prospections outside Trench 1, towards southeast (Fig. 3). It was first delineated using magnetic methods, at 20 m east far from the first ditch, on a parallel alignment

[7] Southern Romania Map (Charta 1864, scale 1/57.000), Austrian Map (1/200.000) beginning of the 20th century, Military Shooting plans (1/20.000) 1950's, Romanian Maps (1/25.000) 1970's.

[8] Orthophotos 2005-2010 available on http://geoportal.ancpi.ro/.

[9] Ștefan M., Ștefan D. 2014, fig. 10.

[10] 'Once in a century flood zones' – Ștefan M., Ștefan D. 2014, fig. 11; *http://maps.eea.europa.eu/*

[11] Sîrbu 1996.

[12] Harțuche, Anastasiu, Sîrbu, 1983.

[13] Pandrea et al 2009.

with the dyke, and then it was intersected by a profile of electrical tomography resistivity (ERT profile 1), which revealed its structure as a conductive anomaly measuring 4 m width and 1 m in depth, V-shaped. The geophysical investigations revealed also that a major irrigation network based on metallic tubes was installed in the nearby of the dyke. The alignment of the pipes corresponds with one of the openings visible in the dyke. The destruction caused by the agricultural works are a sure thing, however three of the openings (one of which seems to be the same with the one crossed by the pipe) existed already at the end of the 19th century, being then interpreted by Polonic as the 'gates' of the fortification.

A second ERT profile was made at 170 m far from the first trench (fig. 4). Its result are consistent with the archaeological data from Trench 2 revealing that the dyke has a similar structure and a multiple phase building on its entire length.

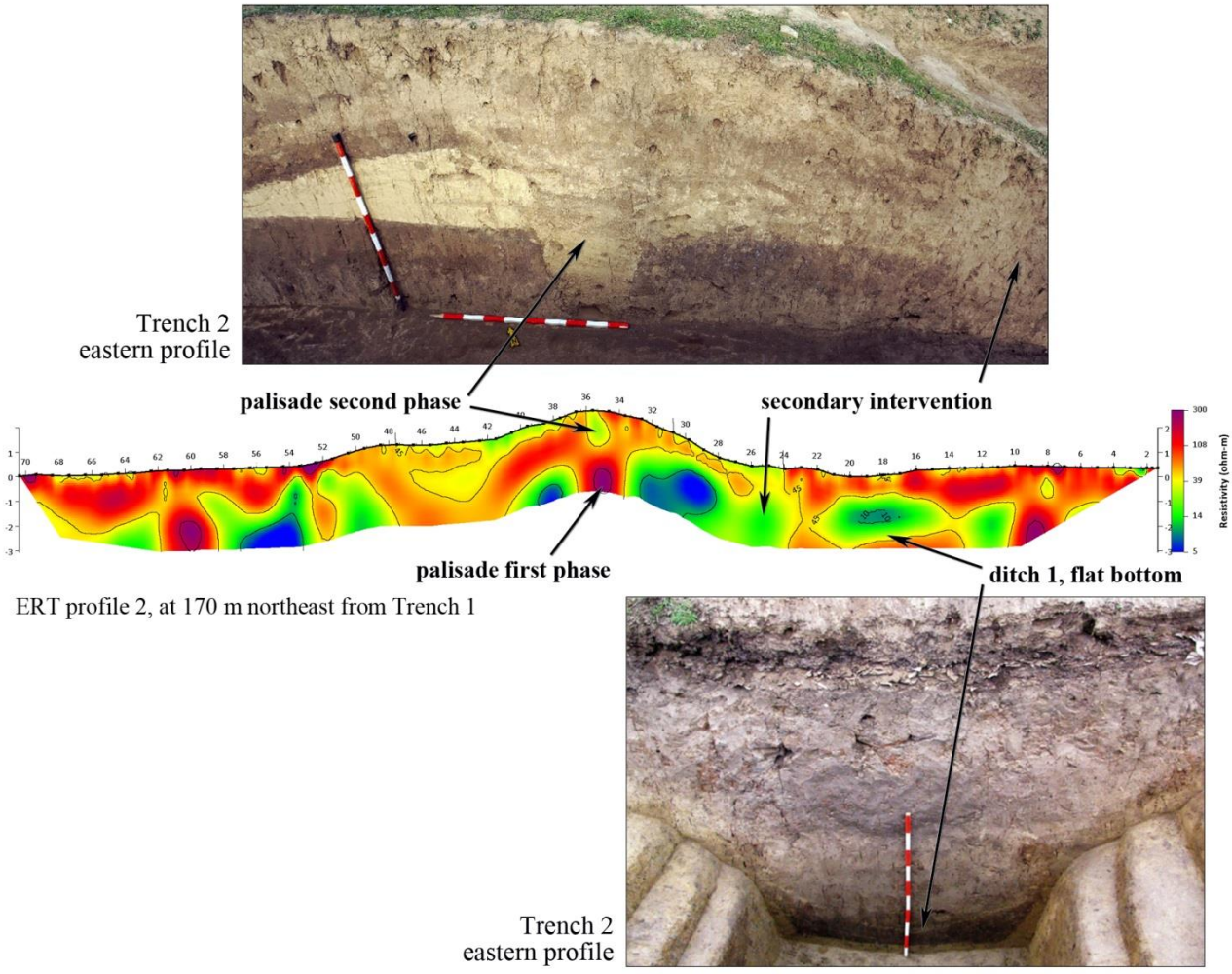


Figure 4. Comparison between the archaeological profile and ERT profile.

During 2015, the wooden beams in Trench 2 were radiocarbon dated in two different laboratories. The samples sent to IFIN were dated with the help of Corina Anca Simion and Tiberiu Sava, while the sample sent to Laboratorium Datowań Bezwzględnych was dated with the help of Tomasz Bochnak and the University of Rzeszów. The question is to what building moment should we assign this late chronology? Until a more detailed publication of the stratigraphy will become available, we incline now to consider that the wooden beams belonged to the initial construction phase, as they were found inside the yellow clay rampart which was enough reliable related to the first ditch excavation also (by means of K-meter

measurements). On the other hand, the building similarities in the two successive palisades seem to suggest a rather close chronological frame for both.

Table 1. Radiocarbon samples dated.

Sample no	Laboratory	95.4% probability
1	IFIN	776 (95.4%) 970 calAD
2	IFIN	771 (84.6%) 902 calAD; 920 (10.8%) 962 calAD
3	LDB	776 (4.3%) 793 caAD 801 (91.1%) 989 calAD

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Earthen Walls from Banat, Romania.
A Synchronic and Diachronic Analysis within the Paleo-landscape

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Universitatea de Vest din Timișoara

The issue of earthworks crossing the Romanian Banat area from south to north is one of the most complex and unclear aspects of Romanian historical research. Earth walls occur on most land survey maps of Romanian Banat starting with the 18th century and they represent major milestones in the plain Banat's mapping.

Tens of studies have tackled the route, function, dating and cultural origin of earth walls; however, these important and spectacular constructions are still obscure. Without systematic and punctual archaeological digging, the questions still persisting are who built them, when and how they were built, and what was their function.

In the last years, a team of archaeologists from the West University of Timisoara, Romania, have conducted several non-invasive inter-disciplinary archaeological researches on three earth walls in Banat: they have analysed satellite images and ortho-photogrammes; they have travelled to establish the exact route of earth walls and to analyse specific morphographic and morphometric elements; they have correlated wall route and geo-morphologic and natural landscape elements; they have surveyed and mapped earth walls; they have conducted geophysical prospecting, etc. Such investigations have been carried out at Hodoni, Biled, Opatita, Sag, Timisoara, Chisoda, Dumbravita, Giarmata, Murani, Pischia, Fibis, Alios, Zabrani, Chesint, Neudorf, Charlottenburg, Remetea Mica, Bencecu de Jos, Bencecu de Sus, Ianova, Remetea Mare, Mosnita Veche, Bucovat, Sacosu Turcesc, Birda, Berecuta, Baile Calacea, Hodoni, Satchinez, Varias, etc.

In this brief report, we present a few aspects starting with historical ones.

Luigi Ferdinando de Marsigli, in his *Description du Danube depuis la montagne de Kalemberg en Autriche jusqu'au confluent de la riviere de Iantra dans la Bulgarie [...]*, La Haye, 1744, outlined the walls crossing this area at the time, considering them "via iarca fossa" roads. The maps refers, most probably, to the earth wall no. 2, the best preserved and visible in the field (the sketch was made in 1741).

J.J. Ehrler, in his *Das Banat von Ursprung bis jetzt* (1774), a fresco of the Banat inhabitants' lives at the beginning of the Habsburg rule, described the so-called "Banat curiosities" among which earth walls ("Roman ditches"). He also briefly described the route of walls no. 2 and 3, from the Romans against enemy invasions.

Fr. Griselini, in his *Versuch einer politischen und natürlichen Geschichte des temeswarer Banats in Briefen an Standespersonen und Gelehrte* (Wien, 1780), said that Roman walls were Avar walls. He made one of the best and most detailed descriptions of the walls:

- Wall no. 1, visible at the time along a sinuous line through Barateaz and Carani up to Bobda, close to the left bank of the River Bega;
- Wall no. 2, starting from the Mures River, close to Zabrani, passing close to Finis and Cerneteaz, and crossing Mehala and Iosefin districts of Timisoara, the River Timis close to Padureni and the plain at Jebel, up to Denta, Rovinita Mica and Moravita;
- Wall no 3, starting from the Mures River close to Neudorf, passing by Chesint, the Bega River close to Remetea Mare and the Timis River between Urseni and Dragsina, to Birda and Varset and up to Kajtasovo and Palanca Banateana.

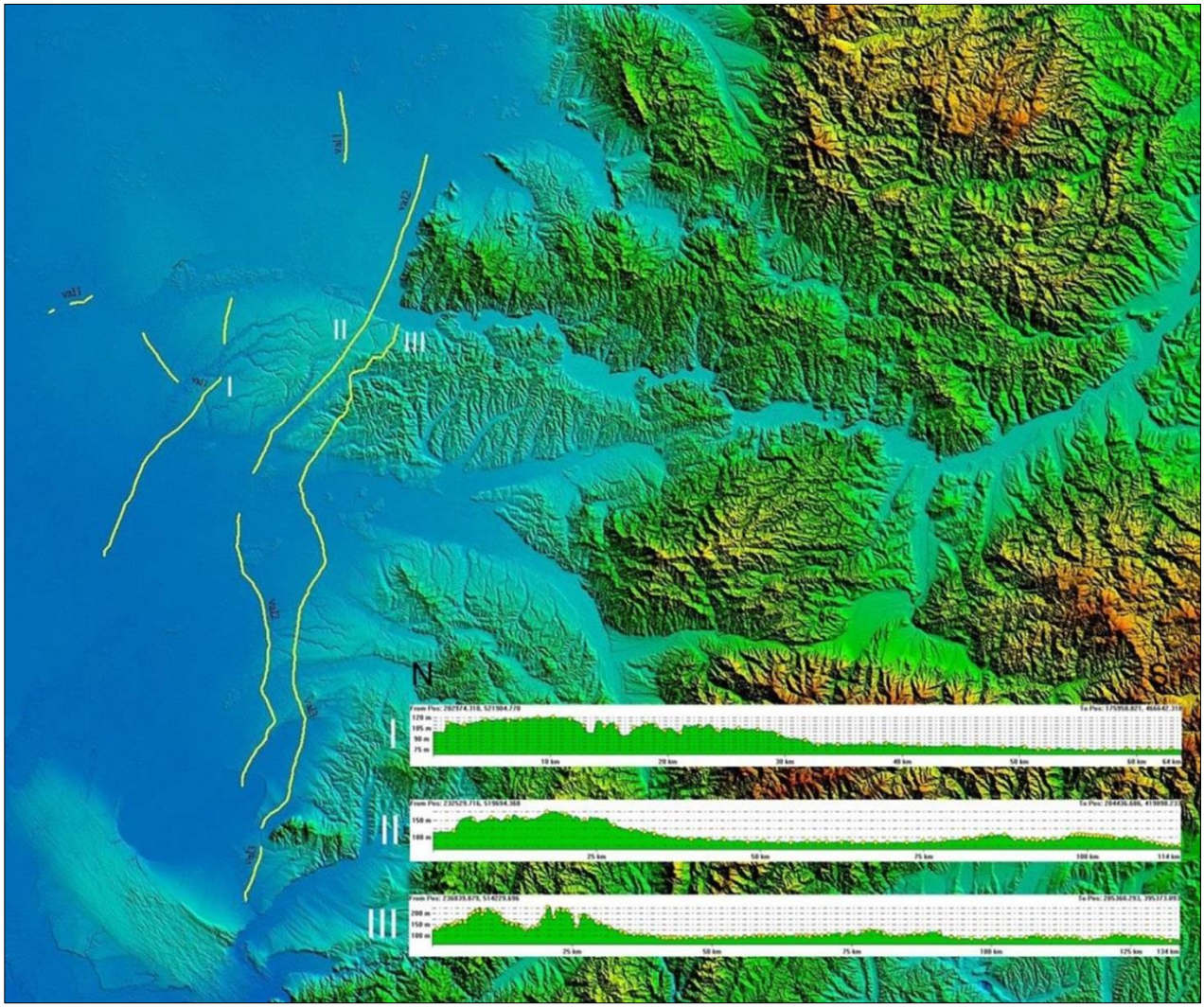

Figure 1. Map of the three Banat linear walls

The confusion between linear earth fortifications ("Roman walls") and circular earth fortifications ("rings" or "ditches") in Banat is general at almost all historians in the 18th and 19th centuries because both types can be found in the area. Circular fortifications at Cornesti "Iarcuri" (Timis County), Santana (Arad County), Variasu Mare (Arad County), Sanicolau Mare "Seliste" (Timis County), Beba Veche "In Sant" (Timis County), Firiteaz "Tarvenca" (Timis County), Topolovatu Mare "Joamba" (Timis County) – the largest and most visible ones (all dating from pre-history, in general, from the end of the Bronze Age – beginning of the Hallstatt) – are most probably the *Avars*, *rings* and *circles* mentioned by Griselini and analysed together with the three systems of linear fortifications and considered *Hun-Avar lines*.

Gábor Téglás, in his *Az alföldi sáncok moros-dunaközi csoportjának helyrajza és technikai szerkezete*, *MTAÉTK*, 20, 2, 1904, makes a detailed description of these fortifications attempting an analysis of the construction technique and presenting a virtual reconstitution of the characteristic profile of some wall cross-sections in several locations considered important maybe because, at the time, there was still a visible structure in the field (Wall no. 1 at Sanpetru German and Varias, Wall no. 2 at Alios and Kuvin, and Wall no. 3 at Lipova "Dilma", Charlottenburg and west from Buzias).

Tens of studies have tackled the route, function, dating and cultural origin of earth walls; however, these important and spectacular constructions are still obscure. According to the data supplied by the researchers of the Banat's Museum, the walls were mapped in the 1970s and 1980s by Constantin Raileanu. This seems to have been undiscovered though, in an article published in 1985, the author refers to his enterprise. Thus, the text says that "they [the walls, author's note] have been studied during the last two years [1983-1985, author's note] along almost all their trajectory (particularly along the one crossing Pischia and Timisoara [i.e. Walls no. 2, author's note]) and preliminary results show, without any doubt, that they are *pre-Roman* [author's underlining], built during several phases over several centuries overlapping late Hallstatt and Classical Dacia. The antique wall in Timisoara […] can be dated, in its last building phase, 1st to 4th centuries A.D. due to the Roman technique that redesigned and prolonged it north from the Mures River and up to Aquincum (Buda)".

Figure 2. Archaeological digging at Dumbravita (ditch of the Wall no. 2).

So far, the walls in the Banat area have been investigated, according to our data, in the points below:

- **Wall no. 1**, the most western, seems to have been incidentally studied in the context of systematic archaeological investigations at Hodoni "Pusta". The trajectory of the wall can be easily seen on satellite images and ortho-photoplans crossing the settlement from SSW to SNN.
- **Wall no. 2**, the median one, the only one investigated through punctual archaeological research at Covasant (Arad County, north from the Mures River), Pischia, Dumbravita and Giarmata.
- **Wall no. 3**, the eastern and best preserved, has not been investigated through systematic archaeological research. They published a stratigraphic observation on a natural profile at Chesint "Valea Tiganilor", in a sector where this temporary rivulet crosses the Wall no. 3.

Figure 3. Geometry of the ditch at Giarmata (Wall no.2)

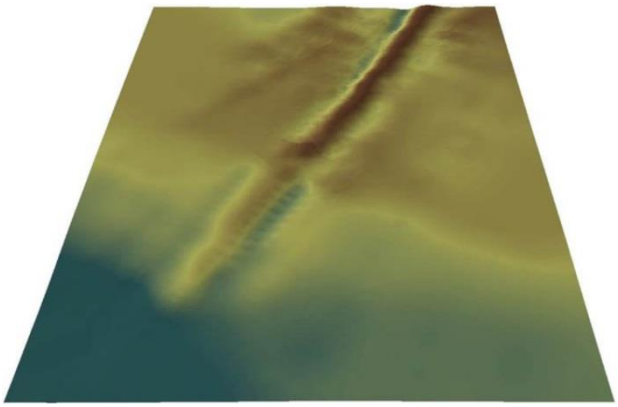

Figure 4. Perspective image of the topographic survey at Alios (Wall no. 2).

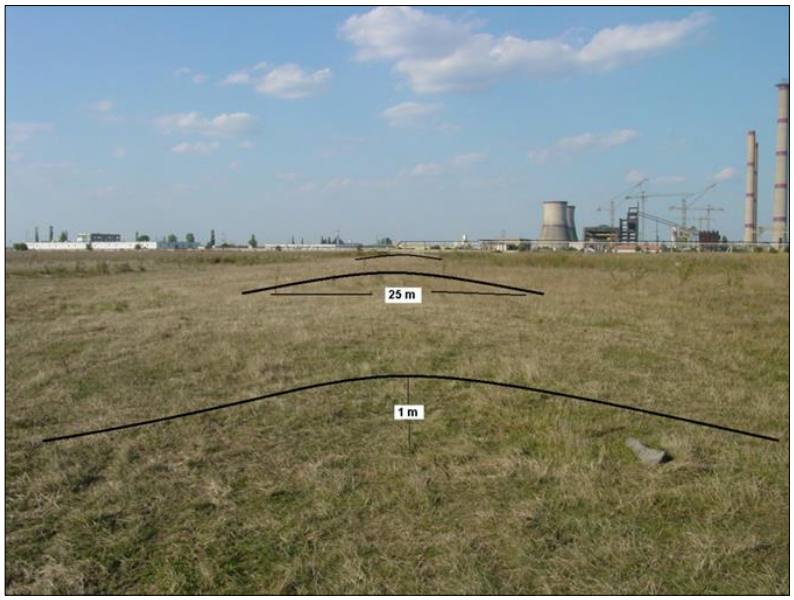

Figure 5. Perspective image of the topographic survey at Chisoda (Wall no. 3).

Conclusions

Including in the Timis List of Historical Monuments just one short sector of the median wall of the cadastral border of Chisoda is, certainly, a flaw of this list. All three walls are unitary monuments that need to be protected, studied and integrated in the national cultural-scientific and tourist heritage.

There are very well preserved sectors of these walls only in the Timis County: along the trajectory of Wall no. 1 at Biled, Hodoni, Satchinez and Varias; along the Wall no. 2 at Moravita, Rovinita Mica, Opatita, Jebel, Padureni, Sag, Chisoda, Giarmata, Pischia, Fibis, Masloc, Alios; along the Wall no. 3 at Berecuta, Birda, Liebling, Sacosu Turcesc, Bucovat, Mosnita Noua, Remetea Mare, Ianova, Bencecu de Sus, Bencecu de Jos, Remetea Mica (sectors measuring up to 3.5 m tall), Charlottenburg and Alios.

Their systematic study through punctual investigations where they have been well preserved (where they have not been destroyed yet by agricultural works) are a must for Banat archaeology because (though we do not expect spectacular archaeological findings) they could supply important information regarding the building technique and also the type of relationship with surrounding settlements that might allow a more accurate dating.

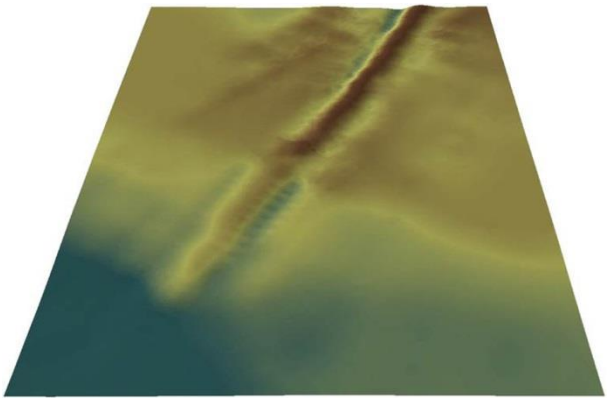

Figure 6. Perspective image of the topographic survey at Opatita (Wall no. 2).

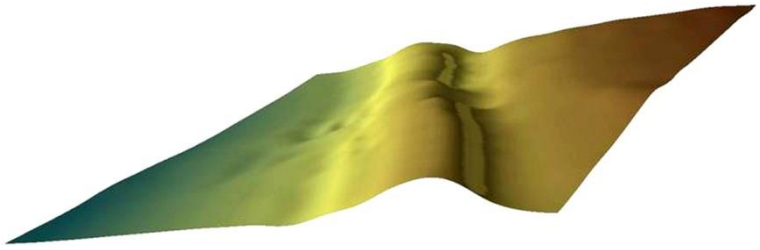

Figure 7. Perspective image of the topographic survey at Chesint (Wall no. 3).

Earth Wall no. 3 investigated at Remetea Mare, Timis County, Romania. From Rescue Excavation to Geomorphological Context Analysis

Andrei Stavilă
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Preventive archaeological research of the "Roman Wall no. 3" was possible due to the construction of a market house (Market House no. 9) of the Olympian Industrial Park DN6/E70 at Remetea Mare, Timis County, Romania, when they identified three archaeological complexes: the ditch of the Wall no. 3 and two pits dating in II-IV A.D century

The studied structure is, in fact, part of an ensemble representing the most eastern linear fortification crossing the entire Banat area, generically identified as "Roman Wall no. 3". This structure is visible on Romanian territory between Jamu Mare (Timis County) and Neudorf (Arad County) and it covers 108.6 km. The archaeological point studied at Remetea Mare is located 1.8 km NNW from the Orthodox Church in Remetea Mare, 2.4 km South from the track of the "Traian Vuia" International Airport and 0.38 km South from the Timisoara – Lugoj railway. Administratively, it is part of Remetea Mare. Geographically, the site belongs to the low Timiş River alluvial-proluvial plain, more exactly to the Timisoara Plain. The archaeological research area is 96.3 m high, ascending towards north up to 100 m altitude at NW of Remetea Mare and descending towards south up to 94.2-5.6 m high at Colistea. Analysing the altitudes described, we can see that slope declivity is rather small. Regressive analysis of historical maps allowed the reconstruction of the landscape at different chronological stages: they concern, in general, the flow of the River Bega and its meander network.

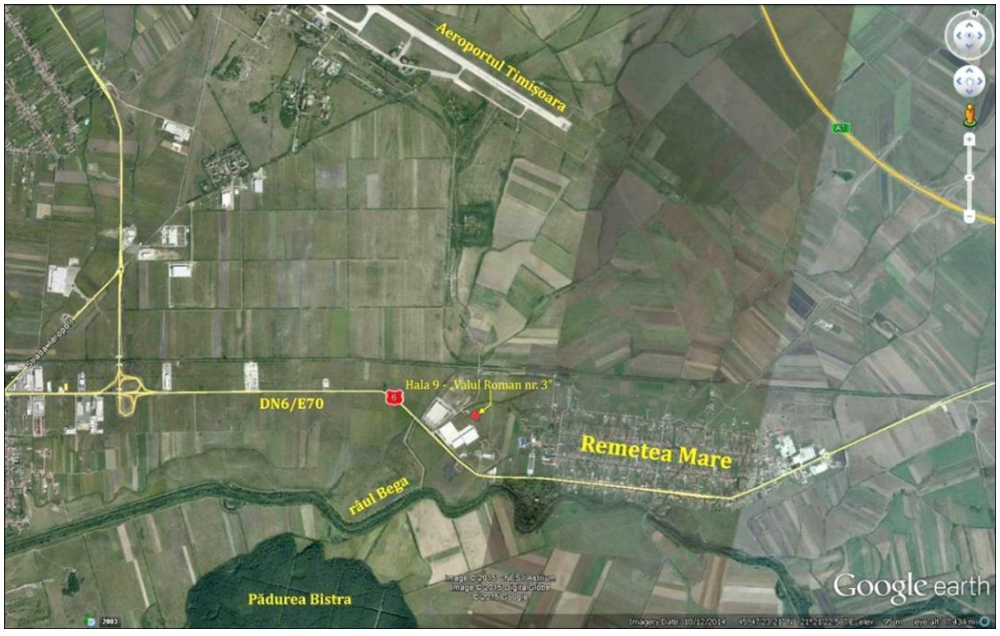


Figure 1. Setting plan.

Archaeological research consisted, initially, in tracing two sections allowing the caption of the general stratigraphy of the area as well as of the linear fortification structure stratigraphy. Later, the entire area affected by works was pickled and after the work started, they also researched the implementing spots of the market house pillars.

Figure 2. Aerial view of the area of archaeological sections.

In the researched area, the wall was in a precarious state of conservation which prevented its caption in elevation (only the ditch in front of it was identified). The goal of the research was to caption and search the linear fortification structure as well as the possible complexes appeared after the mechanised pickling. Research concerned only three minor archaeological complexes.

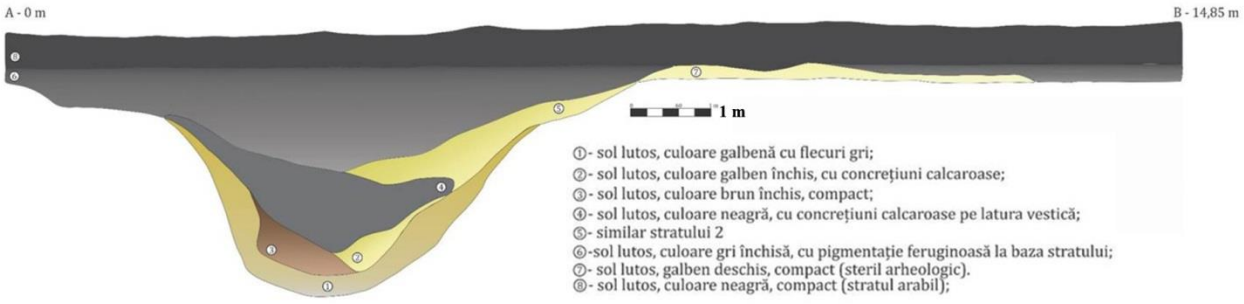


Figure 3. Ditch section.

Literature dealt so far with the so-called "Roman" wall in general terms, mentioning its trajectory and the fact that there has been done no archaeological digging.

Figure 4. Topographic profile of the sector between Remetea Mare and Mures.

As for its morphology, the defence ditch is characterised by an opening of 8 to10 m and 2.7 m deep compared to the ancient stepping level (or its upper filling limit). The profile of the ditch documented here, compared to that of the median wall, is visibly different. If the western side of the wall is abrupt, the eastern slope is milder due to an area starting from the opening of the ditch 2 m long and 0.2-0.4 m deep. Depth increases with about 1.6 m. Stratigraphy points to a single use of the structure with no repair: after abandonment, the ditch clogged naturally. They were identified six layers of filling, an arable stratum and a level that most probably belongs to the old wall structure.

If stratigraphic analysis allows the reconstitution of the way the ditch clogged, wall structure data are least. Its presence can be documented up to the seventh stratum (Figure 3), which preserves lime concretions that differentiate it from the sterile soil of the area (yellow, homogeneous clay with compact structure). Pigmentation with limey concretions was also present in the ditch filling, on its western slope, mainly in strata 3 and 5, which, in our opinion, would be part of the former wall structure fallen in the ditch because of natural causes. The filling levels point to at least two major stages of wall destruction: between the two levels, there is a rather consistent level 1 m thick (layer 4) slipped into the ditch from the east. The ditch was naturally covered with the sixth layers, measuring at places even 1.2 m.

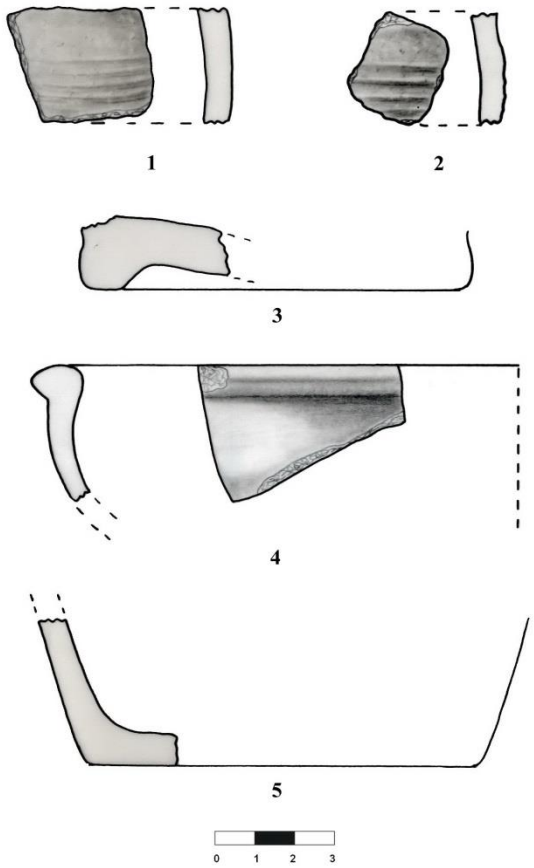


Figure 5. Potsherds from Remetea Mare, Roman embankment no. 3.
1-2. Middle Ages pottery collected from the upper filling of the ditch;
3. Ring bottom from Roman Age, from the Trench 2;
4. Fragment of Roman bowl, Trench 1;
5. Pot's bottom from Trench 1, Roman Age fabrication.

Conclusions

Neither context nor saved archaeological materials supply enough indices to clearly date the researched linear structure. The only typical ceramic fragment recovered from the ditch filling from 0.9 m deep consisted in a straight crack of a bowl thickened towards the exterior and made from a well kneaded paste treated with fine sand in large amounts. The fragment also preserves a decoration incised as successive pushes below the crack; chronologically, this places the fragment in the early Middle Ages. In addition, besides the wall structure, there were also researched two pits whose function could not be established but that supplied a bowl sherd and some fragments of atypical ceramic whose features date them 2nd-4th centuries A.D.

From old roads to new projects.
Stages of archaeological research in road infrastructure projects

Carmen Miu (Bem)
C.N.A.I.R. S.A.

Archaeological research generated by major infrastructure projects has led – over the last five years – to a variety of approaches, depending on the institutions that have benefited from the advantage of concluding contracts with different economic operators specialized in the infrastructure field.

Beginning with the feasibility study, an infrastructure project can be properly managed so that archaeological sites and environmental issues are not considered risk factors that may lead to delays in the construction work.

So, what is the role of the archaeologist in all the stages of the infrastructure project? How does the Archaeological Sites Bureau of C.N.A.I.R. S.A.[1] work? What an "archaeological research organizing institution" should be aware of when concluding a service contract for a road? ...and other aspects arising from "contractual archaeology" will be topics whose presentation will try to provide some clear information about the attributions of the museums in these projects, including awareness of the fact that measures can be proposed to rescue, protect and restore the cultural heritage identified during the infrastructure works.

Depending on the priorities of Romania's Transport Master Plan, approved by the Government (a strategic document setting out the main directions for the development of transport infrastructure in Romania over the next 15 years), the road infrastructure projects register several stages of evolution: feasibility, design and execution. These stages involve, depending on the stage of the project, obtaining and/or confirmation/reconfirmation of approvals, agreements, authorizations from different institutions, private firms, mayoralties etc. These activities, which in the economy of an infrastructure project have a contractual length of time, tend to cause problems that may determine the extension of the initial time period and also to generate additional costs (generally this is due by expropriations, environment and/or archaeology issues).

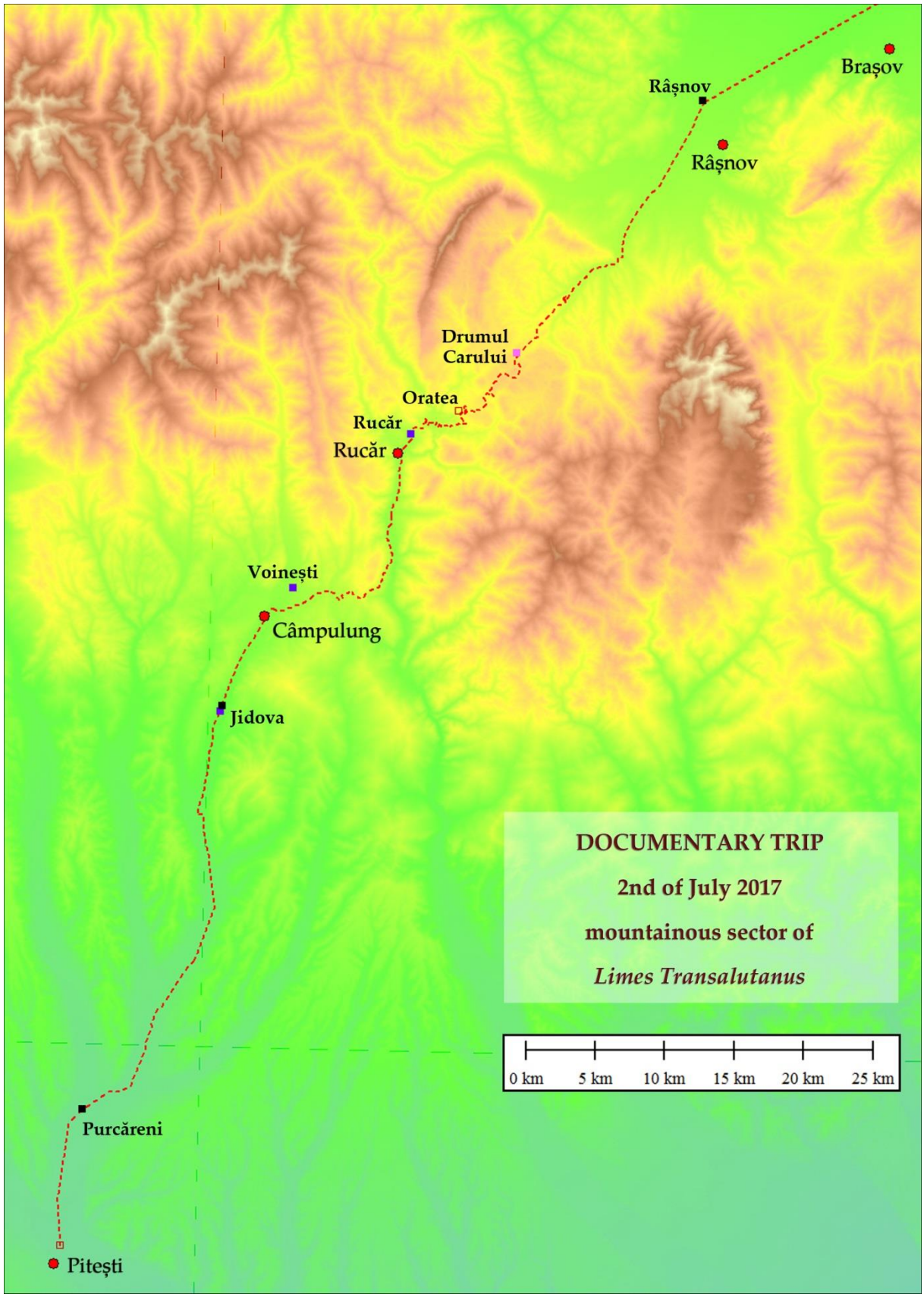
From the archaeological investigations' point of view, the Archaeological Sites Office has taken into account the introduction of the archaeological diagnosis from the feasibility study phase. This approach has led to a series of controversies among both archaeologists and contractors of the company under the requirements issued by C.N.A.I.R. S.A. What triggered this experiment of intrusive archaeological diagnostics was the reason that accomplishing the archaeological research of the location of road objects from the pre-construction stages can lead to proper management of execution work by accurately estimating the time spent on archaeological research and the associated costs. Also, checking the alternative routes in the feasibility studies stage can make changes the routes or the technical solutions and the protection and/or the bypassing the archaeological sites much more easy than in the execution stage.

A good preparation of an infrastructure project under the archaeological research aspect can be achieved through effective communication between C.N.A.I.R. S.A. archaeologists and the institutions contracted to carry out these investigations.

[1] Compania Naţională de Administrare a Infrastructurii Rutiere (National Company for Road Infrastructure Administration).

a b

Checking the archaeological trenches on the Sibiu-Pitesti highway project (a) *and transposition of the records into Google Earth* (b)


Brașov
Râșnov
Râșnov
Drumul Carului
Oratea
Rucăr
Rucăr
Voinești
Câmpulung
Jidova
DOCUMENTARY TRIP
2nd of July 2017
mountainous sector of
Limes Transalutanus
0 km
5 km
10 km
15 km
20 km
25 km
Purcăreni
Pitești

The trip is planned for the last day of the Symposium organized by our research project, which is dedicated to *Limes Transalutanus.* As well known, our efforts have been dedicated, for the last three years, to the plain sector, from Argeş River to the Danube. We have chosen now to go up in the mountains, for several reasons, first of all for the benefit of our guests: the roads are better, the views are great, and the ways back in Transylvania or Bucharest have similar lengths.

Moreover, the Roman frontier climbing mountains over 1200 m in height is a provocative task for the Romanian (and European?) research. The mountain sector of *Limes Transalutanus* is unique in the landscape of the European borders of the Empire, for the third century. Therefore – we are looking forward!

The map and the other pictures documenting the planned trip are not the result of a developed research and they will be not taken as scientific references[1]; they are only landmarks of our intentions.

[1] Nevertheless, their reuse will be properly quoted!

Sketch for the Roman fort from Purcăreni (late 19th century).

Dimensions given in 'passes' (0.75 m).
The differences between the CAD measurements and the labelled lengths are errors in original.

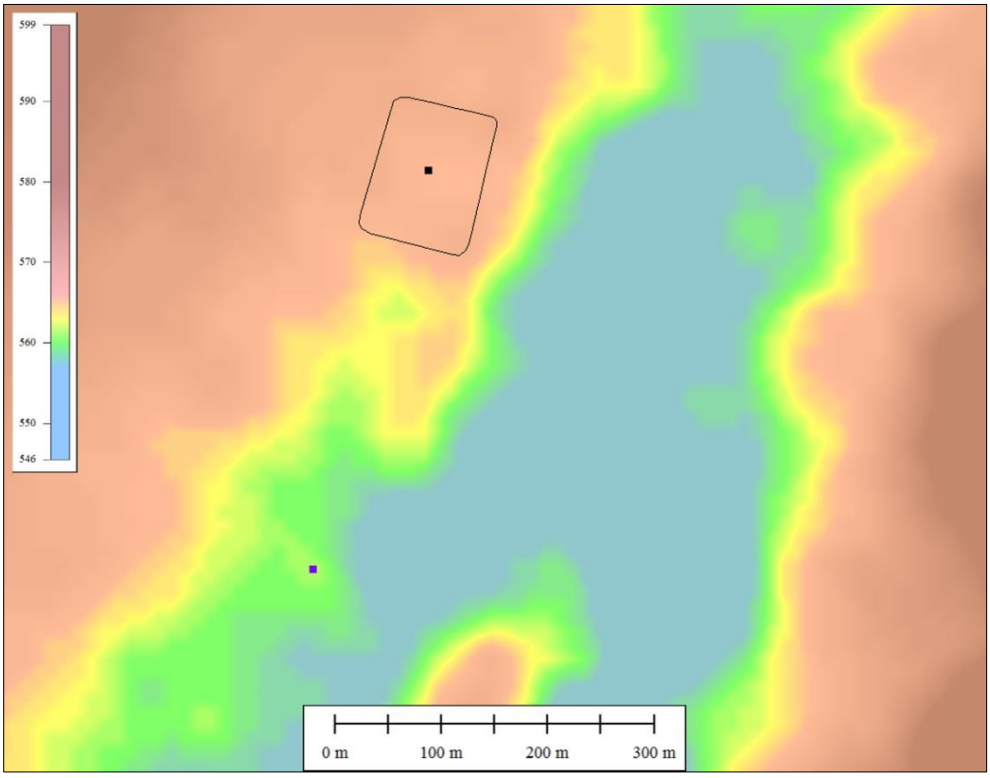
National Route 73. Piteşti-Braşov, the bridge crossing Doamnei ('Lady's') River.

Orthophotos 2012.

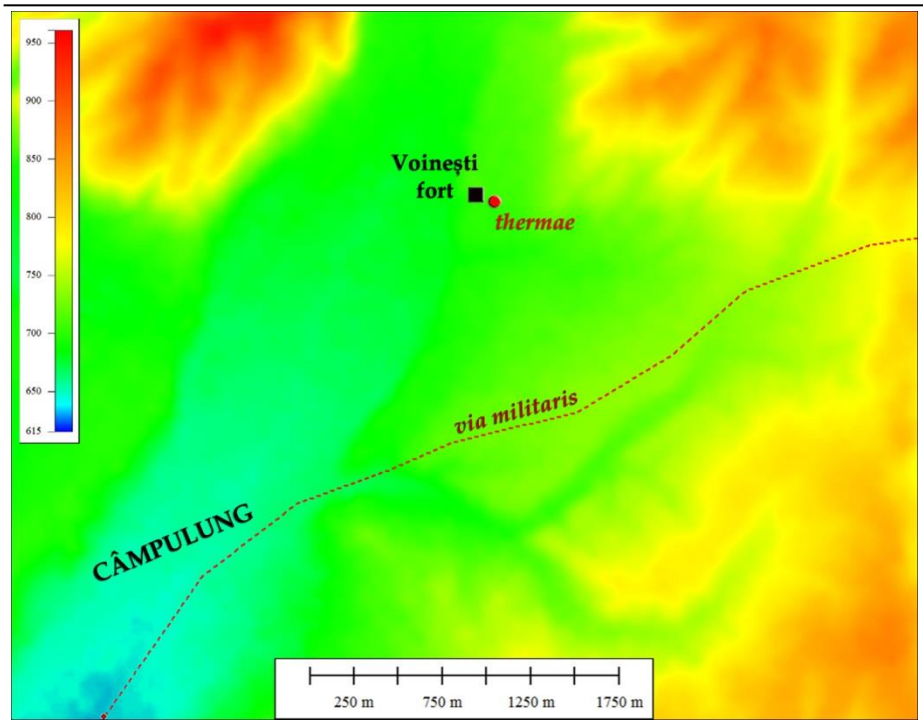
The site is listed in the Historical Monuments List (first class), but it seems compromised..

The fort and the fortlet from Jidova. The fortlet has little research and no plan.

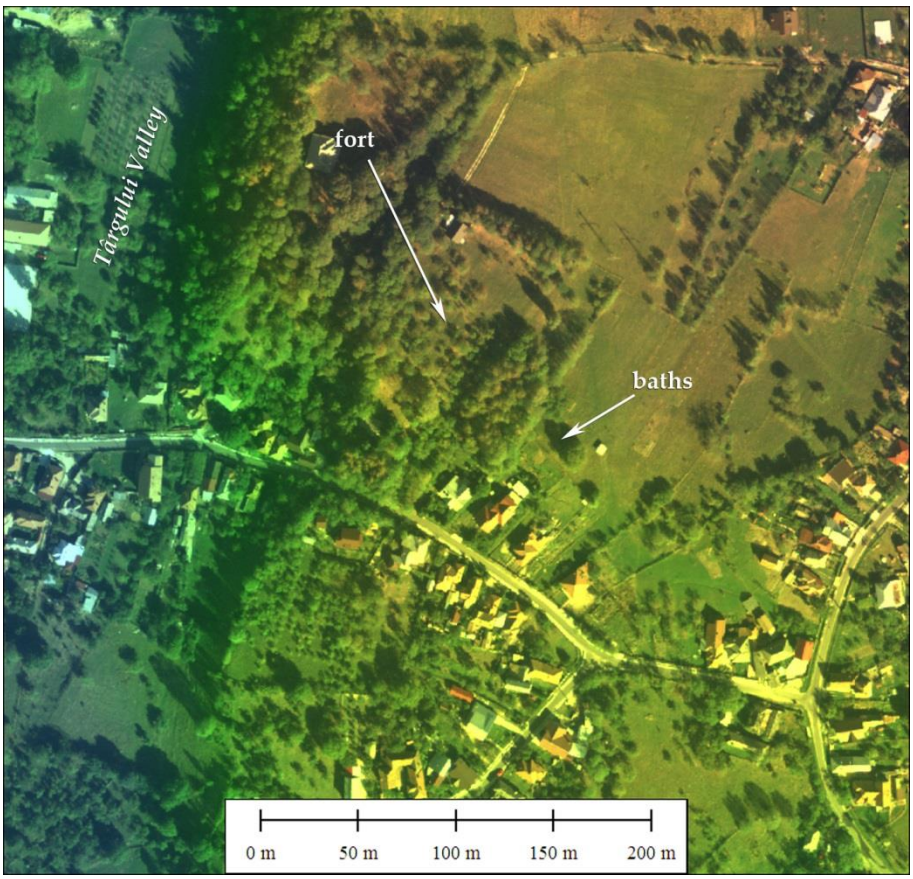
Orthophotos 2012 with suggested relief (from blue to brown).



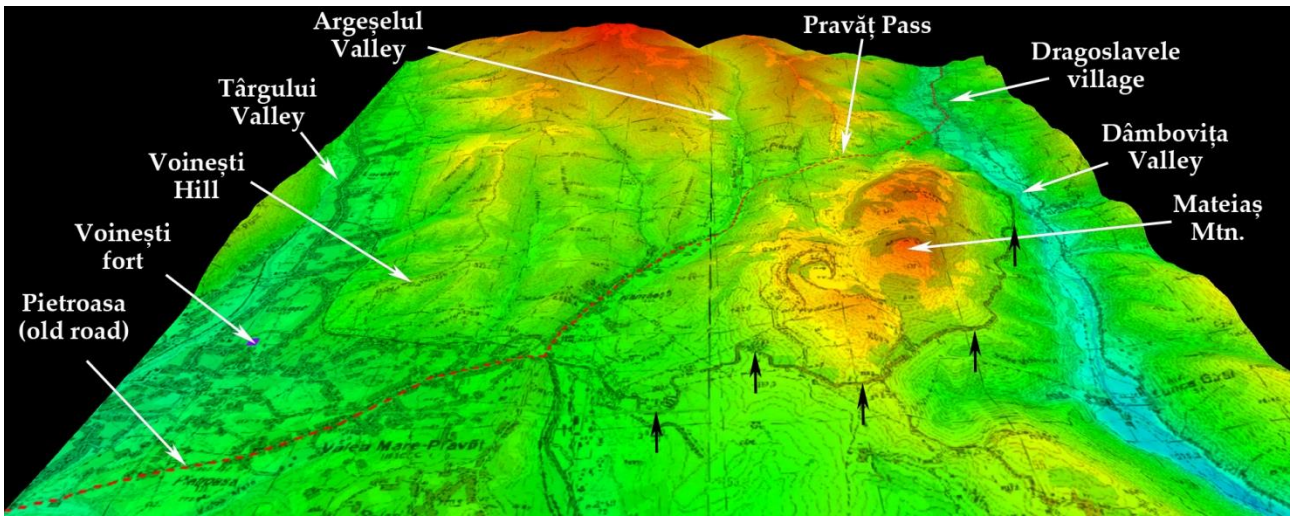
Terrain model (Alos Palsar, res. 12.5 m) at Jidova, suggesting the place where the fortlet should be ("at 300 m south of the main fort", cf. Tocilescu)



The fort and Roman baths from Voineşti, located about one km north of the military route, on the left terrace of Târgului Valley, standing on an almost isolated plateau from the foothill.
Terrain model Alos Palsar.

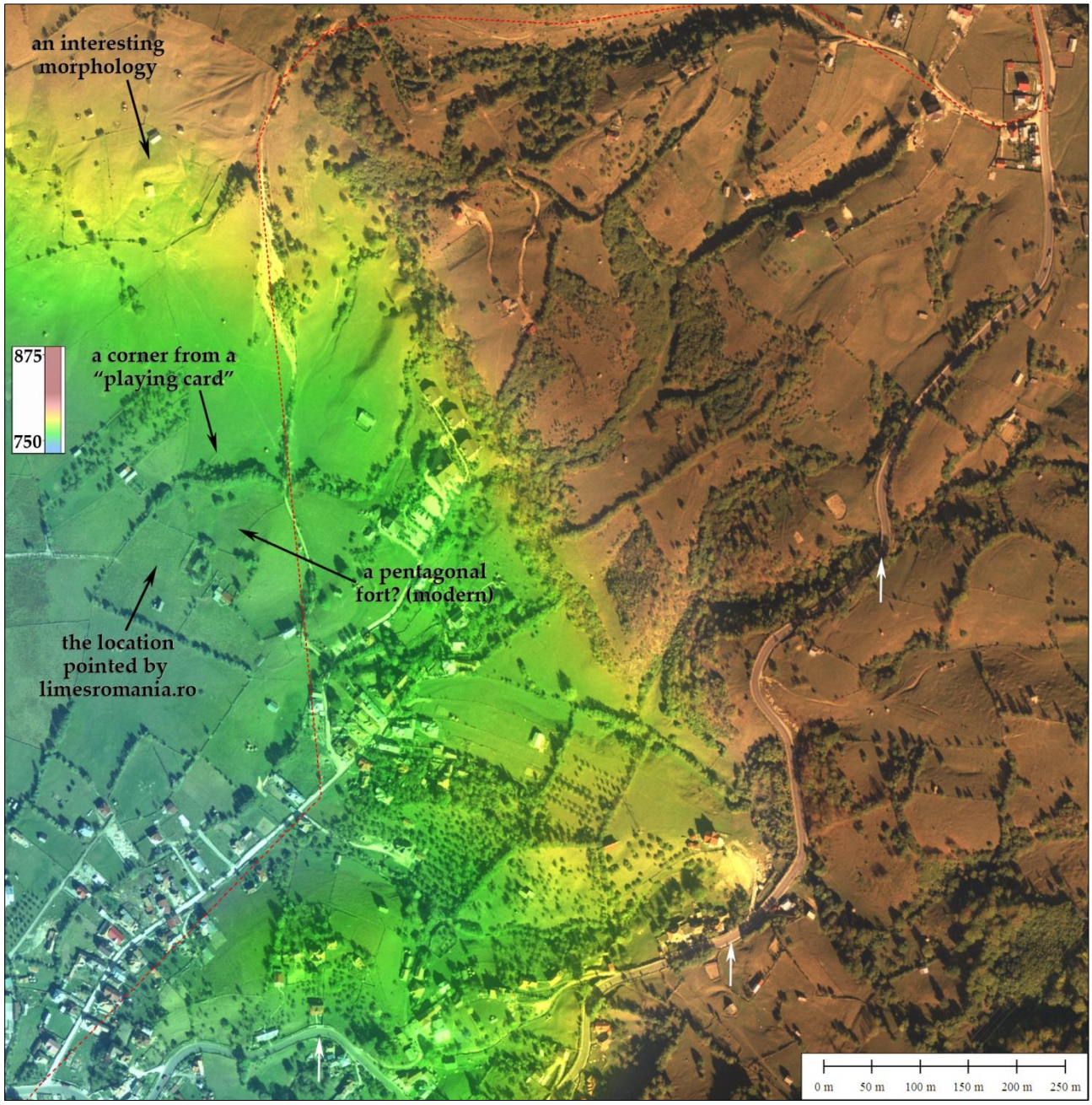


The Roman fort and baths from Voineşti.
Orthophotos 2012 superposing (in transparency) a terrain model (warmer shades for higher ground)
The fort has no topographical survey; what one can see is just the shape of the property, made of a tree curtain aligned to the former ditch.
The baths are under investigation from several years.

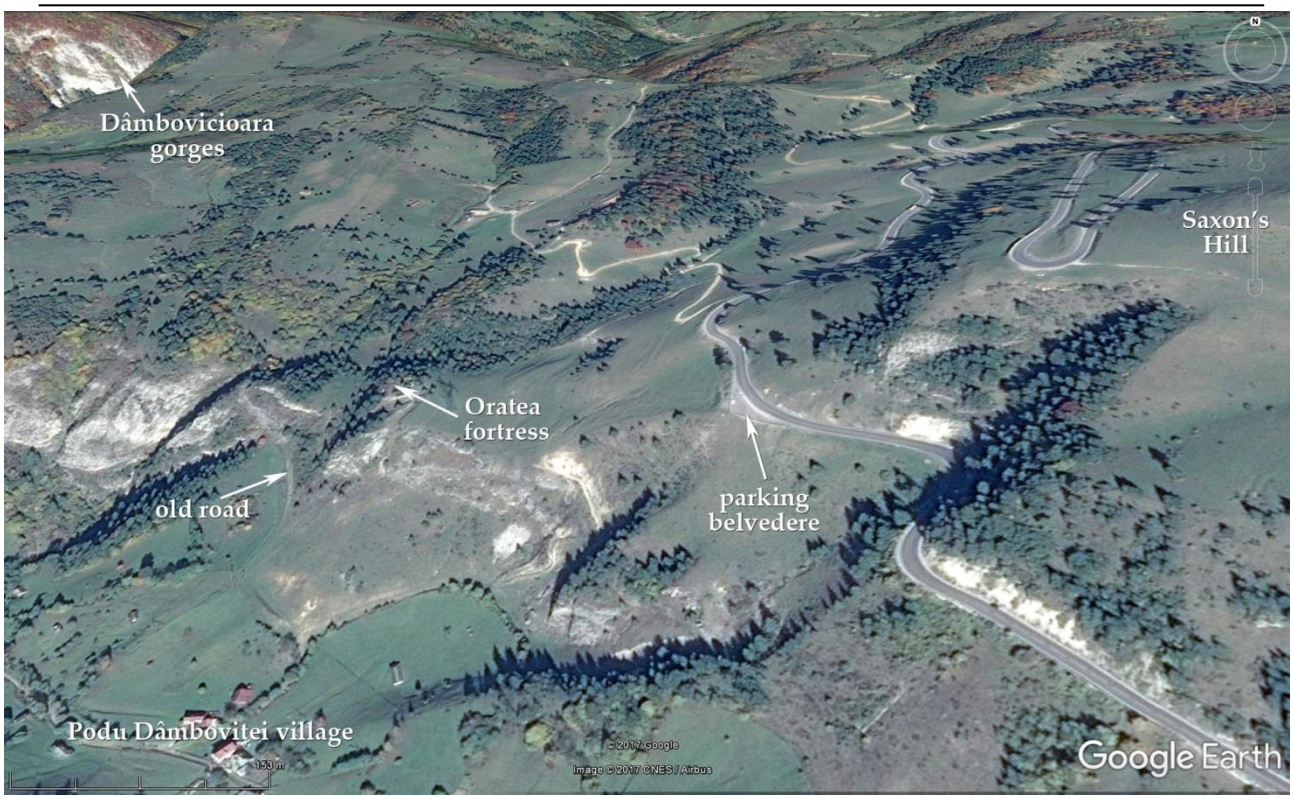


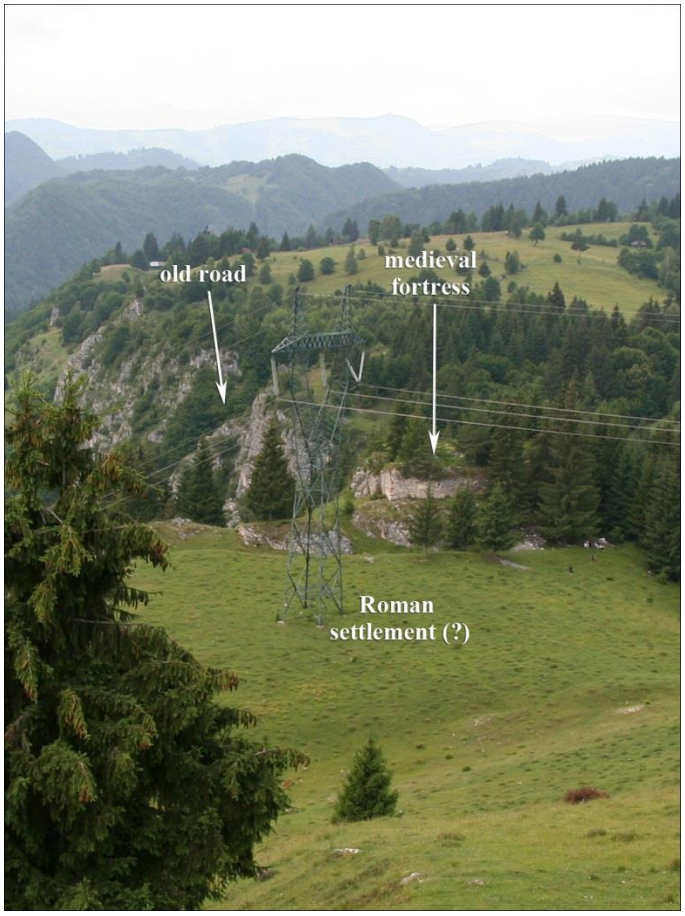
Different solutions bypassing Mateiaș Mountain (1239 m).
The black arrows are showing the modern route (Pitești-Brașov).
The red dashed line – the Roman road (about 25% shorter!).
Military map and Alos Palsar terrain model.

One of the few surviving segments of the Roman road,
in the middle of the village Nămăiești,
on the eastern bank of Argeșelul River (20th June 2015).
There is no digging or geophysical survey at the site.



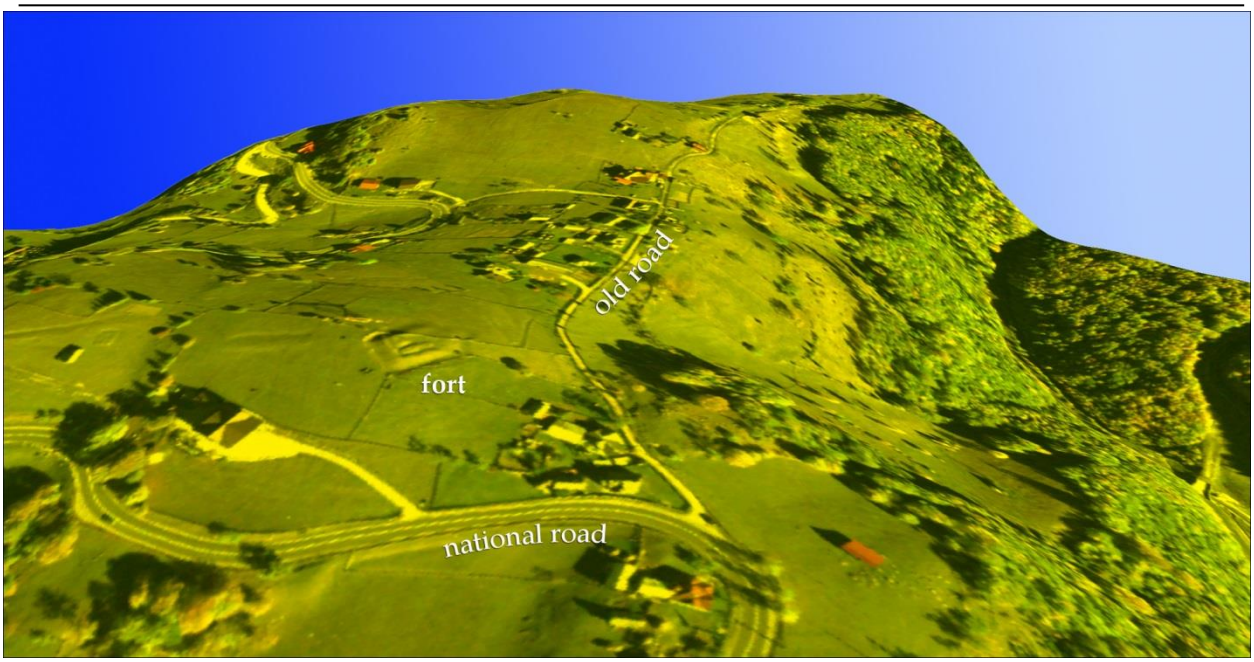
The area of the fortlet Rucăr (early second century).
Orthophotos and terrain model in transparency.
White arrows for the modern route (DN 73, Pitești-Brașov).
Dotted red line for the presumptive Roman road.
Note that Ioana Bogdan Cătăniciu was locating the Roman road west of the fortlet.



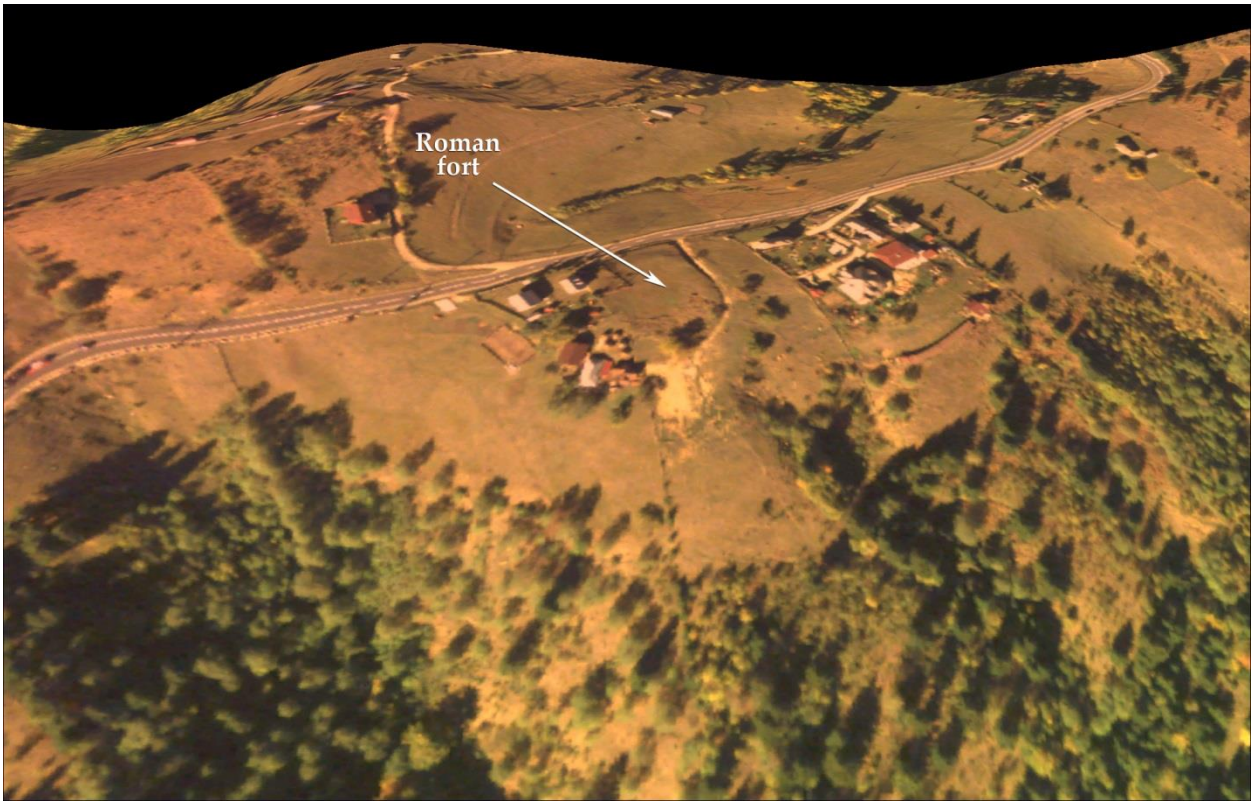


Up:
The location of the mediaeval fortress Oratea (or Orația), at the threshold between the depression Podu Dâmboviței (900 m) heading Saxon's Hill (Dealul Sasului, 1184 m), passing near the cliffs of Oratea (966 m). Older archaeological research of the mediaeval fortress revealed also Roman pottery on the site.
Google Earth image, heading north.

Left: snapshot taken from the National Route, heading Oratea cliffs.



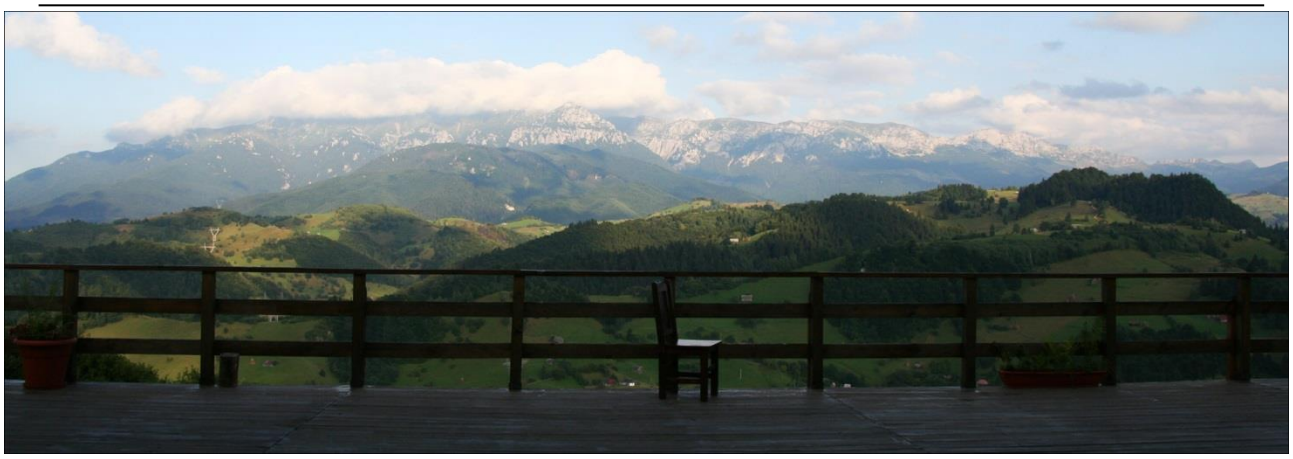
Unidentified fort in Fundata (1204 m altitude).
Virtual reality (military orthophotos and Alos Palsar terrain model)
heading north-northeast. No vertical exaggeration.



Drumul Carului Roman fortlet (SRTM 30 and orthophotos), view heading north.

The town Răşnov (*Rosenau*) and the location of the main historical monuments from around.
Orthophotos and elements suggesting the relief.

The Roman fort *Cumidava*, near Râşnov. The military vicus is located between the fort and rivulet Bârsa, eastward.



Up:
Bucegi Mountains panorama
from the boarding house
Cetatea Carului
(*Wagon's Hillfort*)

Left: the hillfort *Rosenau* seen from the Roman fort.

Middle Age fortress Rosenau (Rose's Fort, Rom. Râşnov), inner snapshot.


LIMES TRANSALUTANUS
Research Project